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January 10, 1884.

THE
JOURNAL OF HORTICULTURE,
COTTAGE GARDENER,
AND
HOME FARMER.

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

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

Established



in 1848.

VOLUME VII. THIRD SERIES.

JULY TO DECEMBER, 1883.

LONDON
PUBLISHED FOR THE PROPRIETOR 171, FLEET STREET.

1884.

JOURNAL OF HORTICULTURE

1877

1877

LONDON:

PRINTED AT THE JOURNAL OF HORTICULTURE OFFICE

171, FLEET STREET.



TO OUR READERS.

AGAIN it is our pleasure to convey our thanks—not merely as a stereotyped form of politeness to all who have aided us in the completion of our last volume, but in a very warm and earnest manner for the valuable communications that have enriched its pages.

Also we take this opportunity of acknowledging the many pleasant greetings of which we have been the recipients during the past fortnight, and to assure all our correspondents that their good wishes are appreciated and reciprocated.

A pleasant feature of the volume to which the accompanying Index refers is the active interest that is manifested in the future of horticulture by young men who are preparing themselves to become worthy representatives of the craft in which they are engaged.

Never during any similar period of time have we received so many letters from under gardeners—some conveying and others seeking information. We rejoice that such is the case, and we are still more glad to record that not a few of them indicate that there is good promise for the future of gardening and garden literature.

Our advice to all young men is, Strive to excel the skilful teachers of the present and the past; and our hope is that the old and experienced will cheerfully assist the young and deserving.

Amateurs continue working as busily and writing as instructively as ever. One of them sends us Apples far excelling any that were sent from the same county to the Apple Congress, and observes: “Entirely on information derived from the Journal have they been grown, and I take this opportunity of again expressing my obligations to it as an impartial encourager of honest effort, and as a scientific exponent of horticulture of the highest class. This is not for publication, except it can be of service as showing what can be done in small space with feeble health and no resident gardener.”

To aid such shall be our steady endeavour, and such results and letters as this from a country vicarage enable us to look into the past thankfully and to the future hopefully, cheerfully, confidently. May it be prosperous to all.

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COMING EVENTS

5	TH	Bath (Roses); Romford Show.	
6	F	Sutton (Roses).	
7	S	Chiswick Show. Crystal Palace (Roses).	
8	SUN	7TH SUNDAY AFTER TRINITY.	
9	M		[Oxford and Wirral (Roses.)
10	TU	Royal Horticultural Society; Fruit and Floral Committees at 11 A.M.	
11	W	Royal Caledonian Society's Show, Edinburgh; Hull Show (3 days.)	

GARDEN CHEMISTRY.

NOT long since a professional gentleman, than whom no one is better able to judge, in a public meeting gave it as his opinion that nine-tenths of the agricultural community were ignorant of the discoveries and teachings of agricultural science, and especially chemistry. He also expressed the opinion, that were agricultural chemistry generally understood, our agriculture would at once enter upon a period of prosperity from which it could not easily be brought down. Truer words were never spoken. In spite of evil times, bad seasons, and crushing competition, thoroughly educated cultivators not only manage to live, but thrive. Many, indeed, are doing well under the same skies and subjected to the same competitive conditions that send other men, less alive to the importance of applying scientific facts, to the wall. Among farmers there is both a "struggle for existence," and also "a survival of the fittest."

What is true of farmers in this respect is also true, perhaps to a greater extent, of gardeners. Much attention has, during late years, been devoted to the physiology and chemistry of plants and the chemistry of soils and manures; but it is only here and there that we meet a gardener well informed enough to be able to turn any of this kind of knowledge they may possess to practical purposes. Yet there cannot be any room for doubting that a knowledge of such subjects would pave the way for success by explaining the cause of many failures, as well as acting as a guide to success; and it cannot be doubted that such knowledge would, in a majority of cases, lead to real economy, not only in saving, but in wise spending.

Agriculture has a fairly good literature devoted to such subjects, horticulture has none worth the name. The energies of many eminent men in our own country, on the Continent, and in America, have been devoted to the discovery of facts in vegetable physiology and agricultural chemistry, with the consequence that now a very clearly illumined path is before the cultivator. It is with regret that we have to add that in the kindred domain of horticulture hardly anything has been done. Still the facts that have been discovered in agricultural chemistry are, to a large extent, available for gardeners; and, scattered here and there, for the gathering, are many facts that apply to the garden only. For years the writer of this has made garden chemistry his study, and has collected much information that he now proposes to arrange for the benefit of those who may choose to follow him. He believes that many young men are anxious to know something of the subject as a stepping-stone to future success, and to this class he chiefly addresses himself, though he ventures to believe that some of their elders may not peruse what he has to say in vain.

In introducing such subjects it is usual to begin by saying something about soils, manures, and the physiology of plants first; then to go on to the elements composing such plants, soils, and manures, their relation and chemical history, and to advance step by step. This plan, when text-

books are in question, is decidedly the best. But were such adopted in the present instance, it is feared that numbers, who may readily enough read papers on special subjects connected with the study, they might at first not be interested enough to wade through such details. It has, therefore, been decided to give papers on "Lime and Liming," "Phosphates," &c., to begin with, on each of which topics information is being continually sought, and which can be treated separately, though also as part of a whole.

LIME AND LIMING.

Lime exists under many different forms in the geological strata of the earth. Apart from limestones proper, marble, coral, chalk, marl, and shell sand must be regarded as limestones, and all used as manurial applications. All are, or have been, formed under water. Chalk, for instance, is only an agglomeration of shells not very compactly pressed together, as is the harder limestones, which, however, are only harder; and although sometimes formed of compacted corals, may be seen in other cases to be composed of minute microscopic shells mixed with larger ones. Marble is only limestone vitrified by internal heat. Marls are the remains of fresh-water shells which have settled in inland lakes and in time become covered up with silt, peat, or sometimes only mould. Shell sands are the wrecked remains of shells in modern seas which are cast up on our shores. Frequently corals are cast up on our shore, as in Bantry Bay, and such are found of value as manure.

Limestones are hardly ever pure. Being formed under water they generally contain sand and clay. This may vary from 0 up to 30 or 40 per cent. When present, this foreign matter detracts, of course, from the value of the limestone. Even in chalk much clay exists, as may be understood when it is remembered that the clay soils that cover the chalk in many places are but chalk remains from which the lime has been dissolved out and washed away by rain containing carbonic dioxide; but as limestones are the remains of minute animals, they almost invariably contain both sulphate and phosphate of lime. In some countries the sulphate is largely present, but in this it seldom amounts to more than four-fifths per cent., and is generally less in this country. In some samples, as in those from Carlisle (Lanarkshire), phosphate of lime is present to the extent of $1\frac{1}{4}$ per cent., according to Dr. Johnston. This, in the burnt lime, is equal to $2\frac{1}{2}$ lbs. in the hundred, and adds considerably to the value of the lime. In the magnesian limestone of Durham it seldom exceeds 0.15 per cent., and is generally only 0.07. In Cumberlandshire limestone containing 0.33 per cent. are found, but in other cases only the merest trace. Some of the limestones of the great oolite, as well as the Combrash and Stonefield slate, contain about 1 per cent. of phosphate.

Carbonate of magnesia is almost always present. In even the purest limestone it amounts to 1 or 2 per cent., and in impure varieties from 40 to 50. Many of the beds in the old red sandstone contain much magnesia. Mountain limestone, otherwise known as dolomite, contain, when tolerably free from clay or sand, as much as from 40 to 45 per cent.

Lime containing much magnesia possesses burning or scorching qualities; indeed, magnesia in whatever combination has this quality. Yet there may be instances when it may be wanting in the soil, and such lime made from magnesian limestone may be peculiarly valuable. Such lime is preferred on the hill pastures of the highlands of Galloway, but on ordinary soil it is well not to apply such either liberally or extensively. A portion sparingly dressed will tell in a year or two whether magnesia may then be given with advantage. If not, it will be better to procure the purest lime possible, for magnesian lime cannot be applied with safety in quantities sufficient to such soils as most need liming.

Lime is applied burnt and unburnt. Marls and chalk,

shell sand and corals, are generally applied unburnt, as their mechanical condition admits of their easy pulverisation and distribution, but hard limestones are generally burnt. Marls often contain as much as 95° per cent. of clay or other admixture. Such are hardly worth digging and applying, except to light soils, when the land gets a liming and is made heavier at one operation. This often benefits peaty land considerably. When applied to heavy land they often do mischief. Instead of opening, as liming is intended to do, they have quite an opposite effect, because of the clay they contain, and the lime given is too trifling to be of any consequence. Marl often contains, however, as much as 90° per cent. of carbonate of lime (calcic-carbonate), and such are very different from those of the other extreme. Gardeners—strangers in a locality—had better ask neighbouring farmers what the traditional value of this or that marl is before incurring expense in its use. Tradition in these things forms a very good guide.

Chalk is of a much more constant nature than marl, not often containing more than 20° per cent. of foreign matter, and seldom that. Oftener it does not amount to more than 1 or 2 per cent. Chalk and marl owe their efficacy to the presence of carbonate of lime. One ton of carbonate of lime contains nearly 8½ carbonic acid (dioxide), and, as near as may be, 11½ of lime, or, as it is expressed in chemical nomenclature,

Carbonic dioxide or anhydride (C O ₂)	44
Calcic oxide (Ca O)	56
	100

When limestones are placed in a kiln along with fuel and burnt, the carbonic dioxide is driven into the air, and only the calcic oxide—or calcined lime—remains behind. This has a great chemical affinity for water. When water is poured on lime shells, as the burnt lumps are termed, a violent action takes place—strong heat is evolved, and the calcic oxide becomes calcic hydroxide, which is not a mixture of water and lime, but a new compound made up of water and (quick) lime chemically combined. The new combination contains 76° per cent. of lime (nearly) and 24° of water. Were it only a mixture instead of a combination, the mass would be wet, but it remains quite as dry as before. When this compound is exposed to the air it combines with the carbonic dioxide ever present in the atmosphere, and in time assumes its original chemical condition by becoming calcic carbonate (carbonate of lime). This is perfectly insoluble in water, calcic hydroxide being soluble in 732 times its own weight of cold water. This solution is known as lime water. When a stream of carbonic acid is passed through this solution the lime is at once precipitated—it has become the insoluble carbonate. The easiest way is to pass one's breath through it by means of a straw or pipe-stem. Chemists generally pass the gas derived from the calcic carbonate by simply pouring acetic acid on chalk or limestone. This drives off the carbonic dioxide, which is conveyed by a simple apparatus through the lime water.

Newly slaked lime (calcic hydroxide) acts much more energetically when applied to land than either chalk, marl, or mild lime, as burnt lime is termed after having again assumed the form of the carbonate. But burnt lime after slaking becomes an exceedingly fine impalpable powder, and for this reason it is better than either chalk or marl, because of its being easier distributed even after it has taken its original chemical form. Chemically the same as when unburnt, it is mechanically very different, hence the reason for burning; but in the state of quicklime it acts with much greater rapidity than mild lime. When first applied it at once combines with any free acid it may find. The acid thus neutralised is in a sense removed out of the way, and the oxygen of the air reaches undecayed organic matter, and causes its more rapid decay and consequent liberation of the plant food it contains. Humic, carbonic, or nitric acids preserve organic matter from waste, and hence such organic

matter in soils deficient in salifiable bases become plant food very slowly. But when lime, especially quicklime, is applied, these acids at once become calcic salts, and the work of food-preparation goes on rapidly. Not only so, but sour soils are at once sweetened, heavy soils lightened, warmed, and made earlier. It is even said to materially forward the brairding of seeds, but whether wholly by direct action on the seeds themselves, such as removing the carbonic dioxide, or by providing them with a freer, drier, sweeter, warmer medium is not clear; probably in both ways.

The action of marl, chalk, or mild lime is very similar, only slower. Mild lime does not act with the same energy in organic compounds as caustic lime; hence it is more suitable for soils poor in humus. Caustic lime, by acting rapidly on humus and other vegetable remains, may with great advantage be applied to old garden soil rich in black mould. Such contains much plant food in an unavailible condition. The application of lime liberates it, and enables the operator to do without manure of any other kind for a time, while at the same time the soil is improved otherwise; but on very light soils, or on virgin loams in which humus is not abundantly present, quicklime should not be applied, or only sparingly, and along with plenty of ordinary manure. otherwise the humus will be dissipated, which is what should be guarded against, as the presence of a certain amount of humus is necessary for fertility. Heavy clays are much improved by quicklime. It curdles the clay and renders it free and open. On sour bog land it often works little short of miracles. On these and also on light sands and gravels a dressing will cause white Clover to appear, when sowing the seeds would not! This would indicate that on such soils it might prove beneficial to Peas and Beans.—SINGLE-HANDED.

(To be continued.)

CUTTING DOWN CHRYSANTHEMUMS.

THE note you published on this subject on page 538 of last volume is an important one, and undoubtedly refers to a practice that is not in general adoption. So far as I am aware the system of cutting down Chrysanthemums in June or early July originated in the neighbourhood of Manchester, and no doubt the plants that were referred to so approvingly in your report of the Manchester Show last November had been grown on the system under notice. It is the best of all methods of producing dwarf untrained plants with grand blooms.

If I am not mistaken some pains were taken for a time to prevent the practice being known. But the day of gardening secrets is past, and those who plume themselves on the exclusive possession of a method of culture do not now remain long "alone in their glory."

Having practised this method, in common with some other-growers in the south as well as the north, I may perhaps usefully give my experience.

This is a critical time to cultivators of the Chrysanthemum, especially where they are grown for exhibition purposes. Many varieties should be cut back without delay—indeed many have been cut down. Jardin des Plantes, Princess Teck, Hero of Stoke Newington, Novelty, John Salter, Eve, Nil Desperandum, Cherub, Princess of Wales, Mr. Brunlees, Lady Slade, Guernsey Nugget, Pink Perfection, Mabel Ward, and Angelina should be cut down at once; while within a few days the Beverleys, Queens, Alfred Salter, Mrs. Haliburton, Barbara, Prince of Wales, Lady Hardinge, Mrs. W. Shipman, the Venuses, Golden Eagle, Refulgence, Mrs. Bunn, Isabella Bott, Mrs. Heale, Emily Dale, Mr. Gladstone, Mr. Corbay, White Globe, Prince Alfred, the Rundles trio, Aurea Multiflora, Lord Derby, Beethoven, Vesta, and all very early flowering kinds should not be stopped later than the end of the first week in July.

The plants are cut back in some cases to within a foot of the pot, others even to within 6 inches of the surface. It will be seen by this that some judgment is required in the matter. The later-flowering varieties are cut down earlier, in order that they may break earlier and form their buds at the same time as the naturally earlier varieties which are cut down later. Another advantage gained by cutting down is that in many cases it will make quite 2 feet difference in the height of the plants, enabling the cultivator to make better use of them for furnishing or grouping.

Instead of three breaks, which is customary with plants grown without being cut down, five, six, and even more breaks are produced by the system recommended. I do not mean to suggest that it is always prudent to leave so many breaks as are produced. I have seen eight and ten grand flowers produced on Queens and Empress of Indias, but it has been under very high cultivation. The Beverleys, Randles, Lady Hardinge, Mrs. Shipman, and such varieties, will carry a dozen exhibition flowers. The crown buds must be taken after this treatment in most cases, yet in certain seasons some of the varieties, such as White Globe, come very quick, then the terminal bud must be chosen.

The plants, after they have grown about half an inch, should be placed in their flowering pots, taking care to use good soil, as this has much to do with the success that attends skilled cultivators, although no two men treat them exactly alike in this respect. I do not use artificial manures until the flowers show their colour. I have confined my remarks entirely to incurved varieties, as these have been under discussion. I will say something on Japanese on a future occasion, as a few remarks on them now will not be unseasonable.—GROWER AND EXHIBITOR.

PARAFFIN OIL IN VINERIES.

I WAS glad to see your note of warning at the foot of the article headed as above in your Journal of June 21st. Too great caution cannot be exercised in recommending paraffin oil for use as an insecticide. In the hands of men fully acquainted with its power no doubt it proves of benefit in clearing off insect pests; but where its application has to be trusted to persons who either have not the knowledge or fail to exercise the requisite amount of caution there is great danger that disaster may follow its application. Even when much care had been taken to impress those who were trusted with the use of this oil when syringing, it has been found by the writer that failure to keep the paraffin thoroughly mixed with the water has occurred. When this happens something is sure to suffer. Unless the most stringent rules are laid down and carried out to the letter danger will always attend the use of paraffin, more especially among enthusiastic amateurs, who, being troubled with some of the insects that annoy horticulturists, are eager to embrace any chance of easily ridding themselves of the pests. As in the case of painting the pipes with paraffin there is danger, so is there more or less danger attending the use of many insecticides, which are often freely recommended without a due amount of caution being given as regards their use.

It should be borne in mind by all that the best insecticide is after all only a necessary evil to the plants to which it is applied. Fumigation is good and safe for many plants, but when too strong or when used to certain plants it proves disastrous. Sulphur is of use in checking the ravages of red spider. This, though disputed by some, I have proved to my own satisfaction, and it is safe when simply put on the hot-water pipes; but I have heard of one case where ignorance led to its being burnt in the vinery, with the result of bringing all the leaves off the Vines. This case happened when the gentleman simply told his gardener—who was not one in the highest ranks in knowledge and intelligence—that “sulphur was recommended as good for killing red spider.”

Most of the insecticides which are sold now-a-days require to be very carefully used, and a word of caution such as you have appended to the paraffin-painting receipt is very much required when they are likely to be used by anyone not well acquainted with their composition and safe methods of application. “There is nothing like personal experience,” some say, but it is a pity when evil is done by wrong applications of compositions which are capable of being used in such proportions and under such conditions as render them not hurtful but beneficial. Therefore all who possess the requisite knowledge should freely impart it to others, giving words of warning when required, while words of commendation should in all cases be tempered with the most exact description of modes of application of insecticides and the quantities to be used.

Such words of warning apply not only to insecticides but to many matters. A friend of mine, a keen amateur gardener, though not possessed of much skill or knowledge regarding the numerous subjects claiming the attention of the gardener, has suffered largely in his kitchen garden through the unduly large amount of guano he gave his vegetables in the form of a top-dressing. Another case came under my notice, where a fine lot of Vines suffered the loss of many of their leaves through the dressing the inside border with guano. The guano had been very heavily spread on the surface, then hoed-in and watered. Care had not been taken to cover it sufficiently with the earth, and in addition far too much had been used. Danger might still have been averted had abundance of ventilation been provided, but this had not been done, the conse-

quence being great damage to the foliage. If it were always borne in mind that persons may use insecticides and manures who have not sufficient knowledge of their own to enable them to always escape disaster, writers recommending the use of various things would perhaps be more careful in giving exact details, and also words of warning.

Vendors of patent manures and insecticides should also make it their aim to guard against all mistakes. When sufficient instructions and warnings have been given, then carelessness on the part of the persons using such things can be the only way in which disaster can happen.—READER.

BAUERA RUBIOIDES.

It is surprising how many plants that possess far more than ordinary attractions, and qualities sufficient to amply entitle them to the attention of cultivators, are allowed to remain in comparative obscurity, being only preserved as rarities in a few botanical collections. *Bauera rubioides* is one of these neglected plants, which the following note and engraving are intended to bring a little more prominently into notice, for though it has now been in cultivation in a few gardens for about ninety years, it is very rarely seen, especially in nurserymen's collections. Yet the plant is of easy culture, floriferous in the extreme, the flowers being of a distinct form and



Fig. 1.—BAUERA RUBIOIDES.

pleasing deep rosy colour, the latter character alone being sufficient to recommend it strongly. The foliage, too, is pretty, the narrow dark-green leaves being arranged in whorls round the slender branches, resembling some of the Rubias, and not the Rubus, as was stated in the description accompanying the first coloured plate (an excellent one) in Andrews' “Botanist's Repository,” and subsequently corrected in 1804 by Dr. Sims in the “Botanical Magazine.” There is also some difference between the two above-named authorities respecting the introduction of the plant. Andrews states that it was “first raised at the seat of the Marchioness of Rockingham, Hillingdon, Middlesex in the year 1793.” Dr. Sims, however, states that it was first raised by Messrs. Grimwood & Wyke of Kensington. It was in the Kew collection early in this century, and is mentioned in Aiton's “Hortus Kewensis” as being originally from New Holland, introduced to this country by the Marchioness of Rockingham, thus corroborating or accepting Andrews' account.

The cultural requirements of this plant are few. A cool house such as a conservatory or greenhouse, or indeed a sheltered position out of doors in the southern counties, suit it well. Peat, a little turfy loam, and a small quantity of leaf soil form a good compost for it, draining the pots carefully and supplying water judiciously, as extremes are very

injurious to it. It can be readily increased by cuttings of the young wood inserted in sandy soil under a bellglass, preferably in slight heat.

NATIONAL ROSE SOCIETY, SOUTHAMPTON.

JUNE 28TH.

THE entrance of the Southampton Horticultural Society into their new home, Westwood Park, was signalised on Thursday last by the magnificent Show of the National Rose Society. The presence of the Prince and Princess of Saxe-Weimar as the guests of the Mayor and Corporation of Southampton lent additional interest to the proceedings; while from the fact of Thursday being the anniversary of Her Majesty's coronation the whole town was decorated with flags and banners, and the people turned out *en masse*, notwithstanding that the weather was most unfavourable, rain falling very heavily during the inspection of the Show by the Prince and Princess and their stay at luncheon, which was attended by about 400 of the principal inhabitants. Towards evening the rain abated, and the Show was visited by several thousands of persons.

In many classes the competition was not so keen as when the National Shows are held nearer the metropolis, but the quality was excellent. The stormy weather which preceded the opening day doubtless deterred many exhibitors from being present, while with others the blooms were scarcely advanced enough to take part in this contest. The blooms staged were large, bright, and of good form. Everything appertaining to the Show and the comfort of the exhibitors were well superintended by the Hon. Secretaries of the National Rose Society, the Rev. H. H. D'Ombraim and Mr. Mawley, and by Mr. Fudge, the energetic and courteous Secretary of the Southampton Horticultural Society.

Following in the order of the schedule for forty-eight distinct blooms, single trusses, Mr. Charles Turner, Royal Nurseries, Slough, was awarded the highest honours with a magnificent collection, consisting of Constantine Tretiakoff, Marguerite Brassac, Madame Gabriel Luizet, Louis Van Houtte, La France, Madame Hippolyte Jamin, François Levet, Victor Verdier, Auguste Rigotard, Innocente Pirola, Horace Vernet, François Michelin, Sénateur Vaisse, Marguerite de St. Amand, Magna Charta, Marie Baumann, Princess Beatrice, Fisher Holmes, Madame Montels (a Rose new to us in name), La Rosière, Charles Darwin, Madame Marie Verdier, Maurice Bernardin, Abel Grand, Duke of Wellington, A. K. Williams, Countess of Rosebery, Madame Margottin, Nardy Frères, Souvenir d'Elise, grand, with one or two others; the presence of several charming Teas in this collection greatly enhanced its beauty. Second honours was awarded to Messrs. Paul and Son, Old Nurseries, Cheshunt, for a collection which pressed very hard for first position, and contained, amongst others, extra fine blooms of Charles Lefebvre, François Michelin, Comtesse d'Oxford, Etienne Levet, A. K. Williams, and Monsieur E. Y. Teas. Messrs. Keynes & Co., Salisbury, received the third prize; their best blooms were Madame Gabriel Luizet, Général Jacqueminot Niphotos, Reynolds Hole. Messrs. Cranston, Hereford, and Curtis, Torquay, also exhibited in this good collection. In Messrs. Cranston's stand there were magnificent blooms of Lady Mary Fitzwilliam and Ulrich Brunner, a very large flower of a cherry red colour, and with deep cup-shape petals.

For twenty-four distinct, three trusses of each, it was a very close contest indeed between Messrs. Keynes, Turner, and Paul for first honours, so evenly matched were all these collections. Scarcely a faulty bloom was to be found in either, but chief honours eventually fell to Messrs. Keynes & Co., who doubtless were favoured with a position of better light than the other competitors. Mr. Charles Turner took the second place, and Messrs. Paul & Son the third. The first-prize collection comprised Madame Gabriel Luizet, La Rosière, Auguste Rigotard, Etienne Levet, Mons. Gabriel Tournier, François Levet, Duke of Cambridge, Duchesse de Vallombrosa, Dr. Andry, Marquise de Castellane, La France, M. Charles Wood, Duke of Teck, François Michelin, Alfred Colomb (magnificent), Général Jacqueminot, Centifolia Rosea, Dupuy Jamain, Ferdinand de Lesseps, Marguerite de St. Amand, and Madame Laurent. In the second-prize collection Camille Bernardin, Capitaine Christy, Mad. Gabriel Luizet, Devoniensis, Duchess of Bedford, and Marie Baumann were grand examples of culture. Etienne Levet, François Michelin, Marquis de Castellane, Marie Cointet were conspicuous objects of beauty in the third-prize collection.

In the class for thirty-six distinct, single trusses, Mr. Prince was worthily awarded the first prize with a collection in which many fine Teas were staged, most of them being magnificent examples. Amongst others were Duc de Magenta, Perle des Jardins, Mad. Lambard, Souvenir de Paul Neyron, Maréchal Niel, Anna Ollivier, Rubens, Madame Marie Finger. Messrs. Cross & Steer, Canal, Salisbury, were placed second, and Mr. J. House, Eastgate Nurseries, Peterborough, third. For eighteen varieties, three trusses of each, Mr. Prince was again to the front with a collection in which his far-famed Teas preponderate. Grand examples of Rubens, Marie Van Houtte, Comtesse de Nadaillac, Perle des Jardins, Niphotos, and Jean Ducher, A. K. Williams, and Ulrich Brunner were also very fine. Mr. House was placed second, and Messrs. Cooling, Bath, third. For twelve Teas or Noisettes, single trusses, there were six collections, first honours again falling to Mr. Prince. Messrs. Paul & Cant, Colchester, were placed equal second, and Mr. C. Turner highly commended. The best Roses in these collections were Souvenir d'Elise, Anna Ollivier, Alba Rosea, Madame Willermoz, Catherine Mermet, Francis Kruger, and Perle des Jardins.

The amateurs' classes were fairly represented, although in some cases the competition was not brisk; those that did compete were all well-known exhibitors, therefore all the collections were very level. For thirty-six distinct, single trusses, Mr. J. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, Surrey, was awarded the first place with a very even collection, consisting of Marie Baumann, Pride of Waltham, A. K. Williams, François Michelou, Gloire de Dijon, Cheshunt Hybrid, Marie Finger, Duchess of Bedford, Louis Van Houtte, La France, Edward Morren, Thérèse Levet, Camille Bernardin, Marie Rady, E. Y. Teas, Baronne de Rothschild, Duke of Edinburgh, Général Jacqueminot, Annie Wood, La Havre, Marquis de Castellane, Comtesse d'Oxford, Madame Berard, Chas. Baltet, Auguste Rigotard, Lady Mary Fitzwilliam, Ferdinand de Lesseps, Louis Van Houtte, sport from Madame Clemence Joigneaux, Marie Rady, and E. Y. Teas. Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston-on-Thames had a good

collection, losing the first place by only five points. Mr. Moorman's blooms were the largest, but one or two instances lacked the form of Mr. Ridout's. Harrison Weir, Charles Darwin, A. K. Williams, Charles Lefebvre, Etienne Levet, Nardy Frères, Edward Morren, and Maréchal Niel were among the best. Mr. Joseph Davies, The Square, Wilton, received the third place with a good collection.

In the class for eighteen distinct Mr. J. Ridout was again to the front with a collection in which the varieties were very similar to those described. The A. K. Williams in this stand was awarded the silver medal as the best Hybrid Perpetual in the amateur classes. Mr. Davies received second honours, and the silver medal for the best Tea or Noisette in the amateur classes was awarded to a fine bloom of Maréchal Niel in his box. Mr. W. Grant, Ledbury, was placed third. For twenty-four, distinct, in another division Mr. A. Evans, Marston, near Oxford, had a good collection, which placed him in the first position, Magna Charta, Marie Baumann, Miss Hassard, Nardy Frères, Le Havre, and Camille Bernardin being especially fine. Mr. T. Guider, gardener to Miss Watson, Taylor Headington, Westbury, and Mr. T. Hobbs, Lower Eaton, Brixton, were placed second and third respectively. In the class for eighteen distinct, single trusses, Mr. A. Evans, Mr. T. Guider, and Capt. Christy, Core Hill, Sidmouth, were placed in the order of their names.

The class for twelve distinct, single trusses, contained some very fine blooms in the several collections. Mr. J. T. Strange, Aldermaston, Reading, was awarded first honours with La France, Marie Baumann, Fisher Holmes, M. Victor Verdier, Marie Van Houtte, Capitaine Christy, Dupuy Jamain, Thomas Mills, Sophie Fropot, Abel Grand, Exposition de Brie, and Marie Van Houtte. Captain John Ramsay, Fareham, and Mr. G. Mount, Harbledown, Canterbury, second and third respectively.

The Rev. Alan Cheales, Brockham, Surrey, was deservedly placed first for six distinct with Madame Gabriel Luizet, Alfred Colomb, Marie Baumann, Charles Lefebvre, A. K. Williams, and the best bloom in the Show of Dr. Hogg. The Rev. C. Eddy, Bramley Vicarage, Basingstoke, and Mr. E. Mawley, Addiscombe, Croydon, shared the second and third positions. Teas and Noisettes were exhibited both plentifully and in good condition by amateurs, Mr. T. B. Hall, Rockferry, Cheshire, Rev. J. H. Pemberton, Havering-atte-Bower, Essex, and Miss Watson Taylor being placed first, second, and third respectively for good collections of twelve varieties. Mr. T. Hobbs, Mr. Mawley, and the Rev. Alan Cheales in the order of their names for six varieties. There were eight collections staged in the class for twelve single trusses of any dark Rose. Messrs. Paul & Son were placed first with magnificent blooms of Etienne Levet, Mr. Turner second with Camille Bernardin, and Messrs. Cranston third with Exposition de Brie. For the same number of pink varieties Messrs. Keynes took the lead with François Michelin, Messrs. Cant second with Madame Gabriel Luizet, and third Messrs. Paul for the last-named variety. Mr. Prince was awarded the first prize for twelve Teas or Noisettes with good blooms of Maréchal Niel, Mr. C. Turner second with Souvenir d'un Ami, and Mr. Evan third with Maréchal Niel.

Four classes were set apart for Roses grown in the district, and open to the members of the Southampton Horticultural Society. The principal prizetakers in these classes were amateurs—Mr. F. W. Light, Cornstiles, Twyford; Dr. Seaton, Rutland Lodge, Bitterne; Mr. William Bettridge, Old Basset, Southampton; C. M. Shipley, Esq., Winchester; Rev. R. R. L. Dashwood, Romsey; Mr. H. W. Stratton, Portswood; Mr. H. Guillaume; and Captain E. Gibbs, Red Thorn, St. Denys, Nurserymen—Messrs. W. & G. Drover, Fareham, and Mr. George Windybank, Southampton.

A few classes were provided by the Southampton Horticultural Society for groups, table plants, Pelargoniums, and Ferns. Mr. Wills, gardener to Mrs. Bassett, The Firs, Bassett, was far ahead in the groups. His collection was most tastefully arranged, and contained an exceedingly choice collection of plants suitable for decorative purposes. Second Mr. J. Kingsbury, nurseryman, Belvoir. Orchids were well shown in a collection of twelve, principally varieties of Odontoglossums, by Mr. Blandford, gardener to Mrs. Haselfoot, Moorhill, who had the first prize; Mr. T. Osborne, gardener to H. Buchan, Esq., J.P., Wilton House, Southampton; taking second award. Pelargoniums came from Mr. Osborne and Mr. Wills, who were placed in the order of their names for very creditable specimens. Table plants, Palms, and small Adiantums were numerous exhibited and arranged along the centre of each table between the ranges of Rose boxes, which had a pleasing effect, Messrs. Kingsbury, Wills, Windebank, and Osborne sharing the principal honours.

VEITCH'S EARLY FORCING CAULIFLOWER

I HAVE great pleasure in bearing my testimony to the benefit I have derived from this useful novelty of the season. The Snowball, although an excellent variety, is, in my experience, quite distinct from the above, inasmuch as it is larger and later, and folds its leaves over the flower, while in Veitch's Early Forcing the leaves stand upright around the flower, forming a shelter more than a shade. I sowed on the 6th of February in a cool frame, planted out in April between Asparagus beds, and in despite of a bleak situation and severe spring frosts I cut snow-white and compact heads measuring 4 and 5 inches in diameter a fortnight earlier than Early London. Wintered in a cold frame it has been pronounced delicious in flavour by the family, and is a great favourite with our French cook.—P. DAVIDSON, *Iwerne House, Shaftesbury.*

CELOGYNE CRISTATA.—Mr. Young in further note on above Orchid misquotes himself from page 467, changing the word feasible for his present impossible, which makes a much different sentence. If Mr. Young does not agree with the practice of cutting out what are termed spent pseudo-bulbs, which he terms feasible, he ought in the first case to have said so, and warned his amateurs against the practice, as he is now anxious to do so. But I contend the cutting-out practice is wrong altogether. If a large plant is desired, and the centre is full of leafless or spent pseudo-bulbs which are alive, or green, cut the root stems in the

same way as for a *Cattleya*, when the plant will quickly bristle with healthy growth in every part, to be followed in due course by flowers, instead of a bare centre, with flowers all on the outer parts.—ROBERT GRINDROD.

THE HERBACEOUS BORDER.

UNDER my charge, among other things, is a walk about half a mile long with borders on each side occupied with herbaceous plants, some of the most noteworthy of which I propose from time to time to remark on, and as the collection is only in its infancy I shall be obliged if any of your correspondents will assist in giving prominence to meritorious flowers in season by a record of their experience. I need not point out the great value and interest attached to hardy plants, nor enlarge on their general adaptability for the masses; but will at once proceed to notice some good plants that were flowering on June 21st.

PAPAVER NUDICAULE.—A yellow Poppy, forming very showy and highly decorative tufts, the flowers borne on slender stalks about 1 foot in height, continuing to produce blooms for a long time. The flowers are very pretty in a cut state, for though their duration is only short, and they close early they are still charmingly beautiful—quite a relief from the monotony of cut flowers generally.

PAPAVER NUDICAULE ALBUM.—A white-flowering variety of the species, quite as hardy, fully as free-flowering, and altogether a highly decorative plant, and the flowers are fine for cutting.

IBERIS GIBALTARICA.—This is unquestionably the finest of all the Candytufts, having very large heads of white flowers tinged with lilac. The plant forms a compact bush, and flowers over a lengthened period. It may be mentioned that this is very fine indeed for growing in pots in a cool house, or may be had in flower early by placing in gentle heat. It is not very hardy, and young plants should be raised from cuttings or seed yearly, so as to provide against the probability of loss in a severe winter. It is fine for sunny niches at the foot of rockwork.

ERODIUM MANESCAVI.—This forms tufts of graceful foliage 15 inches or more in height, and is the best of the genus. From the crown issue numerous flower stems, each bearing an umbel of large purple-red flowers 1 to 1½ inch across. It is well adapted for the base of rockwork, and does splendidly in the open border. The flowering is continued through the summer, and frost only seems to stay its flowering propensity. A very showy, and in fact handsome, species.

PHLOX CAROLINIANA VAR. OVATA.—A very useful plant of about 18 inches in height, having large corymbs of bright purplish red flowers in early summer, and very freely produced. It is fine for borders and valuable for cutting.

CENTAUREA MONTANA.—Of this there are two varieties—viz., alba, white, and rubra, red. The best of the trio is *C. montana* alba, but the species with its blue flowers is superb. They can hardly be called gay, but they form effective clumps of about 18 to 24 inches in height, producing in succession a great number of flowers over a lengthened period, and these are valuable for cutting, being so distinct from the run of cut flowers. The plants do best in sunny positions and well-drained soil.

AQUILEGIA CHRYSANTHA.—This has been in beauty since early June, and still keeps on, having many golden yellow flowers with long spurs. It forms in good specimens a bush a yard across and nearly as much high, and is very beautiful and effective.

TRADESCANTIA VIRGINICA.—Showy for borders, having large terminal umbels of bright blue flowers, freely produced through the summer. *T. virginica* alba is equally desirable, and there are several varieties, as red, double red, rose, pale blue, and deep violet. They are not particular about soil or situation, but an open one is most suitable. They grow 18 to 24 inches high.

AGROSTEMMA FLOS-JOVIS.—Forms a bush about 2 feet high, the foliage being soft and downy; the flowers bright scarlet, produced abundantly and for a long time, fine for cutting. It likes a light soil, and is readily raised from seed.

HELENIUM HOOPESII.—Large bright yellow flowers, having a peculiar appearance, very freely produced over a lengthened period, and very useful for decorative purposes. Although the majority of Heleniums are only fit for the back of herbaceous borders, or relegating to shrubberies, this and *H. pumilum* are fitted to take rank with the choicest. Its flowers are fine for large decorations such as in churches.

DRACOCEPHALUM RUYSCHIANUM.—Very pretty. Flowers about an inch long, borne in clusters, and as the stems are numerous it may be described as a very handsome summer-flowering plant. It likes a light soil. *A. R. japonicum* is more upright in growth, and the flowers in whorls quite an inch long are really charming, being of a light sky-blue colour.

CAMPANULA MACRANTHA.—A grand plant, forming a pyramid bush over a yard high, having numerous erect stems, producing large

purple-blue flowers. It is fine anywhere, as a back-row plant unequalled in the genus, and will grow in any ordinary fertile soil.

GILLENIA TRIFOLIATA.—Another fine plant, very showy, forming an erect bush about 3 feet high, with deeply cut foliage; the flowers being white, borne in panicles. Quite a gem, doing well in well-drained soil.

ERIGERON GRANDIFLORUM.—About 18 inches high, having a tufted appearance; the leaves large; flowers numerous, Aster-like, purple, and a couple of inches across. It requires a light soil, and does well in niches at the foot of rockwork.—G. ABBEY, *Paeton Park, Hunts.*

(To be continued.)

AMERICAN BLACKBERRIES.

I SEE you say at page 520, last volume, that these do very well in this country, but I am inclined to think that the instances of their successful culture are few and far between. My experience of them tallies with that of your correspondent "J. E. D., *Devon*," as ours have grown luxuriantly, but the fruit is miserable compared with the illustration and our own expectations. When the Kittatinny variety was brought in it was planted in rich soil and the best of positions to secure sunshine with shelter on all sides from destructive winds, and we expected to see the produce something better than that commonly seen in the hedgerows, but it has never been so, and now we only keep them to point out their deceptive qualities. I should have thought that they would have done in either Devon or South Wales, but it appears not, and it would be interesting to know the position in which they do succeed. Are the instances of the description so numerous as to warrant anyone advising their general culture? I think not. Probably some may grow them against a wall, and then I would say it is good space badly used. Nothing which can be said or shown in their favour will induce me to have anything further to do with them.—J. MUIR.

[Our correspondent should try the Parsley-leaved Bramble; we have seen it producing finer clusters of fruit near Sheffield than that represented in the engraving on page 409, last volume. Perhaps Mr. Woodcock will oblige with a note on this variety. We think Mr. Ward of Longford Castle has written approvingly of the Kittatinny.]

PRIZE PANSIES.

PANSIES are so beautiful in the spring and early summer that many admirers of these flowers will be glad to know the names of the varieties that won the silver medals at the Waverley Pansy Society's Show recently held at Galashiels.

SHOW PANSIES.—In the nurserymen's class for twenty-four blooms the silver medal was won by Messrs. Wm. Paul & Son, Paisley, with perfect flowers of Artemis, Andrew Miller, Patrick Barr, Harry Paul, J. P. Barbour, and Rev. J. Morrison, dark selfs; Gomer and Geo. Rudd, yellow selfs; Mrs. Dobbie and Mrs. Turnbull, white selfs; The Mede, Mrs. J. Miller, Mrs. J. G. Paul, Mrs. D. Wallace, Miss Meikle, Jessie Foote, and Nelly Corbet, white grounds; Try Me Oh! J. B. Robertson, Lizzie Bullock, D. Dalglish, A. Henderson, D. Robertson, and No. 1 Seedling, yellow ground. In the gardeners' and amateurs' class for eighteen Show Pansies, Mr. Jas. Skinner, Penicuik, won the silver medal. He had fine examples of A. Miller, Peter Lyle, and Mauve Queen, dark selfs; Gomer, yellow self; Agnes Fairgrieve, white self; Mrs. J. G. Paul, Miss Ritchie, Jessie Foote, Miss Barr, and Miss Meikle, white ground; R. Donaldson, J. Buchanan, and J. B. Robertson, yellow grounds.

FANCY PANSIES.—In this class the silver medal was obtained by Mr. J. Sutherland, Lenzie, with grand blooms of Catherine Agnes, D. Main, W. McIntosh, Mrs. J. Stewart, Mrs. McTaggart, J. Murray, Perfection, John Stewart, May Tate, Miss Reeve, General Grant, Mrs. Findlay, Ruby, Mrs. Murdock, Earl Beaconsfield, Miss Bliss, W. Dickson, Mrs. Duncan, D. Wallace, and seedlings. For eighteen Fancy Pansies the silver medal was awarded to Mr. Jas. Gowans, Hawick, whose lot included superb blooms of May Tate, Miss Bliss, Catherine Agnes, Jas. Gardner, A. McMillan, Perfection, Rev. J. Graham, Mrs. Jamieson, Mrs. Barrie, W. Cathbertson, and Miss Reeve.

The best flower (Show) in the Exhibition was awarded Mr. J. Black for Miss Bowie, a beautiful primrose self. The best flower (Fancy) to Messrs. R. B. Laird & Sons for Miss Bliss. The best white ground (Show) to Mr. J. S. Armstrong for Jessie Foote. The best yellow ground (Show) to Mr. Jas. Bowie, Galashiels, for David Dalglish.

The above list will be useful to those cultivators who desire to add good varieties to their collections.

SHADING.

NOTING the remarks of "Northern Gardener" on page 507, last volume, I am disposed to keep the ball rolling on the above subject. My remarks, however, will refer especially to Cucumbers. I am more and more convinced that if the roots are right as far as water is concerned very little shading is required. I do not say shading is not necessary at times. I know it is, but the less used the better; still it is a mistake to let the plant be exhausted before putting it on. These last few days of unsettled weather have been rather trying, so hot for a time, then cold and dull. No fixed law or rule can apply to individual cases or houses, an intelligent view and observation being the best guide.

Evaporation is good, but root-watering better; still in very bright weather damping the walls and pipes is very refreshing. I will leave plant-shading to plant-growers. As, however, I grow a few *Adiantums* I may say they luxuriate in my coolest vineries, and have an agreeable appearance in contrast with the Grapes.—CULTIVATOR.

RICHMOND SHOW.

JUNE 28TH.

By a carefully maintained progressive advance the Richmond Horticultural Society's Exhibition has been rendered one of the best in the neighbourhood of London, and with a continuance of the same judicious management there is little doubt that it will still further increase in popularity. The district is a good one horticulturally; and although really extensive gardens are few, there is a large number of moderate size in which examples of most skilful culture can be seen. The convenience of such a site as the Old Deer Park is another great factor in the success that has been attained, and the Society being powerfully and liberally supported by the local residents, has enabled the Committee to offer substantial prizes, the result being that in the majority of classes the competition is invariably keen. The Show for the present year was as good as its predecessors in many respects, but there was a noticeable falling-off in others, the collections and groups not for competition being scarcely so numerous. The fruit entries, too, we have seen more abundant. The plant classes were well filled, and some admirably grown specimens were contributed, Ferns, stove and greenhouse plants, Fuchsias, and others being in first-rate form. The weather fortunately proved more favourable than was expected in the morning, for with the exception of a few light showers the day was dry though not bright. Visitors assembled in considerable numbers, but the absence of the President the Duke of Teck, and Princess Mary, undoubtedly had a somewhat deterring effect.

ORCHIDS.

At previous shows these have not usually been adequately represented, but there was a decided change for the better last Thursday, as five good collections were staged in the class for six specimens, mostly of considerable merit. Mr. Child, gardener to J. Bell, Esq., Garbrand Hall, Ewell, was adjudged first honours for a very beautiful group, comprising some remarkable specimens. *Aerides Lobbi* with two branching spikes, one having five branches, was very noteworthy, as was also *Cypripedium Stonei* major, a grand plant with five spikes, having a total of twenty flowers; this is a fine variety of this beautiful species, and the plant is one of the largest and best in cultivation. *Aerides odoratum majus* with five spikes, *Vanda suavis*, and *Brassia maculata* were also of unusual merit. Mr. James, Castle Nursery, Lower Norwood, took the second position with several fine *Cattleyas*, *gigas*, *Mendeli* (eighteen flowers), and *Mossiae* (fourteen flowers), the new and distinct *Odontoglossum cordatum aureum* having fine spikes of its yellow-tinted flowers. Mr. Wiggins, gardener to H. Little, Esq., was third, showing *Vanda Dennisoniana* well flowered, but apparently several plants in a pot, *Dendrobium snavissimum*, *Thunia Marshallii*, and *Dendrobium Dearii* with eleven spikes, an extremely good example, for which a certificate of merit was deservedly awarded.

STOVE AND GREENHOUSE PLANTS.

A large display has been provided in these classes, but very rarely have the plants been in better condition both as regards health and floriferousness. Messrs. Jackson & Son, Kingston, were well to the front with nine specimens, as even and neat as could be desired. The *Ericas ventricosa*, *Bothwelliana*, and *ferruginea* major were especially notable as beautiful examples of culture and training. *Franciscea calycina* major, *Allamanda cathartica*, and *Statice profusa* were similarly fresh and praiseworthy. Mr. Child was a good second, his plants being very healthy, and including amongst the best *Bougainvillea glabra*, *Clerodendron Balfourianum*, and *Aphelexis macrantha purpurea*. The special prizes offered by F. Coleman, Esq., Cumberland House, Kew, for the best single specimen plant in flower brought a number of competitors, all showing very well. The chief struggle was, however, between Mr. Hinnell, gardener to J. Davies, Esq., Anglesea House, and Mr. Child, the former having a beautiful globular-trained specimen of *Phœnocomma prolifera Barnesi*, about 3 feet in diameter, in perfect health and well flowered; the latter showing a magnificent *Erica depressa* over 4 feet in diameter and very healthy. The Judges hesitated over these two plants, ultimately deciding in favour of the *Phœnocomma*, a decision that was generally approved, though the merits of the two were so nearly equal. In the local class for six stove or greenhouse plants Mr. Bates took the lead, showing an extremely fine *Impatiens Sultani* about 4 feet in diameter, and almost covered with its bright rosy-scarlet flowers.

Fuchsias were beautifully shown—tall conical-shaped plants, profusely flowered, and not too rigidly trained. Mr. T. Bond, gardener to Mrs. Evans, Beech Holme, New Hampton, was first with nine fine plants, Earl of Beaconsfield, Wave of Life, and Mrs. Lye being the best and brightest. Mr. Morrell secured the second position with smaller but similarly well-flowered plants. Messrs. Morrell and Prickett were the chief exhibitors in other local classes for Fuchsias, each staging good plants.

Show and Fancy *Pelargoniums* were shown by Mr. C. Turner, Slough, and Mr. Wiggins, who were placed respectively first and second in the two classes, the plants being similar to those staged at the *Pelargonium* Society's Show two days previous.

FINE-FOLIAGE PLANTS.

The general good quality of other exhibits was largely shared by these, especially in the class for the Duke of Buccleuch's prizes, in which Mr. Munro, gardener to Lady Chichester, Cambridge House, Twickenham, won the first position with six fine plants. The *Dracænas* were unusually good, vigorous, and handsomely coloured, *D. Youngi* and *D. Baptisti* being first-rate. *Areca lutescens*, too, was of considerable size, and several richly coloured *Crotons* were included. Mr. Gregory, gardener to J. F. Wigan, Esq., Bushy Bank, Twickenham, followed closely; *Caladium Belleynei*, *Corypha australis*, and

Croton variegatus being the most notable plants. Mr. Bates was third also with fine plants, his *Ananassa sativa variegata* being one of the best we have seen.

FERNS.

Several well-grown collections of Ferns were entered, though specimens of the gigantic dimensions sometimes seen at shows were absent. Mr. Morrell staged the best eight exotic species, *Davallia Mooreana* in the freshest health and with very large and handsome fronds forming the chief feature; *Gymnogramma peruviana argyrophylla*, *Adiantum gracillimum*, *A. concinnum latum*, and *Microlepia hirta cristata* constituting the best of the other plants. Messrs. Fromow & Son, Turnham Green, took the second place, their finest plants being *Davallia bullata* and *Dicksonia antarctica*. Mr. G. Stevens, Putney, was third with smaller plants. In the class for six specimens Mr. East, gardener to F. Wigan, Esq., Elm Lawn, East Sheen, won leading honours, followed by Messrs. Morrell & Prickett, gardener to Dr. Francis, Richmond, who were also the prizetakers for twelve hardy Ferns. Mr. East was also the most successful exhibitor of *Caladiums*, securing the premier award with six handsome plants.

GROUPS.

One of the leading classes provided in the schedule is that for a group of plants, in or out of flower, arranged for effect in a space not exceeding 100 square feet, the prizes being £5, £4, £3, and £2. Four competitors entered the lists, and their groups, though differing greatly in style, all possessed considerable merit. Messrs. Hooper & Co., Covent Garden, were adjudged the premier award for a free arrangement of Palms, *Aralias*, *Dracænas*, and the new *Spiræa palmata*, on a ground of *Adiantums*, *Begonias*, and *Caladiums*, the margin being formed of *Gynura aurantiaca* and *Isolepis gracilis* alternately, which had a very pretty effect. Mr. James took the second position with a choice collection of Orchids (the *Cattleyas* being very fine), Ferns, and *Selaginellas*; but it was rather too thin, the pots being unpleasantly prominent. The latter defect was most carefully avoided in the third-prize group from Mr. Brown, Richmond, who had a somewhat flat ground of *Adiantum cuneatum*, *Caladium argyrites*, *Asparagus plumosus*, *Crotons*, and *Coleuses*, from which arose taller Palms, *Dracænas*, *Crotons*, *Spiræa palmata*, &c. In general effect this was superior to the previous one, and many visitors thought it deserved the second place, in accordance with the terms of the schedule, though in value Mr. James' group was far ahead. Messrs. Fromow & Son, Turnham Green, were fourth with a mixed arrangement of Palms, *Kalosanthes*, *Liliums*, *Crotons*, *Gloxinias*, and other similar plants.

In the class for a group to occupy a space of 50 square feet the prizes were offered by C. Turner White, Esq., of Kew, and the competition was very keen. Mr. Hinnell won the chief prize with a very simple but tasteful group, consisting of a centre *Cocos*, a *Dracæna* on each side, two similarly placed *Aphelexes*, with a ground of *Adiantums* and a few *Gloxinias*. Mr. C. Waite, The Gardens, Glenhurst, Esher, followed, having a pretty combination of *Campanula pyramidalis alba*, *Begonias*, *Coleuses*, *Roses*, and *Gloxinias*, neatly margined with *Isolepis* and *Selaginellas*.

Gloxinias, *Hydrangeas*, *Tuberous Begonias*, table plants, and *Achimenes* were well represented, the first and last-named being very fine. The principal prizewinners were Messrs. Attrill, gardener to C. J. Freake, Esq., Bank Grove, Kingston; Sallows, Munro, Prickett, Bates, Hickle, gardener to W. Cunard, Esq., Lebanon House, Twickenham, Beckett, and Brown.

Cut flowers were shown in good numbers, especially *Roses*, which were remarkably fine. In the nurserymen's classes the blooms were fresh and bright. Messrs. C. Turner, Slough; Paul & Sons, Cheshunt; and Rumsey, Waltham Cross, securing the leading awards. Amateurs also showed well, especially Mr. Warwick, gardener to J. P. Kitchin, Esq., Manor House, Hampton, who took the principal prizes. Messrs. Moorman, gardener to Miss Christy, Coombe Bank, Kingston; Berry, gardener to the Countess of Melville and Leven, Roehampton House; and J. Rae, gardener to W. Furge, Esq., Roselands, Teddington, secured the most important of the remaining awards. Stands of flowers, bouquets, and buttonholes, &c., were numerous, Messrs. Brown of Richmond, and Chard of Clapham Common, winning chief honours. Mrs. Bown, Gunnersbury, also contributed some pretty stands, winning the Duke of Teck's prize.

FRUIT.

The leading class in this section was that for six dishes; Mr. Hudson, gardener to J. Atkinson, Esq., Gunnersbury House, securing the first prize; Black Hamburg and Foster's Seedling Grapes, both well ripened and of good colour, Lord Napier Nectarines, Condor Peaches, and Scarlet Premier Melon being also fine. Mr. J. Fry, gardener to L. J. Baker, Esq., Haydon Hall, Eastcote, Pinner, followed with Muscat of Alexandria Grapes, *Violette Hâtive* Nectarines, and *Grosse Mignonne* Peaches amongst the best dishes. Mr. Hopkins, gardener to R. Thornton, Esq., Highcross, Framfield, Sussex, was third. For three bunches of black Grapes Mr. Hudson won chief honours in a class of seven competitors with magnificent bunches of *Madresfield* Court, grand in shape, size of berry, and colour. These well deserved their position, though possibly a few days later they would have been in even better condition. Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopsgate House, followed, and Mr. G. Thomson, The Gardens, Croxby House, Hounslow, was third. In the white Grape class Mr. Cakebread, gardener to Sir Philip Rose, Bart., Keymers, was first with Foster's Seedling, Messrs. Feist and Wagstaff following closely, each with Muscat of Alexandria less perfectly ripened. In other local Grape classes Messrs. Munro, Barnes, Merry, Bates, and Wagstaff were the winners. Mr. Heckle was first with a dish of Strawberries, uncommonly fine examples of James Veitch large and well ripened.

Vegetables were represented by several good collections, very fresh and well grown. Messrs. C. Waite, Higginson, Morrell, Coombes, Munro, and Edy securing the principal awards. The prizes offered by Messrs. Sutton and Sons, Reading, and Carter & Co., High Holborn, for Melons and Cucumbers were well contested, the latter being very largely shown.

THE DOUBLE WHITE AND BLUE CAMPANULA.—The former for indoor vase or bouquet decoration, or for effect in mixed borders, remembering how very little trouble it gives and its continuous blooming habit

until winter comes, is one of the best outdoor white flowers we have. It has been in bloom here for the past fortnight, but the double blue has only just expanded. There is a rather disagreeable mixture of white in the petals that takes from its effect, besides the habit of not opening so fully and regularly as the white. However, both should be companions in every mixed border. The figure given in Mr. Ware's catalogue does not do justice to *C. roseiflora alba fl.-pl.* I saw better flowers at Hale Farm last autumn. Mine is as double as a white Camellia.—W. J. M., *Clonmel.*



THE WEATHER IN LONDON during the close of last week and the beginning of this has been excessively hot. On Monday the thermometer in the shade ranged from 87° to 89°. Yesterday (Wednesday) morning there was a steady rain, which was very acceptable.

— WE are informed that Mr. FOSTER of the firm of Foster and Pearson, Horticultural Works, Beeston, Nottingham retired from the firm on June 30th, after being forty-two years engaged in building greenhouses. The business will be continued by Mr. Pearson.

— A MARECHAL NIEL ROSE growing at Messrs. Dicksons & Co. of Edinburgh, is not unremarkable. Planted on the western side of the house, the tree branches out 60 feet by 20, and has often borne one thousand blooms and buds at the same time. The main stem is 5½ inches in circumference, and it has been eight years in attaining its present gigantic proportions. It blooms from April to November, and is the parent of many thousands of plants.

— MR. GILBERT of Burghley sent us last week a dish of WILSON'S EARLY ASHLEAF POTATO. He says it "may truthfully be described as a Myatt's for cropping, but is at least ten days earlier." The tubers resemble those of the valuable old Mouse-car Ashtop, and the flavour is very superior.

— A CORRESPONDENT states that the GOLDEN-LEAVED CAMPANULA PYRAMIDALIS is very attractive in the College Botanic Garden, Dublin, the foliage being of a fine golden hue that is striking amongst other occupants. This plant is not very well known in England, and it would be well worthy the attention of cultivators.

— WE also learn that NYMPHÆA ALBA VAR. ROSEA is flowering for the first time in Ireland at Kalcarragh, Wicklow, the residence of Mr. Acton. This is a charming variety of a beautiful plant, the colour being most soft and delicate.

— DR. STUART, Hillside Cottage, Chirnside, has sent us flowers of some of his SEEDLING AQUILEGIAS from crosses between *A. cærulea* and *A. chrysantha*. Some of these are in form peculiar, and in colour most pleasing, though unfortunately the flowers arrived in a much-dried state.

— AT a seasonable time we have received a copy of the "TOURIST'S GUIDE TO THE CONTINENT," edited by Mr. Percy Lindley for the Great-Eastern Railway Company. All travellers to Holland, Belgium, the Rhine, and Switzerland should possess this guide, which is printed on the dry-rolled American system, is attractive by its sepia plates and photo-etchings, is interesting, instructive, useful, and at its price, 6d., is marvellously cheap. This is the fifth annual issue of the Guide, and is a striking advance on the previous series.

— AT a recent meeting of the Sheffield Floral and Horticultural Society, Mr. J. Udale, gardener to H. E. Watson, Esq., Shirecliffe Hall, Sheffield, read an exhaustive paper upon the HISTORY AND CULTIVATION OF THE CHRYSANTHEMUM, which was greatly appreciated by the audience, and a desire was expressed that it be published.

— A CORRESPONDENT states that VEGETATION ABOUT SHEFFIELD is looking remarkably clean, strong, and healthy. There is promise of splendid crops of hardy fruits, especially Pears, Strawberries, and bush fruits, and he never saw Peas looking more robust and healthy than is the case generally this season.

— THE CELERY FLY is unusually prevalent in the neighbourhood of London, some of the market gardens in the valley of the Tham

being greatly infested with this pest. We hear that one method adopted to remove it is cutting the older leaves close down to the heart of the plant, the young growth being expected to come clean and uninjured. This appears to be an extreme measure, but it is said to prove efficacious, and that is sufficient to recommend it when a whole important crop is in danger of being destroyed.

— IT may be useful to some gardeners to know that a PLEASANT AND WHOLESOME BEVERAGE for the hot weather can be readily made by mixing a little fine oatmeal in water, adding if desired a little sugar or a lemon. Larger quantities of this can be safely drunk than either of water alone or beer, and in some public establishments around the metropolis where a large number of men are employed a considerable quantity is used.

— A CORRESPONDENT writes:—"The long DROUGHT IN SCOTLAND is now at an end. For some time slight showers have been prevalent, but only damping the surface. A steady downpour, however, followed, and with warm weather it will do immense good. The rain just came in time for Strawberries in the garden and Turnips in the field—indeed, for everything, as most crops were suffering."

— MR. W. TAYLOR'S work on the VINES AT LONGLEAT, as we have previously announced, has been translated into French by M. H. Fonssey, and published in the "Bulletin de la Fédération des Sociétés d'Horticulture de Belgique," and it is now issued in separate form of royal 8vo. size, containing seventy-four pages, bound in paper covers. We understand that Mr. Taylor's idiomatic English caused the translators considerable difficulty in some cases, but the meaning has been very truthfully rendered.

— MR. J. CROSSLING, The Gardens, Felton Park, Acklington, sends us fine branches of the beautiful PHILESIA BUXIFOLIA, of which we gave an illustration on page 493, vol. iv. The flowers were large, of fine colour, and borne freely on the branches, and they have lasted remarkably well, keeping fresh out of water for three or four days. It is a handsome shrub, and the durability of its flowers well entitles it to notice. Mr. Felton's plants are evidently exceedingly well grown, the fine foliage and vigour of the specimens being remarkable.

— SOME of the finest specimens of the bright and charming BEGONIA FUCHSIOIDES are in the handsome conservatory at Sundridge Park, the residence of Sir E. Scott, Bart., Bromley, Kent. They are trained to the pillars, forming dense bushes upwards of 20 feet high, and laden with their rich coral-scarlet flowers they have a magnificent effect. For such places this distinct Begonia is admirably adapted, and when trained on arches over a path the drooping clusters of bright flowers are very telling.

— IN the same house GLADIOLUS COLVILLI AND ITS VARIETY ALBUS are largely grown for decorative purposes, and they have a fine effect, also proving useful for cutting. Mr. S. Lyon finds the white variety very useful, and intends growing it much more extensively another season.

— A SCOTTISH gardener writes:—"Here is a curious fact in connection with PLANTING IN LEAF SOIL. We had a good deal of shrub-planting to do the past winter and spring. Several large clumps of Rhododendrons were also formed. The beds for these latter were covered 9 inches thick with rough leaf soil, and amongst this the plants were put out. It takes four men and two horses one to two days every week carrying and supplying water to the other shrubs in order to keep them growing. These Rhododendrons are producing strong young growths without having received any water. I examined them the other day and found the soil quite moist, and doubtless the roots of the plants are taking to it."

— FIGS IN THE OPEN AIR are still successfully cultivated in both Kent and Sussex, and nowhere probably better than in the garden of the Rev. Canon Jeffreys at Hawkhurst. Old slow-growing trees are the best, and in this state require and receive a liberal top-dressing of manure. The growth they make seldom exceeds 6 inches, and is very stout and short-jointed. Vigorous young trees are not hardy, and in districts where frequently cut down by frost they seldom form sufficiently ripened wood to produce fruit. To insure short-jointed prolific growth on comparatively young trees they should be planted in a rather poor compost, consisting of at least one-third old mortar rubbish. The hottest corner of the garden

walls is best suited for Fig culture, and where the trees are in full bearing no pruning other than occasionally cutting hard back a few main branches to secure sufficient growth to furnish the centre of the tree. The Brown Turkey is the heaviest cropper, and Brunswick also fruits fairly well.

— THE magnificent collection of HARDY FLOWERS FROM MR. WARE'S HALE FARM NURSERY, shown at Kensington last week, was generally admitted to be one of the finest that has ever been exhibited, which deserved an even higher honour than the silver medal awarded for it. Amongst the many specimens of fine plants included the following were conspicuous:—*Delphinium*, numerous hybrid varieties; *Inula oculus-Christi*, *Lychnis viscaria splendens plena*, new; *Spiraea aruncus*, *Campanula glomerata dahurica*, *Hesperis matronalis alba plena*, *Lathyrus grandiflorus*, *Lilium pomponium*, *L. colchicum*, *L. parvum*, *L. martagon*, *L. m. purpureum*, *L. m. candidum*, *L. longiflorum*, *L. auratum*, *L. pardalinum pumilum*, very rare; *Tropæolum polyphyllum*, *Onosma taurica*, *Cyclobothra pulchella* and *alba*, *Polemonium Richardsoni*, *Phlox ovata*, *Pyrethrum*, single and double forms; Pinks in all the finest forms, including the new white var. *Mrs. Sinkins*; *Antirrhinums*, many varieties; *Pentstemons*, many varieties; *Dictamnus Fraxinella* and *alba*; *Armerias*, gigantic varieties; *Sidalcea candida*, *Senecio japonicus*, *Campanulas*, many varieties; *Gladiolus Colvilli* and its var. *The Bride*; *G. ramosus* in variety; *Iris*, English and Spanish, a fine collection; *Ixias*, a choice collection; *Cypripedium spectabile*, *Orchis foliosa*, *O. maculata superba*, *O. hircina* (*Lizard*), rare; and many other varieties of fine herbaceous plants.

BROMLEY (WEST KENT) SHOW.

JUNE 30TH.

FOR several years past an attractive Exhibition has been annually held in the neighbourhood of Bromley, Bickley, and Chislehurst, the most recent Shows having had for their site the grounds of Camden House; this season, however, by the courtesy of Sir Edward Scott, Bart., the garden at Freeland House, Sundridge Park, was placed at the disposal of the Society, and the Exhibition was in consequence held there. The situation is a pretty one, and the weather proving very fine, though hot, a number of visitors assembled. The exhibits were well arranged, but the entries were not quite so numerous as we have seen at previous Shows, the not-for-competition groups, which were formerly so largely shown by metropolitan nurserymen, being much fewer. The majority of the plants were, however, very healthy and fresh, the fruits fairly good, and the vegetables first-rate.

STOVE AND GREENHOUSE PLANTS.—Well-grown specimens of these were shown by several exhibitors, Mr. Gibson, gardener to T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, being first for six with even globular specimens of *Dipladenia reginae*, *Allamanda Hendersoni*, *Dipladenia amabilis*, *Stephanotis floribunda*, *Clerodendron Balfourianum*, and *Statice profusa*, all in fine condition. Mr. J. Mitchell, gardener to Mrs. Arbuthnot, Bexley, was second, his most notable plant being *Araucaria Bidwilli*, 6 feet high. *Fuchsias* were profusely flowered, especially in the collections from Messrs. Mitchell, J. Eggleton, gardener to The Mount, Shortlands, and James Wright, gardener to J. W. Perkins, Esq., Woodfield, Beckenham, who were the prizetakers. *Gloxinias* were well shown by Messrs. H. Turner, J. Sterry, gardener to J. Scott, Esq., Abbyfield, Bickley Park, and J. Neighbour, The Gardens, Bickley Hall.

A pretty display was formed by the Tuberous *Begonias*, Mr. Mitchell taking the lead with six handsome specimens bearing large and richly coloured flowers, healthy vigorous plants—seedlings raised by the exhibitor; one, *Pink Perfection*, with fine rounded flowers, being uncommonly good. Messrs. Stens and Neighbour were second and third in a class of eight exhibitors.

FINE-FOLIAGE PLANTS.—In the class for six specimens Mr. Mitchell took the lead with *Anthurium crystallinum*, *Croton Johannis*, *C. Queen Victoria*, *Maranta bella*, and *Pandanus Veitchii*, fresh, healthy, and most satisfactory generally. Mr. Gibson was a close second, having two grand plants of *Alocasia Lowi* and *metallica*. Mr. H. Turner, gardener to G. Phillips, Esq., Elmstead Lodge, Chislehurst, was third, *Alocasia albo-violacea* and *esculenta* being the best.

Fine-foilage *Begonias* were admirably shown by Mr. G. Spittles, gardener to W. A. Bradford, Esq., Elmstead Lawn, Chislehurst; Mr. J. Sharpe, gardener to F. Hatchett, Esq., Parkfield Grove Park; and Mr. R. Teal, gardener to A. M. Tapps, Esq., The Gables, Shortlands. Mr. Mitchell had the best four *Dracænas*—finely coloured specimens of *amabilis*, *Baptisti*, *Youngi*, and *voluta*, Mr. Sharpe following.

FERNS.—These are invariably well represented at the Bromley Show, and the present time was no exception to the rule. Mr. Mitchell had the best six, extremely vigorous plants of *Gymnogramma Wetenhalliana*, *Adiantum gracillimum*, *Neottopteris australasica*, *Platyterium grande*, *Adiantum cuneatum* and *A. macrophyllum*. Mr. H. Turner and Mr. T. Gearing, gardener to S. Williams, Esq., Blackbrook, Bickley, were second and third, each with fresh healthy examples. Hardy Ferns were finely shown by three exhibitors, Mr. J. Neighbour being first with six beautiful examples, *Athyrium F.-f. Victoriae*, *Adiantum pedatum*, and *Osmunda regalis cristata* being very noteworthy. Mr. Gearing was second, and Mr. C. Saunders, Barnes Wood, Bromley Common, was third. Mr. Mitchell had the finest specimen Fern—*Gymnogramma chrysophylla*, very large and healthy, about 4 feet in diameter. Messrs. Eggleton and Spittles were second and third with *Adiantum cuneatum*. Mr. Cooper, gardener to M. Yeatman, Esq., Shawfield,

Bromley, was first with six *Selaginellas*, very neat fresh specimens. Messrs. J. Neighbour and Mitchell followed with good but less fresh plants.

The groups were not remarkable for the taste displayed in their arrangement, though healthy well-flowered plants were employed. Mr. Mitchell was first with a collection of Palms, *Clerodendron fallax*, *Coleuses*, *Caladiums*, a few Orchids, and a pretty margin of *Adiantum cuneatum*. Messrs. Gibson and Teal were second and third, the latter having some fine *Hydrangeas*.

ROSE BLOOMS.—An extensive and beautiful display of Rose blooms was provided—quite an exhibition in itself, the flowers fresh, bright, and of good substance. Messrs. Paul & Son, Cheshunt, took the lead with forty-eight varieties (triplets), a remarkably handsome collection. Messrs. Banyard & Co., Maidstone, and Mr. W. Rumsey, Waltham Cross, were respectively second and third with fine blooms, very close to the others in merit. Messrs. Paul and Son were also the most successful with twenty-four varieties of similar quality, followed by Messrs. B. R. Cant (Colchester), and W. Rumsey. In the twelve Messrs. B. R. Cant, Paul & Son, and Rumsey secured the prizes in that order. For twelve of one variety Messrs. Banyard won chief honours with *François Michelin* in fine condition, Mr. Rumsey taking the second place with *Madame Gabriel Luizet*, fresh and good, Messrs. Paul being third with the same variety. The amateurs' classes were not quite so well filled as usual, nor were the blooms generally of the best quality. The principal prizetakers were Mr. A. Gibson, the Rev. J. M. Fuller, Bexley Vicarage, and Mr. J. Sharpe.

HARDY FLOWERS.—Two beautiful collections of these were staged, each including a large number of species and varieties. Mr. Maynard, gardener to J. Whitehead, Esq., Southwood, Brockley, was placed first with a very choice collection, but carelessly and inaccurately named, the spelling being very imperfect. Fine examples of *Geranium armenum*, *Onosma taurica*, *Armeria cephalotes*, *Stenactis speciosa*, *Inula glandulosa*, *Delphinium formosum*, and *Anchusa italica* amongst many others, seventy-six forms being shown. Mr. H. Cole, gardener to J. A. Mitchell, Esq., Woodlands, Chislehurst, was second with eighty-four varieties, including many beautiful plants, but less choice than the preceding, and comprising several that were not true perennials. In other cut-flower classes Messrs. Mitchell, G. Wynn, gardener to H. Morris, Esq., Hayes Common; J. Mumford, J. Wright, J. Neighbour, and T. Gearing were the prizetakers. Master Frank E. Wood, 10, Park Grove, Bromley, had a fine collection of Grasses, sixty species, very accurately and neatly named, both common and botanical names being given. First to Miss Yeatman, also 160 varieties of wild flowers.

FRUIT.—There was not a large display of fruit, but Strawberries were well shown. For a collection Mr. J. Neighbour was first with Black Hamburg and Royal Muscadine Grapes well ripened, Golden Perfection Melon, and good dishes of Nectarines and Melons. Mr. Tucker, gardener to J. L. Lovibond, Esq., Farnborough, was second, Early Alfred Peaches and *Violette Hâtive* Nectarines being the best dishes. For a dish of Strawberries of one kind Mr. G. Tucker, gardener to J. L. Lovibond, Esq., Farnborough, was first with *President*, large and well ripened. Mr. T. Spittles was second with *James Veitch*; and Mr. Turner third with the same variety. For three dishes Messrs. Neighbour and Cooper were the prizetakers, the first with Sir Joseph Paxton, *James Veitch*, and Sir Charles Napier. Mr. Gibson had the best three bunches of black Grapes (*Black Hamburg*), large in bunch and berry. Mr. J. Neighbour followed with the same variety, smaller, but well coloured. Mr. J. Mitchell was third, also with *Black Hamburg* in good condition. Mr. Mitchell was first with three bunches of *Muscat of Alexandria*, and one bunch of the same variety, all being well coloured. Mr. Waterman had the best Nectarines (*Elruge*), and Mr. Neighbour the best Peaches (*Royal George*).

VEGETABLES.—Several clean and satisfactory collections of vegetables were shown. Mr. Waterman, gardener to H. A. Brassey, Esq., M.P., Preston Hall, Aylesford, was first with nine kinds, including fine Telephone Peas, American Wonder Beans, *Vick's Criterion* Tomatoes, *Myatt's Ashleaf* Potatoes, and White Italian Onions. Mr. J. Neighbour and Mr. W. Gammon gardener to C. Boosey, Esq., The Pines, Bickley Park, were second and third, each with good collections. For six kinds Messrs. Cooper, Cole, and Humphrey were the prizetakers.

DINNER TABLE DECORATIONS.—As usual, some exceedingly tastefully arranged tables were entered in this section. For a table 10 feet by 5 feet Mr. Sentance, Merevale, Bickley Park, was placed first with three centre-glass globes filled lightly with varieties of Irises (blue, yellow, and white), *Adiantums*, and Grasses, side glasses being filled with Irises and *Aquilegias*, chiefly *chrysantha*. Twelve small glasses contained each a yellow Iris or *Aquilegia* bloom, with a few leaves of *Caladium argyrites*, *Coleus* leaves, *Adiantum*, and *Aira cœspitosa*. The general effect of this was most pleasing, simple but effective. The second prize was awarded to Mrs. J. Scott; and Mrs. T. A. Mitchell, Elmstead, Chislehurst, had an even more simple arrangement—a central bowl filled with blue, yellow, and scarlet *Aquilegias*, the last being round the base, with *Adiantum* fronds and a few Grasses. Two side stands were similarly filled, four small neat glasses being filled very lightly with Grasses, yellow *Aquilegias*, *Dracophyllum gracile*, and *Saxifraga* blooms. The Misses R. A. Tweedell and R. H. Alston, Bonnington and Fairfield, were third. The best table 5 feet by 5 decorated with foliage and flowers of British plants only was contributed by Miss A. Sentance, Merevale, Bickley Park, the flowers employed being chiefly Iris *pseud-acoris*, *Myosotis palustris*, single Roses, and Grasses. The second position was obtained by Mrs. Emily Wood, 10, Park Grove, Bromley, with a very tasteful arrangement, a central basket of *Nymphaea alba*, *Nuphar lutea*, *Myosotis*, *Centaureas*, and similar flowers, with Ox-eye Daisies and Grasses. The best bouquets and buttonholes were from Mr. H. Cole and Mr. J. Mitchell. Mrs. Scott showed the best basket of miscellaneous flowers; Messrs. Ponsford & Son, Bromley, contributed several bouquets and wreaths not for competition.

MISCELLANEOUS.—The following were the principal not-for-competition collections, for which extra prizes were awarded. Mr. B. S. Williams, Upper Holloway, exhibited one of the finest groups in the Show, comprising a great number of choice Orchids, Crotons, Ferns, and miscellaneous stove and greenhouse plants. A beautiful pan of *Anæctochilus*, *Goodyeras*, and *Sonerilas* was especially notable. Messrs. J. Laing & Co., Forest Hill, staged a showy and attractive group of fine-foilage and flowering plants, Tuberous *Begonias*

being especially well represented by a large number of the finest varieties in cultivation. Caladiums were similarly good. Messrs. H. Cannell & Sons, Swanley, contributed a beautiful collection of Pelargoniums, both flowers and plants, Verbena and Pansy blooms, and handsome spikes of Delphiniums, representing a number of superb varieties. The blooms in this contribution was greatly admired by the visitors. Mr. W. Pinyon, Chislehurst, exhibited a number of spikes of Foxgloves, Delphiniums, Campanulas, Pentstemons, Antirrhinums, and blooms of a clear yellow Picotee named Imperial Yellow. Mr. J. Mumford, Elmstead Grange, Chislehurst, staged a beautiful group of Orchids, stove and greenhouse plants, Ferns, &c. Several good plants of *Odontoglossum vexillarium*, *Aerides Lobbi*, and *Masdevallia Lindeni* were included; a central plant of *Anthurium Schertzerianum* with about three dozen spathes being conspicuous in the group. *Erica depressa* and *Gloxinias* were also well represented.

ROCKERY PLANTS IN FLOWER.

THE following plants were flowering in June, and are planted in various positions in the rock garden here. It will be seen that a very large number are natives of this country, nevertheless they will hold their own for beauty with many of the exotic kinds.—A. HARDING, *Orton Hall Gardens, Peterborough.*

Verbena Impératrice Elizabeth	Iberis corifolia
Allium Moly	Achillea tomentosum
Geutiaua acaulis	Papaver cambricum
Geranium cinereum	Dracocephalum Ruyschianum
" Robertianum	" japonicum
Astragalus hypoglottis	Spiræa filipeudula
Lychnis alpina	" plena
" Flos-Jovis	Lonicera flexuosa
" dioica rubra	Yellow Austrian Briar
" " plena	Asperula odorata
" chalcidonica	Erodium Manescavi
Physalis Alkekengi	Cerastium tomentosum
Polygonum Brunonii	" arvense
Columbine	Listera ovata
Erinus alpinus	Orchis maculata
Lycasteria formosa	" mascula
Wild Roses	" papilionacea
Hemerocallis flava	" pyramidalis
Foxglove	" conopsea
Pæonia tenuifolia	Aceras anthropora (Man Orchis)
Thalictrum minus	Ophrys apifera (Bee Orchis)
" majus	Gaillardia picta
Lilium tigrinum	" Lorenziana
" candidum	Campaula Medium, blue
" " variegatum	" " white
Vinca minor atro-purpurea	" " rose
" " alba	" " rhomboidalis
" " major	" " pumila
Saponaria ocyroides	" " alba
Echeveria secunda glauca	" " pulla
Thymus lanuginosus	" " turbinata
" montanus albus	" " " alba
Stipa pennata	" " glomerata
Primula Auricula in variety	Auemone montana
" cortusoides	" thalictroides
" " amoena	Dianthus deltoides
" " denticulata	" " albus
" " japonica	" " monsperulanus
Geum coccineum	" " arenarius albus
Erica ciliaris	" " hybridus
Phlox ovata	Common White Pink
" divaricata	" Moss Pink
" setacea in variety	Sedum glaucum
Saxifraga graaulata	" virens
" " plena	" sexangulare
" " pyrenaica	" " acre aureum
" " umbrosa	" " caeruleum
" " Wallacei	Mimulus moschatus
" " ceratophylla	" " Harrisoni
" " atro-purpurea	Dielytra spectabilis
Veronica rupestris	" " eximea
" prostrata	Polygala vulgaris
" " pectinata	Lithospermum prostratum
" " " rosea	" " purpureo-caeruleum
" " " gentianoides	Alyssum saxatile
" " " incana	Linum perenne
" " " saxatilis	" " album
Oxalis Acetosella	Trollius europeus
Sella capanulata	Adoxa Moschatellina
" " " rosea	Cuphea platycentra
Cheiranthus alpinus	Rhodiola rosea
Silene armeria	Reseda lutea
" " alpestris	Pansies
" " " maritima plena	Sempervivum montanum
Aubrietia purpurea	" " arachnoideum
" " " græca	Ranunculus aconitifolius
Hippocrepis comosa	" " auricomus
Myosotis dissitiflora	Anthericum Liliastrium
" " elegantissima	Stellaria graminea
Koniga variegata	Gnaphalium dioicum
Heuchera lucida	Iris pumila in variety
Helianthemum Innocenze	" " germauca
" " croceum	

JAMES VEITCH STRAWBERRY.

I WAS particularly struck to-day with fruits of the above Strawberry. In the first place they were large, the three heaviest weighing 4 ozs., then the flavour is good, yet not to be compared to either President or Sir Joseph Paxton, and lastly the plants are very prolific. I have taken no particular pains to make these especially good as I have not time, so should think on stiff cold soils James Veitch would do well. It is strong-growing, so will do with plenty of room. It is a capital Strawberry for travelling, being very firm. One fruit in each truss is cockscomb shape, and the fruitstalk so strong that I had to cut with knife,

though I generally find my fingers and thumb strong enough. The remaining fruit were in shape very much like Sir J. Paxton; the colour, however, is not very bright. I intend planting a good batch of this variety.—S. C.

CROYDON SHOW.

JUNE 27TH.

OWING to the postponement of the Cardiff Show this may be taken as the first Rose show of the season; and a very good commencement it was, the blooms being extremely fresh, brightly coloured, and mostly of fine substance, constituting the chief feature of the Show. Miscellaneous plants were, however, admirably represented by healthy well-grown specimens of moderate size generally, though some large specimens were staged in the classes for fine-foliage plants. Two spacious marquees were devoted to the exhibits—one to the Roses, cut flowers, table decorations, and fruit, the other to the groups and plants, which were arranged very effectively; indeed, the whole management of the Show was most satisfactory, and creditable to the energetic Secretary, Mr. A. C. Roffey, whose efforts to render the Exhibition successful have been so frequently crowned with success.

ROSES.

Prominence is given to these because they amply merit it, both on account of their numbers and quality. The leading class in the nurserymen's section was for forty-eight blooms, Mr. W. Rumsey, Waltham Cross, securing chief honours with handsome blooms of Horace Vernet, Souvenir de Spa, Ulrich Brunner, fils, A. K. Williams, Duke of Teck, La France, Marie Verdier, Gabriel Luizet, and Niphetos. Messrs. G. Bunyard & Co., Maidstone, were placed second; and Messrs. Piper & Son, Uckfield, third, each with good collections, the blooms rather smaller than the first. Five competitors entered the class for twenty-four, Mr. J. Mitchell, Piltdown, Sussex, winning first honours with good samples of Duchesse de Vallombrosa, Rubens, Madame Eugène Verdier, and Devoniensis amongst others. Messrs. Rumsey and Piper followed in that order. Mr. Mitchell was also first with twelve Teas, showing Perle des Jardins, Niphetos, Rubens, and Catherine Mermet very fine. Messrs. Piper were second, having Souvenir d'un Ami and Catherine Mermet excellent. For twelve blooms of one variety Messrs. Piper were first with Souvenir d'Elise fine and fresh; Mr. Rumsey following with a box of Le Havre, very handsome and highly coloured blooms.

The amateurs' classes were well filled, and the exhibits of good quality. For twenty-four blooms there were seven collections, Mr. A. Slaughter, Jarvis Villa, Steyning, securing the chief award for handsome specimens of Camille Bernardin, Etienne Levet, Marie Baumann, and Maurice Bernardin. Mr. J. Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, was a very close second, Auguste Rigotard, La France, Marie Baumann, and Dupuy Jamin being the most noticeable blooms in his stand. Mr. Budgen, gardener to G. Baker, Esq., Holmfels, Reigate, was third with a fair stand, including the best bloom in the open classes—a fine example of Charles Lefebvre, for which the National Rose Society's medal was awarded. Nine collections of twelve blooms were staged, Mr. Brown taking the first position; the Rev. Alan Cheales, Brockham Vicarage, Reigate, and E. Wilkins, Esq., Lyndhurst, Sutton, following as second and third.

Teas were represented by six stands of twelve, Mr. J. Brown winning the principal prize with handsome blooms of Madame Lambard, Innocente Pirola, Madame Welche, Jean Ducher, and Souvenir d'un Ami. Mr. Slaughter and C. E. Cuthell, Esq., West Humble, Dorking, took the remaining prizes. In other smaller classes R. E. West, Esq., Firth Dene, Reigate, and Penfold were prizetakers; E. Mawley, Esq., Addiscombe, being first with twelve and twenty-four in the district amateurs' classes. The best bloom in the local classes was Thomas Mills, shown by Mr. W. Jones, gardener to J. R. Bringham, Esq., Wallington.

GROUPS.

A considerable number of groups occupied a large portion of the plant tent, four or five classes being devoted to them. The largest were those in the class for nurserymen only, the group to occupy 100 square feet. Mr. A. W. Beedell, Wallington, secured the chief prize amongst these with a rich but rather formal arrangement of flowering and fine-foliage plants, such as Lobelias, Achimenes, Lilies, Ferns, Isolepis, and a central Cordyline. Mr. Chaff was second with a bright collection of Pelargoniums, Fuchsias, Heliotropes, &c.; Mr. Butcher, George Street, being third with a lighter arrangement of Hydrangea paniculata, Saxifraga pyramidalis, and Coleuses, with Adiantums and other foliage plants. For smaller groups the most successful exhibitors were Messrs. Elsey, F. W. Humc, King, Penfold, and Rodbourn, all contributing bright and pretty groups.

Orchids, though not in great abundance, were represented by several well-grown plants. Mr. King, gardener to Phillip Crowley, Esq., Waddon House, Croydon, staged the best six, comprising *Cypripedium vitellinum* with thirteen spikes, *Dendrobium suavissimum* with two spikes or about eighteen flowers, *Odontoglossum Alexandræ*, *Aerides Fieldingi*, and *Lycaste Deppei* were flowering freely, especially the last-named. Mr. Penfold, gardener to Canon Bridges, Beddington Park, took the second prize, having a good *Dendrobium densiflorum* and *Cattleya Mendelli*, the latter with nine flowers.

Stove and greenhouse plants were exhibited by Mr. Penfold in fine condition, his first-prize collection of six including *Dipladenia Brearleyana*, very healthy and bearing large flowers. *Rhynchospermum jasminoides*, *Kalosanthes coccinea superba*, *Dracophyllum gracile*, *Anthurium Schertzerianum*, and *Bougainvillea glabra* were also well-grown plants. Mr. King had the best single specimen *Clerodendron Balfourianum*, 4 feet high, globular, well trained, and freely flowered. In another class for stove and greenhouse plants Mr. Penfold was again first, a beautiful specimen of *Asclepias curassavica* 4 feet high, bearing some scores of flowers, being especially good.

Fine-foliage plants were rather more numerous than the preceding, Messrs. Penfold and King securing the leading prizes with handsome vigorous plants; the fine *Davidsonia pruriens* and *Thrinax elegans* from the former were particularly good, Mr. King showing a grand example of *Phyllanthus nivosus* 5 feet high. Ferns and Selaginellas were similarly well shown.

In the numerous other classes for Begonias, Petunias, Caladiums



FIG. 2.—RHODODENDRON EDINENSE.

Gloxinias, Achimenes, and Coleuses the principal exhibitors were Messrs. W. C. Stew, gardener to E. Parritt, Esq., Lower Addiscombe; Lover, gardener to W. Hodgson, Esq., Shirley; Rodbourn, gardener to Baroness Heath, Coombe House; Bruce, gardener to Mrs. Firth, Addiscombe Park; A. C. Roffey; Elsey, gardener to D. Cornish, Esq., Dagnal Park; and Welstead.

Fruits, cut flowers, and vegetables were chiefly shown by Messrs. Crouch, gardener to J. Cooper, Esq., Duppus Hill, Wellstead; Dobson, gardener to Miss Steyning, Addiscombe Road; A. Alderman, gardener to C. Czarnikow, Esq., Mitcham; Penfold, Miss Bishop, and Miss Cross, Addiscombe.

RHODODENDRON EDINENSE.

THIS very magnificent hybrid was raised several years ago by my friend Mr. Anderson-Henry of Hay Lodge, than whom there has been no more enthusiastic admirer and cultivator of the genus *Rhododendron*. It has the size and grandeur of *R. Nuttallii*, with a much better habit and more graceful foliage. Mr. Anderson-Henry was one of the first to hybridise with the splendid *Rhododendron* species discovered some thirty years ago in Sikhim and Bhotan. Between *R. Dalhousiæ* and *formosum* he produced *R. Henryanum*, figured in the "Botanical Magazine," and much admired. Using then the pollen of *R. Nuttallii* on his hybrid, he carried the mixture of species further, and produced the subject of the present figure, which is much below life size. At the first evening meeting of the Royal Horticultural Society this year I showed several very fine trusses. The great white Lily-like and scented flowers, well set off by the luxuriant foliage, attracted universal admiration, and the Editor of the *Journal of Horticulture* asked for a truss to figure, which I willingly gave, explaining that, although I had grown the plant for some years, my friend had raised and named it.

Of large, white, scented *Rhododendrons* there are undoubtedly already very many in cultivation, including true species and hybrids. Of the former *R. Maddeni* in various forms, *R. Edgeworthii*, *R. Veitchianum*, and, largest of all, *R. Nuttallii* may be specially mentioned. *R. Dalhousiæ* is generally more successful in a hybrid form than as a true species. Of hybrids, again, there are *R. Forsterianum*, most beautiful and delicate, and many others. Still, there is room for our present hybrid, which in some respects surpasses and differs from them all.

It furnishes, moreover, a curious example of breeding with a pure species (other than one of the parents) on a hybrid—an experiment very seldom successful among *Rhododendrons*. The pure species may in this case have been prepotent, but it has by no means entirely superseded the influence of the hybrid mother. Nor is the compound offspring apparently altogether sterile. I have induced it to ripen capsules and produce germinating seed under the influence of the pollen of a fourth species.

The plant from which my flowers were gathered for the meeting blossomed very freely during the month of April and the beginning of May in a cold house, where during the winter the thermometer frequently ranged only slightly above the freezing point. The flower buds, however, were entirely uninjured.—J. H. MANGLES, *Valewood, Haslemere.*

CANTERBURY ROSE SHOW.

THERE is no place where I would sooner commence my usual circuit of judging than the good old city of Canterbury—endeared to me by many associations, and bringing back my thoughts to a long-past time, before Rose shows were even thought of, and when none of those beauties on which we now feast our eyes were known. Hearty, too, is the favour which is accorded to our favourite flower, and kindly and brotherly the fellowship which is cultivated amongst its devotees; while some of its successful cultivators have made it famous in the Rose world. And I may at the outset say that it has well maintained its reputation by the Exhibition which was held to-day (the 29th)—not the first in the field, for the National took place at Southampton, and the Maidstone Show on the previous day (the 28th). I had to hurry away from a pleasant gathering at the former place in order to reach home, so as to be able to get down to Canterbury by an early train, for our southern lines are not very accommodating to the public; but, looking at the classes which were represented by amateurs at Canterbury and Southampton, I may say that the decided superiority rested with the former, and that the stands exhibited yesterday in eighteens, twelves, and sixes would have stood little chance with those shown to-day.

When I gave an account of my recent ramble among the Roses at Canterbury, I ventured to give as my opinion that of the three gardens which I visited—Mr. George Mount of Harbledown, Mr. Peckham of Hall Place, and Mr. W. Mount of Canterbury—would appear in the Exhibition lists in the order in which I have placed them, and it will be seen by the details of the prizes given below that my judgment was not far wrong. Again has the son of Vulcan forged his bolts with consummate skill, and, feeling his powers, has ventured into the higher classes, thus showing that he is as little wanting in courage as in skill. There are growers with twice his number of Roses who would be content to show in lower classes. Not so Mr. George Mount. With a consciousness of his powers, and with the flush of victory on him, he has ventured into the higher classes this year

and has carried off the highest honours. The Exhibition, with regard to another exhibitor, illustrated unfortunately the truth of the old saying, "There is many a slip between the cup and the lip." The Roses of Captain Bright at Bothing, which some of us had the pleasure of seeing last year, were in fine vigour, when a tremendous storm of hail cut off the greater portion of his blooms and riddled the foliage; so that he exhibited at a great disadvantage, and the wonder was that he exhibited in any form. On the other hand, the season and the day were both favourable to Mr. Peckham, whose beautifully situated residence at Harbledown nestles in warmth and shelter, and his best Roses have been generally over before the show day; but the early fixture this year just suited him. And now as to the awards.

In the class for eighteen blooms (amateurs) Mr. George Mount of Harbledown was first with a very fine stand, containing the following flowers:—*Etienne Levet*, very fine; *Ferdinand de Lesseps* (I think this ought to have been labelled *Maurice Bernardin*, according to the catalogue of the National Rose Society), *La France*, excellent; *Charles Lefebvre*, a very grand bloom; *Marquise de Castellane*, *Souvenir de la Malmaison*, a very beautiful three-quarter-expanded bloom; *Anna Ollivier*, *Star of Waltham*, *Fisher Holmes*, *François Michelon*, *Duke of Edinburgh*, a very grand dark bloom; *Marie Baumann*, very good; *Alfred Colomb*, *Duke of Wellington*, *Hippolyte Jamain*, *Xavier Olibo*, a very fine bloom; *Madame Eugénie Verdier*, and *A. K. Williams*. Mr. W. Wakley was a good second with *Baronne de Rothschild*, *Etienne Levet*, *Madame Gabriel Luizet*, *Senateur Vaisse*, *Marquise de Castellane*, *Capitaine Christy*, *Dr. André*, *Marguerite de St. Amand*, *Ferdinand de Lesseps*, *Maréchal Niel*, *Mdlle. Marie Rady*, *Marie Baumann*, *La France*, *Duke of Edinburgh*, *Souvenir d'Elise Vardon*, *Mrs. Baker*, *Thomas Mills*, and *Alfred Colomb*. In the class for twelves Mr. Peckham and Mr. Wakley were equal first, the former with *Etienne Levet*, *Charles Lefebvre*, *Madame Marie Finger*, *Marie Baumann*, *Le Havre*, *Maurice Bernardin*, *Gabriel Luizet*, *Fisher Holmes*, *Senateur Vaisse*, *Eugène Fürst*, and *Marie Rady*. In the class for twelve Teas Mr. George Mount was again first with a very nice box of blooms, containing *Rubens*, *Anna Ollivier*, *Souvenir d'Elise Vardon*, *Madame Camille*, *Devoniensis*, *Homère*, *Caroline Kuster*, *Jean Ducher*, *Maréchal Niel*, *Innocente Pirola*, and *Souvenir d'un Ami*. This was an excellent stand, and it is well to note that these were all from the open. Many Teas which are shown thus early in the season are cut from the house. In six varieties, trebles, Mr. W. Wakley was first with *Hippolyte Jamain*, *Duke of Edinburgh*, *Marquise de Castellane*, *Maréchal Niel*, a very fine triplet; *Capitaine Christy*, and *Dr. André*. In the class for twelve blooms Mr. Peckham was first with *Marquise de Castellane*, *Marie Baumann*, *Baronne de Rothschild*, *Etienne Levet*, *Marie Rady*, *Capitaine Christy*, *Duke of Edinburgh*, *La France*, *Charles Lefebvre*, *Maurice Bernardin*, *Madame Lacharme*, and *Dr. André*. In the class for nine Mr. W. Wakley was first with *Duke of Wellington*, *La France*, *Charles Lefebvre*, *Alfred Colomb*, *Etienne Levet*, &c. In the class for the best six of any one kind Mr. Peckham was first with *Marie Baumann*, Mr. J. Wakley second with *La France*, and Captain Bright third with *Devoniensis*. The prize for the best box in the Show was awarded to Mr. Peckham and Mr. W. Wakley, their stands being equal, so that each gained the National Rose Society's silver medal. The National Rose Society's bronze medal for the best bloom in the Show was awarded to Miss Hawksworth for a very fine bloom of *Anna Ollivier*, and it is worthy of remark that this was contained in a box of six—an encouragement to small growers, as showing what may be attained by those whose means of growing are limited. The other prizes in the amateurs' class were shared by Miss Straty, J. Wakley, the Rev. H. G. Rolt, the Rev. T. R. Buchanan, Mr. W. Collard, Mr. G. Moore, Mr. W. Mount, Mr. E. Marston, Mr. Foster, Miss Hawksworth, &c. There were some very fine stands of Teas exhibited in the open class, Mr. Prince taking first with a grand stand of *Comtesse de Nadaillac*, *Souvenir de Madame Pernet*, *Alba Rosea*, *Maréchal Niel*, *Catherine Mermet*, *Madame Lambert*, *Souvenir de Paul Neyron*, *Souvenir d'un Ami*, *Perle des Jardins*, *Madame Hippolyte Jamain*, *Homère*, and *Marie Van Houtte*. Mr. Cant's stand was also very fine, containing a grand bloom of *Comtesse de Nadaillac*, *Catherine Mermet*, *Hippolyte Jamain*, *Jules Finger*, *Maréchal Niel*, *Devoniensis*, *Caroline Kuster*, *Rubens*, *Niphetos*, *Adam*, and *Perle des Jardins*. In amongst the Hybrid Perpetuals exhibited by Messrs. Cant, Prince, Mitchell, and Kinmont & Kidd in this class were fine examples of *Duke of Teck*, very brilliant; *Violette Bouyer*, a very fine new light Rose, and likely to be a great favourite—more so than *Helen Paul*; *Charles Lefebvre*, *Duke of Wellington*, *Duchesse de Morny*, *La France*, *Le Havre*, *Louis Van Houtte*, *Général Jacqueminot*, and *Mrs. Laxton*. It will be seen that the name of my friend Mr. Biron does not appear. He has moved, and has not yet been able to feel his way; but I am quite prepared to think that, notwithstanding his difficulties, he will surmount them, and that we shall find him taking his usual place. He and his co-Secretary, Mr. Mount, were indefatigable in their endeavours to make all go smoothly; and, I hope, were rewarded as much by the attendance of visitors as they were by the gratitude of all of those who had anything to do with the Exhibition.—D., Deal.

AURICULA SHOW FOR SCOTLAND.

I WAS extremely pleased to see a suggestion relative to an Auricula Show in Scotland appear in the *Journal of Horticulture*, and I am sure that many others like-minded with your correspondent would be greatly delighted were such a show to be formed in our midst. However, as you remark, this could only be carried out successfully with the hearty support of those who are growers of the lovely alpine, and I believe that not a few could be found in Scotland who would assist in the object. In the first place, the thought suggests itself, Would it be advisable to form a separate society, or rather to ask to be taken under the protecting wings of one or other of our larger and more established societies? To my mind the latter would be most desirable if it could be carried out successfully. Perhaps others more conversant with this matter than I am will touch on this point. There are four places I would suggest, and either of them I think would be suitable for the exhibition to be held in—*Edinburgh*, *Glasgow*, *Paisley*, and *Falkirk*. The last-named place was at one time the most renowned of all for Auriculas; the name of the

late George Lightbody (whose memory now lives in what is undoubtedly the best grey-edged *Auricula* extant), being a sufficient warrant for that statement. Here also lives the raiser of Duke of Argyle and Marquis of Lorne, so much valued as crimson selfs. However, I believe either Edinburgh or Glasgow would be the most suitable place for all growers. The next thing I would suggest is, that a meeting be arranged for in some central place, where those interested in this matter could meet, talk it over, and see if arrangements cannot be made for a contest during the forthcoming *Auricula* season.—WM. MARSHALL, *Renfrenshire*.

NEW STRAWBERRIES.

KING OF THE EARLIES AND THE CAPTAIN.

I HAVE to-day forwarded in a small box for your critical consideration a few typical fruits of two seedling Strawberries, which I am modest enough to think are destined shortly to effect quite a fragarian revolution.

KING OF THE EARLIES was raised from Vicomtesse Hericart de Thury × Black Prince, a prolific sort which comes with me earlier than either of its parents, and quite as early as May Queen; but otherwise almost intermediate in character between those well-known and esteemed early market Strawberries.

THE CAPTAIN.—This was raised from Crown Prince × Forman's Excelsior. It is a handsome large-fruited variety, which comes in a few days after the preceding and before Marguerite, and continues pro-

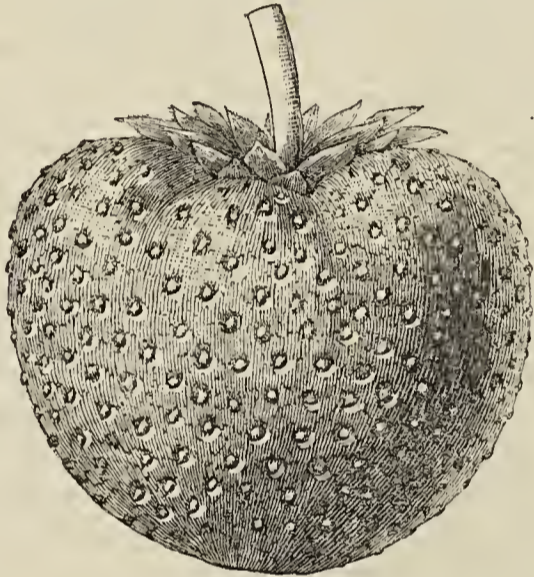


Fig. 3.—The Captain.

ducing fruits of full size right on until September. Last season the same plants which had fruited early kept on bearing large richly flavoured fruits until the wasps in late autumn took possession, and necessitated the use of protectors—a requirement not often necessary, even in the case of the old small-fruited *Quatre Saisons* varieties.—THOMAS LAXTON.

[The fruit of King of the Earlies is of medium size, ovate, even and angular; skin bright red on the shaded side, and dark mahogany on the side exposed to the sun; flesh white with a tinge of red under the skin, solid, firm, and with a fine brisk and rich flavour. The Captain, as may be seen by the figure of it, is a large fruit, ovate, even on the surface, and regular in its outline; sometimes it is inclined to be cockscomb-shaped. Seeds even with the surface; skin bright red, glossy; flesh tinged with red throughout, hollow at the core, firm, and with a brisk flavour like Sir Charles Napier. If the perpetual-bearing character is maintained in various soils and seasons this Strawberry cannot fail to become very popular.]

ROYAL BOTANIC SOCIETY'S EVENING FETE.

JUNE 28TH.

THE Evening Fête in the Royal Botanic Society's Gardens, Regent's Park, is one of the events of the London season, and its popularity is well deserved, for it is unquestionably one of the prettiest sights and most pleasant gatherings that can be witnessed round the metropolis. The fête of last week was even more successful than usual, the evening proving extremely fine, and in consequence the number of visitors was very large, nearly 10,000 passing the gates. The picturesque garden was beautifully illuminated with lines and chains of coloured oil lamps, a number of French lamps being employed in various parts, especially upon the trees on the mound. The lake was particularly handsome, pyramidal and star-like floating designs having a most striking effect, while in one portion arches of lamps appeared by reflection to form a tunnel of brilliant diversely-tinted lights. At 10 and 12 P.M. the gardens were also illuminated with coloured fires, which had a charming

effect. Bands of the 2nd Life Guards, Royal Horse Guards, Coldstream Guards, and Scots Guards were stationed at different parts of the gardens, and performed a choice selection of music during the evening.

The floral decorations for tables, &c., with bouquets, button-holes, and baskets of flowers, were contributed by numerous exhibitors, Miss Annie Williams, Upper Holloway, being one of the most successful competitors, and staging a tastefully decorated table with fine bouquets, but many other contributions were far from satisfactory. Irises and *Gladiolus Colvillei* and alba were very prominent in the stands, being employed with Grasses and Ferns and a few other flowers in varying proportions, and in greatly differing degrees of taste. One of the most important exhibits was a magnificent group from J. Peacock, Esq., Sudbury House, Hammersmith, which comprised a large number of remarkably well-grown *Odontoglossum vexillarium*, *O. Alexandræ*, *Aerides*, *Dendrobis*, and a fine *Stanhopea tigrina*. These, with other choice Orchids, were arranged with small Ferns and fine-foliage plants, producing a most charming effect in the centre of the large tent.

SUNDAY WORK IN GARDENS.

THIS has been very properly alluded to by "Northern Gardener." Personally, having a due regard to the day of rest, the best of days, so refreshing after the week's toil, I do, and cause to be done, as little work as is consistent with the welfare of my charge; still, as I could not think of permitting anything approaching to neglect, I adopt shading to be on the safe side, and thus set myself and men at liberty. I must, however, say I believe more harm is done early on Sunday morning than all the week put together. Bed seems to have such an attraction. It vexes me, without being at all personal, to see young men rushing to their work at 7 or 8 o'clock, when their chief has been out at his usual hour and made things safe. I would strongly impress on young men to be up early, as it must be more satisfactory to them to see things right and happy than to take their ease while the foliage is burning and Grapes scalding on Sunday mornings.—STEPHEN CASTLE.

MAIDSTONE ROSE SHOW.

WHILE the great guns were booming at Southampton on 28th June there was a brilliant skirmish, though with lighter metal, at Maidstone. The severe weather of the previous few days left its mark upon many of the blooms, the Tea Roses especially suffering from the heavy rains and winds. Mr. R. L. Knight, who for years has held a high, if not the first, position as an exhibitor of Teas, was perhaps the greatest sufferer of all. In spite, however, of all hindrances, a very good exhibition was held; but a shade of gloom was thrown over the whole day by the absence, through severe illness, of the cheery veteran Mr. John Hollingworth, whose success in the cup class, after a very close fight with Mr. Wakeley, will, it is hoped, please him as much as it did the public. His box contained a very even set of blooms of the following varieties—Mons. Noman, François Michelon, La France, Madame Prosper Langier, Magna Charta, Souvenir de Mons. Boll, Marie Baumann, Charles Lefebvre, Etienne Levet, Madame Gabriel Luizet, Villaret de Joyeuse, A. K. Williams, Dr. Andry, Victor Verdier, Mrs. Baker, Marie Rady, Annie Laxton. Mr. Wakeley pressed him very close, showing amongst other good blooms a grand example of Madame Gabriel Luizet (bronze medal for best Rose in the Show), a superb Duke of Edinburgh, and very good specimens of Mrs. Baker, Cheshunt Hybrid, Henry Bennett, and Etienne Levet. Mr. Wakeley took the cup for twenty-four varieties, twelve Teas and twelve H.P.'s, his most noticeable blooms being Madame Marie Gonod, an exquisite old Tea Rose of the Rubens type; Madame Gabriel Luizet, Henry Bennett, Duke of Edinburgh, Madame Lambard (very good), and Dr. Andry. Mr. George Mount of Harbledown was second with very fresh but small blooms, the best in his box being A. K. Williams, Xavier Olibo, Duke of Edinburgh, Catherine Mermet (very good), Perle de Lyon (good), and Anna Ollivier. Mr. John Wakeley was third. For twelve, any varieties, Mr. John Wakeley was first; he also took the National Society's bronze medal for a box of six (Duke of Edinburgh), very fresh and clean—indeed "the Duke" was noticeable in many boxes. Mr. Austen Killick was second, Mr. Smythe third. For twelve Teas Mr. Hollingworth was first, but his blooms were hardly up to Turkey Court form. Mr. Killick and Mr. John Wakeley were equal second.

For nine Roses Rev. J. M. Fuller was easily first. His box contained fine examples of Marie Baumann, Duchesse de Caylus (very good), Louis Van Houtte, Capitaine Christy, Marquise de Castellane, and Etienne Levet. For six trebles of Teas Mr. W. Wakeley was first, Madame Bravy and Maréchal Niel being the best.

In the small classes Mr. West was first for six. He showed good specimens of Le Havre, Duchesse de Vallombrosa, Marie Baumann, Prince Camille de Rohan, and Marquise de Castellane. Mr. Foster was second, Mr. Peckham being third. Mr. George Mount was first for six Teas, Mr. Haynes being second. Mr. George Bunyard had some boxes of fine blooms, not for competition, and if he is in equal form on Tuesday at South Kensington he will take some beating.

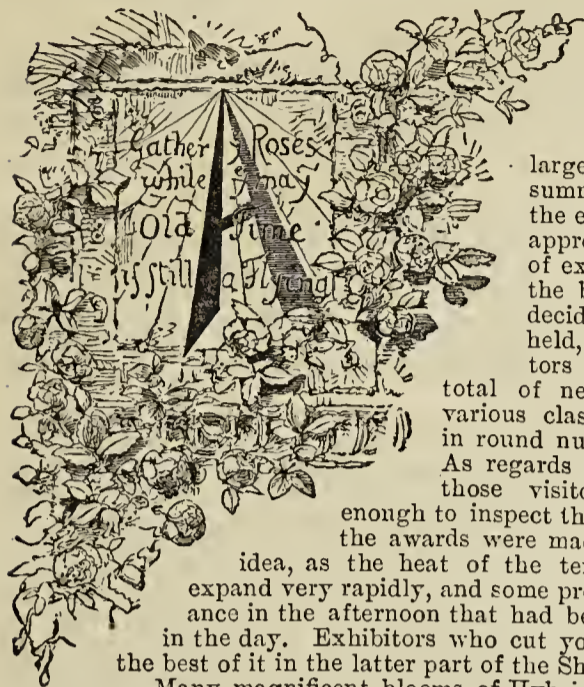
The epergnes were not equal to those of former years, and, as usual, the Judges were wrong in the opinion of some, one lady being particularly vehement in her expressions of disapprobation; but if her taste as to the arrangement of an epergne is to be measured by the taste she displayed in her remarks to the Judges it is possible that their decisions were not very wide of the mark after all. The cup in this class was taken by Miss Cope; Miss Cutbush was second; Miss Lawrence, Miss Harwood, and Miss West following with the other prizes.

In the button-hole class Mrs. Knight was first, the other prizes being taken by Miss Wigan, Mr. Killick, Mr. G. Mount, and Mr. Peckham. It is to be hoped that the Committee will see their way another year to a somewhat later date for their Show.

CABBAGES FOR SEED.—I have a stock of Cabbage which will soon be exhausted unless I can save some seed. Can any of your readers tell

me how to proceed to do so? Should the hearts be cut out? if so, when?
—BRASSICA.

NATIONAL ROSE SOCIETY.
METROPOLITAN EXHIBITION, JULY 3RD.



FINE day favoured the annual Exhibition of the National Rose Society, which was again held at South Kensington, the large marquee employed for the summer Show being devoted to the exhibits, as well as the long approach tent. Both in number of exhibitors and the quality of the blooms it was unanimously decided to be the best Show yet held, no less than 120 competitors entering the lists, giving a

total of nearly 500 entries in the various classes, representing probably in round numbers about 10,000 blooms. As regards the quality, however, only those visitors who were fortunate enough to inspect the blooms immediately after the awards were made could form an adequate idea, as the heat of the tents caused the blooms to expand very rapidly, and some presented a very poor appearance in the afternoon that had been particularly fine earlier in the day. Exhibitors who cut young blooms had decidedly the best of it in the latter part of the Show.

Many magnificent blooms of Hybrid Perpetuals were staged in various classes, but in Mr. B. R. Cant's beautiful first-prize collection of 72 some particularly grand samples were notable. The premier bloom was Mons. Noman; but great difference of opinion respecting the accuracy of the award was expressed by many rosarians, for even in the same collection there were several that appeared finer and more deserving of the honour. Especially fine were two corner blooms of François Michelin and Xavier Olibo, which were greatly admired, the former being of grand size, substance, and form, though perhaps it would have been better if a little more advanced. There was, however, no dispute about the handsome Souvenir d'Elise, which was elected as the premier Tea in the nurserymen's class in the same collection. Mr. Cant certainly has good reason to be proud of his success, for securing the chief position in the seventy-two class three years in succession is no mean feat.

The Teas generally were superb, and it was remarkable what a number of stands nearly equal in merit were contributed; and the fact that in two classes, nurserymen's and amateurs' respectively, two equal first prizes were awarded is a sufficient indication of the difficulty the Judges experienced.

There was, however, one stand of Roses and one variety which attracted more attention and admiration than any other—namely, the magnificent blooms of Her Majesty, Mr. Bennett's grand new Rose, which was deservedly awarded the Society's gold medal as the best new seedling Rose, and also the first prize for twelve blooms of any variety. It was in superb condition, the blooms massive, full, quite of a majestic form, and of a most delicate, clear, bright pink hue.

The arrangement of the exhibits was quite a new departure, the stands being placed round the large marquee, the nurserymen's on the outer banks, and the amateurs' in the centre, all on tables as usual; and there was not that formality which often renders Rose shows rather monotonous.

NURSERYMEN'S CLASSES.

The leading class in the nurserymen's section was that for seventy-two single trusses, in which six collections were staged, at least three of these being so near in quality that the Judges had considerable difficulty in determining their positions. Mr. B. R. Cant, Colchester, won the much-coveted first honours with a magnificent collection, this being the third season in succession that he has obtained a similar position. There is always a most pleasing freshness and brightness of colour in the Colchester blooms that invariably render them very striking. The varieties were as follows—François Michelin, a grand corner bloom 5 inches in diameter; Constantine Tretiakoff, Souvenir d'un Ami, Madame Clemence Joigneux, Anna Ollivier, Duke of Connaught, Madame Gabriel Luizet, A. K. Williams, Clotilde Roland, John Hopper, Maréchal Niel, Dupuy Jamain, Duchesse de Vallombrosa, Madame Charles Wood, Marie Finger, Xavier Olibo, very handsome; Marquise de Castellane, Marie Van Houtte, Merveille de Lyon, Sultan of Zanzibar, Violette Bouyer, Madame Caillot, Souvenir d'Elise, very fine, of great size, and substance, selected as the best Tea or Noisette in the nurserymen's classes; Général Jacqueminot, Madame Vidot, Duke of Teck, Devoniensis, Boildieu, Madame Charles Kuster, Marie Van Houtte, Madame Eugénie Verdier, Penelope Mayo, Mdle. Marie Cointet, Madame Isaac Perrière, Reinc du Midi, Duke of Wellington, La France, Marchioness of Exeter, Madame Julia Dymonier, Duke of Edinburgh, Edouard Morren, Marie Rady, Baronne de Rothschild, Star of Waltham, Mons. Noman, a fairly good bloom, selected as the best Hybrid Perpetual in the nurserymen's classes; Marie Baumann, Niphotos, Dr. Sewell, Madame Willermoz, Ferdinand de Lesseps, Madame Marie Verdier, Madame Ducher, Capitaine Christy, Fisher Holmes, Marguerite de St. Amand, Vicomtesse de Vezines, Madame Lacharme, Souvenir de Mons. Boll, Innocente Pirola, Antoine Ducher, William Warden, Reynolds Hole, Comtesse de Nadaillac, Mons. E. Y. Teas, Madame Bravy, Duchess of Bedford, Souvenir de la Malmaison, Annie Laxton, Rubens, Alfred Colomb, Princess Mary of Cambridge, and Madame Prosper Laugier. Messrs. Paul & Son, Cheshunt, were second with rather smaller but very neat blooms very rich in colour. Fine examples of Duchesse de Caylus, A. K. Williams, Duchesse de Morny, Mons. Noman, and Sénateur Vaisse were very notable. Mr. C. Turner, Slough, was a good third with fresh handsome flowers, but some were a little rough. Messrs. Keynes & Co.,

Salisbury, were fourth, and the stand from Messrs. Cranston & Co., Hereford, was highly commended.

Six collections of thirty-six single trusses were staged, and the general substance was in this class also very satisfactory. Messrs. Paul & Son took the lead in this class with very creditable blooms, clean, of good colour and substance. The varieties were Madame Isaac Perrière, Madame Eugénie Verdier, Mons. E. Y. Teas, Emily Laxton, Prince Arthur, Marquise de Castellane, Madame Gabriel Luizet, Comtesse de Ludrie, Madame Victor Verdier, Maréchal Niel, La Duchesse de Morny, Duke of Teck, Julie Touvais, Duke of Edinburgh, Dr. Andry, Niphotos, Etienne Levet, Marguerite de St. Amand, Marie Van Houtte, Olivier Delhomme, Comtesse d'Oxford, Marie Cointet, A. K. Williams, La France, Caroline Kuster, Maurice Bernardin, Georges Morel, Marie Baumann, Charles Lefebvre, Duchesse de Vallombrosa, Souvenir d'Elise Vardon, Beauty of Waltham, Marie Rady, Catherine Mermet, Capitaine Christy, and Countess of Rosebery. Mr. B. R. Cant obtained the second place with blooms very close in merit to the first, grand examples of Madame Eugénie Verdier, François Michelin, and Duke of Teck being particularly notable. Mr. C. Turner was third, and Messrs. Keynes & Co., Salisbury, fourth, each with good collections.

The competition was keen in the class for forty-eight single trusses in Division B twelve stands being entered all close in merit. Messrs. Curtis, Sanford & Co., Torquay, were awarded the leading prize for fine blooms of François Levet, La France, Gloire de Ducher, Abel Grand, Barthelmy Joubert, Devoniensis, François Michelin, Madame Ducher, Star of Waltham, Marguerite de St. Amand, Louis Van Houtte, Maréchal Niel, Etienne Levet, Marie Cointet, A. K. Williams, Madame Hippolyte Jamain, Charles Darwin, Baronne de Rothschild, Magna Charta, Madame Lacharme, Marie Louise Pernet, Duke of Edinburgh, Marie Baumann, Jean Leliere, Charles Lefebvre, Jules Margottin, Horace Vernet, Egeria, Marie Rady, Eugénie Verdier, Victor Verdier, Marquise de Castellane, Alba Rosea, Alfred Dumesnil, Duchesse de Vallombrosa, Beauty of Waltham, Madame Gabriel Luizet, Gloire de Bourg-la-Reine, Princess Mary of Cambridge, Madame Charles Wood, Elie Morel, Antoine Ducher, Mons. Noman, Duke of Wellington, Marie Van Houtte, Duchess of Bedford, and Princess Beatrice. Mr. John House, Peterborough, followed very closely, having a grand bloom of A. K. Williams amongst many others of fine quality. Mr. James Walters, Exeter, secured the third position with smaller blooms, and Messrs. J. Jeffries & Son, Cirencester, were fourth.

Ten collections of eighteen triplets were staged, Mr. Frank Cant, Colchester, winning the chief award for fresh neat blooms of Mdle. Marie Cointet, François Michelin, Madame Margottin, Antoine Ducher, Mons. Noman, Rubens, Annie Laxton, Comtesse d'Oxford, A. K. Williams, Marguerite de St. Amand, Devoniensis, Marquise de Castellane, Etienne Levet, Maréchal Niel, Duchesse de Vallombrosa, Exposition de Brie, Emily Laxton, and La France. Messrs. J. Jeffries & Son, Oxford, were second with a most satisfactory collection, blooms of Madame Prosper Laugier being uncommonly fine. Messrs. Curtis, Sanford & Co. were third, and Mr. J. Walters was fourth.

In the class for twenty-four single trusses there were four boxes, Mr. J. Walters taking the lead with neat blooms of Capitaine Christy, Jules Margottin, Comtesse de Serenye, Charles Lefebvre, Jules Finger, Etienne Levet, Etienne Dupuy, Duchesse de Caylus, Madame Gabriel Luizet, Comtesse d'Oxford, Marie Finger, Anna Olivier, Mons. E. Y. Teas, Lyonnaise, Madame Marie Cate, Marquise de Castellane, Marie Baumann, Madame Lacharme, Avocat Duvivier, La France, Pierre Notting, Baronne de Rothschild, Felix Genero, and Marquise de St. Amand. Mr. John Mattock, New Headington, Oxford, was second; and Messrs. Kinmont & Kidd, Canterbury, were third. For eighteen Teas or Noisettes Messrs. Paul and Son and G. Prince were awarded equal first prizes for two very handsome collections of blooms, Mr. C. Turner following closely.

The best collection of twelve Teas in a class of six competitors was staged by Messrs. J. Mitchell & Son, Uckfield, who had beautiful blooms of Perle des Jardins, Jean Ducher, Maréchal Niel, Souvenir d'un Ami, Madame Margottin, Souvenir de Paul Neyron, Jean Pernet, Catherine Mermet, Souvenir d'Elise Vardon, Devoniensis, Comtesse de Nadaillac, and Madame Willermoz. Messrs. J. Bunyard & Co., Maidstone, had good blooms of Laurette, Adam, and Homer in their third-prize collection. Mr. J. Mattock was placed third, and Mr. E. W. Piper, Uckfield, was fourth.

For twelve single trusses in a class of eight competitors the Rev. Alan Cheales secured chief honours with handsome blooms of François Michelin, Marie Baumann, Baronne de Rothschild, Star of Waltham, Madame Gabriel Luizet, Etienne Levet, Magna Charta, Penelope Mayo, Madame Lacharme, Royal Standard, Alfred Colomb, and Charles Lefebvre. T. F. Burnaby Atkins, Esq., Sevenoaks, was second; J. Burton, Esq., Peterborough, third; and Alfred Tate, Esq., Roseleigh, Wootton, fourth.

In Class 8, for twenty-four, three trusses of each, there were six competitors, all showing collections of great merit. Mr. B. R. Cant secured the first honours with a fine collection, comprising Madame Marie Finger, Mrs. Baker, Mdle. Marie Cointet, Innocente Pirola, A. K. Williams, Edouard Morren, Duchesse de Vallombrosa, Souvenir de la Malmaison, John Hopper, Souvenir d'un Ami, Mons. Noman, Anna Ollivier, François Michelin, Star of Waltham, Madame Gabriel Luizet, Marguerite de St. Amand, Marie Rady, Madame Bravy, Annie Laxton, Xavier Olibo, La France, Marie Baumann, and Rubens. Some of these were of admirable form and substance. Mr. George Prince, Oxford, was a good second, his best blooms being Ulrich Brunner, Jean Ducher, Louise Van Houtte, Comtesse de Nadaillac, and Elie Morel. Messrs. Paul & Son were third, and Mr. C. Turner, Slough, fourth.

AMATEURS' CLASSES.

Class 9.—Thirty-six Roses distinct. There were eleven competitors, many of the collections running very close to each other. First honours were secured by A. Slaughter, Esq., Jarvis Villa, Steyning, for a magnificent collection, consisting of La France, Camille Bernardin, A. K. Williams, Jean Ducher, Maurice Bernardin, Souvenir d'un Ami, Etienne Levet, John Bright, Innocente Pirola, Le Havre, Devienne Lamy, Madame Gabriel Luizet, Fisher Holmes, Marie Baumann, Louis Van Houtte, Star of Waltham, Charles Lefebvre, Marguerite de St. Amand, Beauty of Waltham, Baroness Rothschild, Prince Arthur, Dr. Andry, Egeria, Marie Rady, Marie Verdier, Duke of Wellington, Souvenir d'Elise, Duchess of Bedford, Anna Ollivier, Auguste Rigotard, Marquise de Castellane, Général Jacqueminot, Madame Eugénie

Verdier, Alfred Colomb, and Duchesse de Vallombrosa: thus Mr. Slaughter will hold the champion trophy, value sixty guineas, for this year. Mr. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, was placed second with some very good blooms, one, François Michelin, being awarded the silver medal as the best Hybrid Perpetual in the amateur classes. Mr. T. W. Girdlestone, Sunningdale, Berks, received the third prize, and Mr. Baker, Heavitree, Exeter, the fourth; Mr. William Harrington, Corbets Tay, Romford, Essex, being highly commended.

Thirteen competitors staged in Class 10, twenty-four varieties. Mr. Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, received the highest honours with La France. A. K. Williams, François Michelin, Star of Waltham, Capitaine Christy, Henri Ledechaux, Madame G. Luizet, Comtesse d'Oxford, Fisher Holmes, Marie Rady, Abel Grand, Edouard Morren, Mons. E. Y. Teas, Mrs. Laxton, Baronne de Rothschild, Charles Lefebvre, Victor Verdi-r, Maréchal Vaillant, Marie Cointet, Catherine Mermet, Marie Finger, Etienne Levet, and Clotilde Rouillard. The Rev. Hugh A. Berners, Hawkstead Rectory, Ipswich, was placed second, his best being François Michelin, La France, Catherine Mermet, and Madame Margottin. Mr. A. Slaughter and the Rev. W. H. Jackson, Stagden Vicarage, Bedford, was placed third and fourth respectively.

For twelve distinct, three trusses of each, eleven collections were staged. Mr. J. Ridout was again to the front with Marquise de Castellane, Capt. Christy, Edward Morren, Madame G. Luizet, Comtesse d'Oxford, Baronne de Rothschild, François Michelin, Duchesse de Vallombrosa, Etienne Levet, Eugénie Verdier, Le Havre, and Madame Lacharme. Mr. Harrington took the second position, Madame Margottin being especially good; and Mr. R. N. G. Baker, Heavitree, the third.

In the class for twelve Teas in Division C twelve collections were staged. Mr. A. Slaughter was the winner of the piece of plate presented by C. E. Cuthell, Esq., with a wonderful collection, including Jean Ducher, Catherine Mermet, Maréchal Niel, Souvenir d'un Ami, Niphotos, Madame Lambard, Belle Lyonnaise, Madame Van Houtte, Anna Ollivier, Souvenir d'Elise, Amazon, and Rubens. Second honours fell to Mr. J. Brown. A magnificent bloom of Jean Ducher secured the Society's silver medal as the best Tea or Noisette in the amateur classes. Mr. Charles Davis, Grammar School, Aynhoe, Banbury, and George P. Hawtry, Esq., were placed third and fourth in the order of their names.

As many as seventeen exhibitors staged collections in Class 13, Division D, twenty-four distinct single trusses. Mr. John Sargeant, Reigate, was well ahead with blooms both large and bright and of good form. Duke of Wellington, very fine; Duchess of Bedford, Emily Laxton, Marie Baumann, La France, Capitaine Christy, Fisher Holmes, Henri Ledechaux, Madame Gabriel Luizet, Duchesse de Morny, Belle Lyonnaise, Baronne de Rothschild, Duke of Teck, A. K. Williams, Comtesse de Srenye, Horace Vernet, Marie Verdier, Madame Victor Verdier, and François Michelin, Marquise de Castellane, Duchesse de Vallombrosa. George Baker, Esq., Holmfels, Reigate, secured the second place, having some remarkable flowers, François Michelin, Edouard Morren, Duchess of Bedford, Madame G. Luizet, Duke of Edinburgh, La France, and Le Havre being especially fine. The Rev. J. W. Pemberton, The Round House, Havering-atte-Bower, third with a fine lot. W. H. Wakeley, Esq., Macklands, Rainham, fourth; and Mr. W. Grant, Ledbury, commended. For six distinct, three trusses of each, fifteen collections were staged, first honours being awarded to the Rev. J. H. Pemberton, The Round House, with Comtesse d'Oxford, A. K. Williams, Marquise de Castellane, Horace Vernet, La France, and Maréchal Niel. Mr. Wakeley secured the second position—and, indeed, very close on the first prize—with John Bright Madame Gabriel Luizet, Maréchal Niel, Mons. Noman, Marie Rady, and Capitaine Christy. George Mount, Esq., took the third position, and Miss W. Taylor the fourth.

For twelve distinct single trusses there were seventeen exhibitors. Miss W. Taylor, Manor House, Headington, (gardener Mr. Gurden), was deservedly awarded first honours with Madame Gabriel Luizet, Marie Baumann, Duchesse de Vallombrosa, A. K. Williams, Marie Verdier, Le Havre, Thérèse Levet, Duchesse de Caylus, Marie Cointet, Duke of Wellington, Maréchal Niel, and Sultan of Zanzibar. George Mount, Esq., was awarded the second prize; Julius Sladden, Esq., Badsey, Evesham, third, with grand blooms of Abel Carrière and Mr. A. K. Williams; A. Evans, Esq., Marston, near Oxford, was placed fourth.

In Class 16, twelve Teas or Noisettes, single trusses, there were fourteen competitors. Every collection, in an ordinary way, was worthy of a first prize. After this class must indeed have been very hard to judge, so many collections running so very close to each other. Equal first prizes fell to the Rev. A. Foster Mellairs, Forstock Rectory, Bury St. Edmunds, and the Rev. Page Roberts, The Rectory, Scole, Norfolk, whose collection consisted of Souvenir d'Elise, Comtesse de Nadaillac, Alba Rosea, Catherine Mermet, Maréchal Niel, La Boule d'Or, Hippolyte Jamain, Caroline Kuster, Jean Ducher, Marie Guillot, Madame Margottin, and Anna Ollivier. Mr. Foster Mellairs had magnificent examples of Souvenir d'Elise, Madame Margottin, Niphotos, Madame Bravy, Marie Van Houtte, Moiré, Innocente Pirola, Souvenir d'un Ami, Caroline Kuster, and Devonensis. The third award fell to Miss W. Taylor, Manor House, Headington; and fourth, Mr. George Mount, Harbledown, near Canterbury.

Class 18, nine distinct single trusses, there were ten competitors. E. Mawley, Esq., Addiscombe, Croydon, was first with Etienne Levet, La France, Dr. Andry, Baronne de Rothschild, A. K. Williams, Star of Waltham, Marie Baumann, François Michelin, and Alfred Colomb, all magnificent. The Rev. H. Cecil Fellows, Brighton Rectory, Norwich, second, having good Marie Rady and Marie Baumann. J. Tranter, Esq., Upper Assenden, was placed third; and E. Horne, Esq., Park House, Reigate, fourth.

In Class 19, six distinct single trusses, there were seven competitors, first honours falling to J. Burnside, Esq., Farningham, Kent, with fine blooms of La France, Mons. Noman, Jules Finger, Maréchal Niel, Catherine Mermet, Fisher Holmes. Second honours to the Rev. W. Wilks, Shirley Vicarage, Croydon. Third, Miss Alice M. Lucas, Wratten, Hitchin: and fourth, John E. Coleby, Esq., Rosenheim, Wimbledon.

For six Teas or Noisettes F. Burnside, Esq., was awarded the first prize with Comtesse de Nadaillac, Maréchal Niel, Catherine Mermet, Souvenir de Paul Neyron, Madame Margottin, and Jules Finger. E. M. Bethens, Esq., Denne Park, Horsham (Mr. H. Harris, gardener); Edward Mawley, Esq.; and

Edward Horne, Esq., Park House, Reigate, were placed second, third, and fourth respectively.

For six distinct single trusses, suburban-grown Roses, John Coleby, Esq., secured the first prize with Paul Neyron, Capt. Christy, John Hopper, Maréchal Niel, Dr. Andry, and Marie Verdier. Equal seconds were awarded to Mr. J. Balina, 72, Twisden Road, Highgate, and to Mr. Berry, gardener to the Countess of Leven and Melville, Roehampton. E. M. Nelson, Esq., Hanger Hill House, was placed fourth.

EXTRA CLASSES.

A class was provided for baskets of Roses, Hybrid Teas or Noisettes, and contributions were tastefully arranged round the centre of the tent. Mr. W. Narroway, Headington, Oxford, was adjudged the chief prize for a very tasteful combination of light and dark varieties. The Rev. J. H. Pemberton was second with a basket of Caroline Kuster; and T. B. Hall, Esq., third, with mixed varieties.

Fourteen competitors entered in the class for six single trusses, open only to amateurs who have never won a prize at an exhibition of the National Rose Society. The Rev. W. H. Jackson, Stagden Vicarage, Bedford, was placed first with beautiful examples of Comtesse de Srenye, Star of Waltham, Madame de Cointet, Madame C. Luizet, Madame de Montchauveaux, and Mons. Noman. Equal second prizes were awarded to W. E. Hall, Esq., Birkenhead, and the Rev. C. Felowes, Brighton Rectory, Acle, Norwich. H. French, Esq., Sutton, was fourth.

For six single trusses of suburban-grown Roses Mr. G. Berry, The Gardens, Roehampton House, was awarded the second prize for small blooms of Céline Forestier, Gloire de Dijon, Belle Lyonnaise, Souvenir d'un Ami, Comtesse de Nadaillac, and Madame Caroline Kuster; Mr. J. Bateman, Highfield Road, following with good blooms of Catherine Mermet, Alba rosea, and Devonensis. Three stands of six new Roses were staged. The first positions were assigned to the Rev. Alan Cheales for neat blooms of Dr. Hogg, White Baroness, Mrs. Jowitt, Helen Paul, Duke of Teck, and Reine Maria Pia. The Rev. J. H. Pemberton followed. For six trusses of any Rose the competition was very keen, sixteen stands being entered. G. P. Hawtreay, Esq., Slough, was first with Maréchal Niel. Charles E. Cuthell, Esq., second with Madame Gabriel Luizet, very handsome; and the same variety from Alfred Slaughter, Esq., was highly commended. The Rev. J. H. Pemberton, was third with Marquise de Castellane; and E. Horne, Esq., fourth with La France.

OPEN CLASSES.

In the class for twelve new Roses not in commerce previous to 1880 the chief prize was secured by Messrs. Paul & Son with Archduchess Elizabeth, Pride of Waltham, Comtesse H. Coomber, Violette Bouyer, May Paul, Ulrich Brunner, very fine: Merveille de Lyon, George Moreau, Etoile de Lyon, Tatiana Onique, Madame Cusin, and Madame Isaac Perriere. Messrs. Curtis, Sanford & Co. were second with Madame Montels, Madame Marie Roderer, Souvenir de Mons. Drouche, Souvenir de Madame Berthier, Pride of Waltham, George Moreau, Madame Isaac Perriere, Red Gauntlet, Violette Bouyer, Comte de Flandres, Madame Crosy, and Madame Marthe d'Hulloy. Messrs. Cranston were third with Ulrich Brunner fils, Guillaume Guillemot, Tatiana Onique, Violette Bouyer, Rosieriste Jacobs, Empereur de Brazil, François Levet, Gloire de Bourg-la-Reine, Souvenir de Mad. Berthier, George Moreau, Pride of Waltham, and Comte de Flandres.

Eleven boxes of twelve trusses of any white Rose were staged. Messrs. Paul & Son took the lead with Niphotos, very fine in form and substance. Mr. J. Mitchell was second with fine examples of Devonensis. Mr. F. Cant followed with Duchesse de Vallombrosa, good in form and substance.

For the best twelve trusses of any yellow Rose there were eight entries. Mr. B. R. Cant won first honours with Madame Caroline Kuster, very fine and beautiful; Mr. C. Turner followed with Madame Margottin, Messrs. Cranston & Co. were third with Madame Marie Van Houtte, and Messrs. Paul & Son were fourth with Perle des Jardins.

Eleven stands of twelve crimson Roses were staged. Mr. J. Walters was first with A. K. Williams, neat and of good colour. The second-prize stand was Duke of Edinburgh, very bright. R. N. G. Baker, Esq., Heavitree, Devon, was third with Duke of Wellington, large and richly coloured.

The competition was remarkably keen in the class for twelve trusses of any Rose, twenty-four stands being entered. Mr. A. Bennett, Shepperton, well won chief honours with grand examples of the handsome light pink variety, Her Majesty. Some of the flowers were over 5 inches in diameter, very full, and beautiful in form. The gold medal of the Society for the best new seedling Rose was also awarded to Mr. Bennett for the same variety, three grand blooms of great size and substance. Mr. Bennett well deserved this success, as the blooms were of fine quality. Mr. B. R. Cant secured the second prize for handsome blooms of Mons. Noman, of exquisite form and substance. Mr. G. W. Piper was third with fine examples of Souvenir d'Elise Vardon. Messrs. Paul & Son had a good stand of La France, which was highly commended.

SPECIAL PRIZES.

The prizes offered by Messrs. Sutton & Sons, Reading, for a collection of vegetables brought a number of competitors; Mr. S. Haines, The Gardens, Coleshill House, Berks, being an excellent first with Early White Naples Onions very fine, Stratagem Peas, Early London Cauliflowers, All the Year Round Cabbage Lettuces, Tender and True Cucumbers, Nantes Horn Carrots, Early Purple-top Turnip, Hicks' Hardy Cos Lettuce, and Canadian Wonder Beans. Mr. T. Miles, The Gardens, Wycombe Abbey, Bucks, was a very close second, his Telephone Peas, Canadian Wonder Beans, and Nantes Horn Carrots being extremely good. Mr. W. Meads, gardener to Viscount Barington, Beckett Park, Shrivenham, was third; and Mr. A. W. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, was fourth. Six collections were staged, all very close in merit.

Messrs. Suttons' prizes for a Melon were won by Mr. C. Herrin, The Gardens, Chalfont Park, first with a neat fruit of Chalfont Favourite; Mr. Mundell, The Gardens, Moor Park, second with Best of All; and Mr. C. Tyler, gardener to the Earl of Wicklow, Arklow, was third with a fine fruit of an unnamed variety. There were nine entries.

Messrs. J. Carter & Co., Holborn, offered several prizes for new Peas, twelve competitors entering the lists. Mr. J. Richardson, Boston, Lincolnshire, took the first place with Stratagem, Culverwell's Telegraph, Pride of the Market, and Telephone, all magnificent samples. Mr. Ward was a very

good second with fine pods. Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, was third. Mr. H. Marriott, The Gardens, Prospect House, Boston, was fourth, and Mr. G. T. Miles was fifth.

In the class for the best method of packing fruit four competitors entered for Messrs. Webber & Co.'s prizes. The first prize was awarded to Mr. Coleman, Eastnor Castle, Ledbury, who had large boxes of Peaches, the individual fruits wrapped in tissue paper and firmly packed in moss. The Grapes were closely packed in the centre of a narrow box, the sides being padded with moss and covered with tissue paper. The Strawberries were packed with their leaves on tissue paper and moss. All the fruit had arrived in excellent condition. The second prize was awarded to Mr. Allan, Gunton Park, Norwich, for good samples of Strawberries, Grapes, and Peaches packed in a similar manner.

MISCELLANEOUS.

Mr. T. S. Ware, Tottenham, contributed a magnificent collection of hardy flowers, Lilliums being strongly represented. Messrs. C. Lee & Son, Hammersmith, exhibited a most tasteful group of ornamental and variegated shrubs, with a margin of small Roses in pots, and an edge of variegated Ivies, Ferns, and small Ferns. Messrs. H. Cannell & Son, Swanley, showed four stands of Verbena blooms, and some good Petunias also. Mr. H. Bennett, Shepperton, Middlesex, exhibited four boxes of his beautiful pedigree Roses, Princess of Wales, Lady Mary Fitzwilliam in fine condition, Her Majesty, and several others.

Messrs. Wm. Paul & Son, Waltham Cross, contributed a fine collection of Rose blooms, about fifty boxes and baskets, representing a large number of handsome varieties. Large baskets of Antoine Ducher, Souvenir de la Malmaison, Firebrand, the Tea Perle des Jardins, the Perpetual Moss Rose Blanche Moreau, Marie Van Houtte, and Baroness Rothschild were especially good. Mr. G. Prince, Oxford, exhibited ten boxes of Roses, chiefly Teas, in fine condition. W. A. Richardson, being exceedingly fine; Jean Ducher, Perle des Jardins, Violette Bouyer, Devoniensis, and Amazone were similarly good. A. J. Lewis, Esq., Moray Court, Campden Hill, Kensington, sent a pretty collection of Rose blooms, arranged in pyramidal form. Mr. J. House, Peterborough, had several baskets and boxes of Rose blooms, the bronzy orange-coloured W. A. Richardson being very noticeable. Messrs. C. Lee & Son, Hammersmith, sent six boxes of richly-coloured Rose blooms, some being of considerable size and substance.

Messrs. J. Carter & Co., High Holborn, exhibited eleven baskets of Lettuces, representing a number of distinct varieties. A large number of Peas was also exhibited, including some curiosities.

HOW TO SAVE PEELED HOLLIES.

SOME years ago, during a severe winter, some valuable Hollies were badly barked, so much so, in fact, that it was feared the whole would die; but, with the exception of one or two, the whole were saved by the following means. Being of considerable girth it was found easy to slit up the bark all round as in crown grafting, and to insert long young rods, just as in crown grafting, but inserted under the upper bark as well as the bark below the base ring. From four to ten shoots were thus inserted according to the room for them round each bared stem, and after being carefully bandaged to keep out earth a mound was raised round each to keep out the air. On another occasion a large one in lifting had a very large piece of the stem accidentally barked. By grafting it in the manner described the damage was repaired, and an unsightly if not a dangerous wound covered.—A. H.

THE PRINCESS LOUISE COIL GRATE.

SOME few years ago we saw fixed and working most satisfactorily a fire grate that had been made by Mr. Ollerhead at Wimbledon House.

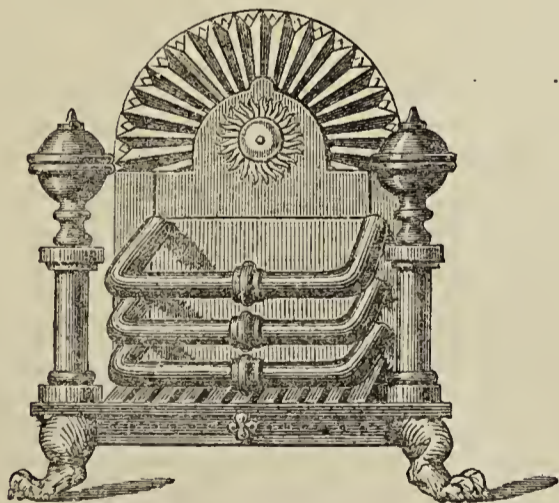


Fig. 4.

The bars of the grate were of inch piping, and these containing water formed a boiler to which 4-inch pipes were connected which heated a carpenter's shop. As obviously they would have warmed a greenhouse as well, a simple method was provided of heating such a structure from a kitchen or room fire.

It is on this principle that Mr. Deard of Harlow, whose larger coil boilers are well known and approved, has made and patented the Princess Louise Open Grate Coil, to which was awarded the first prize at the

Smoke Abatement Exhibition for giving the greatest amount of heat per pound of coal consumed. By the arrangement of dampers for regulating the draught, the patentee claims that the fire can be kept burning all night. The contrivance is thus adapted for warming greenhouses and conservatories, also staircases, halls, passages, and spare rooms from one fire. With an ordinary fire grate the only heat obtainable is from the front of the fire being reflected into the room, but by the plan

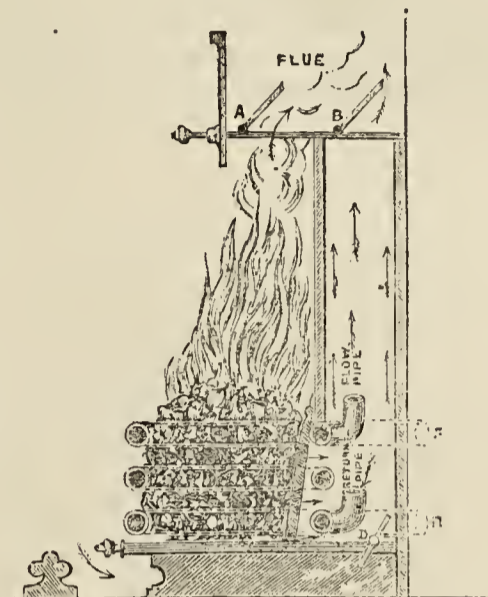


Fig. 5.

under notice, the coil completely encircling the fire, not only the heat from the front but the heat from the back and both sides of the fire is obtainable, and is extracted and carried wherever hot-water pipes can be conducted. Fuller particulars can be obtained from the maker and patentee, and the annexed sketches (fig. 4 coil, and fig. 5 section) will explain themselves, and we have only to add that the coil can be adapted to ordinary fireplaces. This is the best solution of the problem we have yet seen of heating a greenhouse from a kitchen fire, for, as above observed, the plan was working at Wimbledon most satisfactorily.

REIGATE ROSE SHOW.

ROSE Shows, like many other things, are subject to vicissitudes, and although the day was fine, yet a terrific thunderstorm the night before had destroyed the hopes of many an exhibitor. The Show was therefore robbed of many of its attractions, but nothing could exceed the whole *entourage*. The lovely grounds of Woodhatch looked, as ever, beautiful, and a large company met together to do honour to the Rose. There was an excellent contest for the highest class, Mr. Heywood taking first. There was an interesting contest for the class for twenty-four, Mr. Slaughter and Mr. Baker entering into close quarters. After a long examination the judgment, which was given by points, left the prize with Mr. Slaughter, but there was very little between them. Mr. Waterton was third. Again, too, did Mr. Waterton carry off the prize for the best box in the Show, thus winning the gold medal of the National Rose Society. Teas were shown in large quantity and in good form; in fact, the increase of the growth of this favourite section forms one of the great features of Rose-growing in the present day. Mr. Heywood, in whose grounds the Show was held, also showed very well, and Mr. Slaughter gave evidence of that prowess which he has shown in a larger field—in the National Society's grand Show. The silver medal of the National Rose Society was awarded to Mr. Heywood for the best bloom of Hybrid Perpetual in the Show.

The Exhibition was held on Saturday, June 30th, in the grounds of T. B. Heywood, Esq., President of the Association, who entertained the Judges, the Rev. H. H. D'Ombraim, Mr. George Paul, and Mr. Francis, with other friends on the conclusion of the judging. A large show was expected, 103 entries having been received, but for the reason above stated twenty-five of these were not sent in. The prizes were awarded as follows:—

Division A, open to amateurs of all England, thirty-five varieties.—First, Mr. Heywood; second, Mr. Harrington. Two competitors. In the winning box were fine specimens of Henry Ledechaux, Duchess of Bedford, A. K. Williams, and a very promising sport from Madame C. Joigneaux, also Lady Mary Fitzwilliam, Mr. Bennet's new Rose. Twenty-four varieties (eleven).—First, Mr. Slaughter; second, Mr. Baker; third, Mr. Waterlow; commended, Mr. Pemberton. Twelve varieties (seven).—The Roses in this class were particularly fine. First, Mr. Waterlow, winning also the N. R. S. gold medal as best twelve box and containing the best Hybrid Perpetual, Pride of Waltham; second, Mr. Slaughter; third, Mr. G. Mount; commended, Mr. J. D. Pawle. Twelve Teas (eight).—First, Mr. Harrington; second, Mr. Heywood; third, Mr. Mount. The best Tea or Noisette in the Show, Anna Olivier, was in this class.

In Division B, for members only, twelve varieties (nine).—First, Mr. Cheales; second, Mr. Horne; third, Mr. Stone. Nine varieties (six).—First, Mrs. Langton; second, Mr. Mawley. Six varieties (four).—First, Mr. F. Pawle; second, Mr. Mawley; third, Dr. Parr. Six Teas (ten).—First, Mr. Mawley; second, Mr. Cuthell; third, Mr. Horne. Six trusses of one variety (ten).—First, Mr. Stone; second, Mr. Mawley. Madame Gabriel Luizet was shown largely in this class, but the winning Roses were Fisher Holmes, very

clean and bright, and Charles Lefebvre. In the open class for twelve trusses of one kind the prizes were taken by—first, Mr. Harrington (La France); second, Mr. Slaughter; third, Mr. Wollaston.

CROWN-GRAFTING THICK LIMBS.

In crown-grafting thick stems large pieces of uncovered wood are generally left bare in the centre of the stem. This decays and often causes the death of the limb, or even the tree. Not long ago we saw some trees grafted in a way that obviated this difficulty in a simple yet ingenious way. The operator was a skilful surgeon, which fact may account for the method adopted. It was simply to split up long

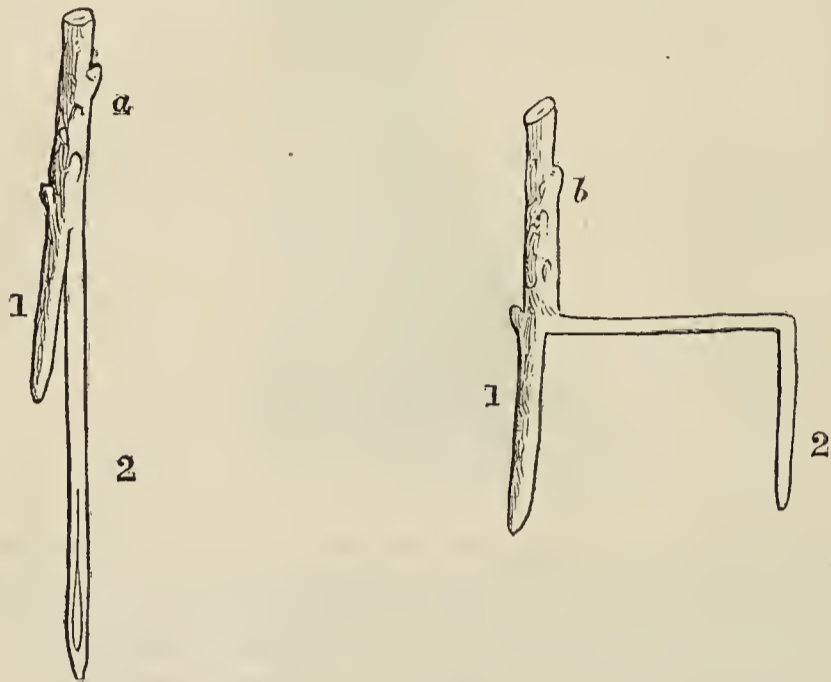


Fig. 6.

grafts in this fashion:—Split up, as at *a*; 1 was inserted in the usual way, and 2 bent over the top of the stock, as at *b*, and the point inserted on the opposite side. At the angles the wood was considerably broken; but every graft grew, and as two or three were led over the otherwise bare stump it was rapidly covered with young growing wood. Numerous examples were in the garden referred to—that of Dr. M. Benny, Lockpark House, Denny, N.B., and all had been successful.—A. H.



KITCHEN GARDEN.

Vegetable Marrons.—These are now bearing freely; and as the majority of growers desire their plants to produce as long a succession of fruit as possible, they must not be overcropped, and constant attention should be given to thinning and training the shoots. Plants bearing now will continue to give a supply until November if all the fruit which form are cut off for use when they are about half grown.

Ridge Cucumbers.—As Cucumbers have now a strong inclination to grow and fruit freely, they should be restricted from going on to an injurious extent in either direction. Where Cucumbers of this kind were planted in frames early in the season they may now be less vigorous and fertile than younger plants; and if it is seen that they will not go on bearing satisfactory until cut down by frost in autumn, more plants should be inserted to produce fruit at the latter end of the season. Glass or hotbeds are not wanted for the young plants now, but mounds of good soil should be formed in a sunny spot. It may be necessary to watch that the snails do not eat the young plants over until they are large and hardy. In dry seasons Cucumbers do very well scrambling about the ground and resting on the surface, but throughout long periods of wet the fruits do not form well resting on the soil, and to get over this difficulty we advise a quantity of old peastakes to be put round each plant and allow the growths to rest on these. Moisture then passes freely from them, and a good crop may be secured.

Parsley.—The finest Parsley is always had from plants growing in rich soil and with plenty of space. From 6 inches to 1 foot apart is not too much in this way, and where spring-sown Parsley has not been thinned to this extent it should be done at once. Apart from its developing better afterwards, it will also become very hardy and stand the

severe weather in winter much better than the crowded rows. Now is the time to make another sowing of this useful plant to stand out all winter and come in next spring. Early-sown Parsley generally seeds as soon as the cold weather is over in spring. See that the ground for the present sowing is rich and free from all destructive insects. Prevention is always better than cure in their case, and a slight dressing of soot, lime, or salt should be dug into the ground before sowing.

Egg Plants.—These are now growing and fruiting in cool frames, but they require much syringing at this season to free them from green fly, &c., and as the fruits form they should be cut and used before they are too old. In exceptionally fine seasons we have grown these plants in the open air; but they are at all times surer in fruiting when kept in frames, and as there are plenty of these vacant now this is a very profitable crop to occupy some of them with.

Garlic and Shallots are now well developed, and they may be drawn up any dry day. They should be spread out on any pathway or dry place until they are quite dry and ripe, when they should be stored in the Onion or Potato shed.

Endive.—The first sowing of this should be made now. A small patch of the green-curled or Batavian may be sown in any odd corner, and as the plants become large they may be transferred to a border or bed, where they will be found very useful for early winter salads.

Onions.—Those of these sown last autumn and planted in rich soil early in spring are now gaining large proportions, and if left in the soil to grow after this time many of them will soon split underneath and lose much of their value. To avoid this all such should be drawn up and be dried off and used in this state. Amongst the cottagers for miles around us complaints are ripe of the maggot destroying the greater part of the crops, especially the spring-sown ones, but our half acre or so is escaping wonderfully, and this we chiefly attribute to the dressing of soot and kainit we gave them one wet day about a month ago. Many thin out their Onions to 6 inches or so apart, but the finest crops are secured where little or no thinning is done. Where crowded, the bulbs will be small and excellent for keeping for a long time, and the larger, which come where the plants are thin, may be taken for immediate and autumn use.

Turnips.—A good breadth of the Chirk Castle variety should be sown now for a winter supply. They may follow early Potatoes, Peas, &c. The rows should be 18 inches apart, and the seed sown very thinly.

PLANT HOUSES.

Pelargoniums (Zonals).—Young stock grown on for flowering during the autumn and winter should without delay be placed in 6-inch pots. Pot them as firmly as possible in good sound loam, to which is added a little bone dust, soot, and sand, which will insure a sturdy compact growth. Keep them close for a time after potting until they are rooting freely in the new soil, then gradually harden them, and stand them outside on a bed of ashes. To save the labour of frequently watering the pots can be plunged, but care must be taken to prevent them rooting into the plunging material. The only attention necessary after placing the plants outside is watering, feeding when their pots become full of roots, pinching the shoots, and the removal of all flowers as they appear. Give these plants a sunny position.

Show and Fancy Pelargoniums.—Cuttings of these varieties should now be rooted without delay for early flowering next year. Valuable cuttings can be obtained from the plants that were rooted for the earliest batch. Young vigorous shoots for cuttings are decidedly preferable to those from plants that have been exhausted by flowering, and of which the wood is hard and dry. Young plants are much better than cutbacks for purposes of decoration in 5 and 6-inch pots. If larger plants are in demand old plants must then be cut back and again started into growth. Those that flowered early will now be better outside than under glass, and can be brought to rest by keeping them drier at their roots.

Mignonette.—It is a mistake to allow plants intended to be grown into pyramids or to be trained on umbrella-shaped trellises to suffer by want of root room until they have been placed in the pots in which they are intended to flower. If they become checked through being root-bound their growths soon become hard. From seed sown as previously directed the plants should be growing vigorously in 5 and 6-inch pots, and some of the most forward will be ready for 9 and 10-inch pots, which are large enough for splendid specimens. If these plants are not already in cool quarters no time should be lost, because they soon draw up weakly in heat instead of being strong and robust. Use for a compost rich fibry loam, a little leaf soil, a 6-inch potful of bone dust, and the same quantity of soot, to each barrowful of soil, adding a good sprinkling of coarse sand. Pot them moderately firm when giving them their last shift. Sow a little more seed in small pots to succeed those, also a batch in 6-inch pots of Miles' Hybrid Spiral. Those in the last-mentioned pots should be placed in a cold frame and shaded until the seed germinates, and then afforded abundance of air day and night, or plunge the pots outside.

Choisya ternata.—This is a useful greenhouse plant in spring where sweet-scented flowering plants are in demand. It is of easy cultivation and thrives well in almost any soil; good loam and sand suits it admirably. Plants that have made their growth should be well hardened and plunged outside to thoroughly ripen their wood, which is essential to the production of a profusion of their Orange-like Hawthorn-scented flowers. In no stage of growth should this plant be allowed to suffer by the want of water, or its foliage soon turns yellow.

Cuttings strike readily in heat if half-ripened wood is employed, which

should be taken off close to where it springs from the old wood and inserted in sandy soil and covered with a bellglass.

Celosias are grand flowering plants for winter decoration, as they last in good condition for fully three months. Seed should be sown at once in heat, and the young plants afterwards encouraged to grow rapidly in gentle warmth until they are ready for 6-inch pots, when cooler treatment can be given them. While growing in heat light and air must be freely admitted to them, or they will soon grow weakly.

THE BEE-KEEPER.

STRAW STEWARTON HIVES.

In reading Mr. Pettigrew's remarks on "Straw Stewarton Hives" (see page 329), I do not quite understand him. Will he please say the size of his wooden runs, depth and width, and whether the under side of the runs should be grooved for the first rounded roll of straw? Should the runs be cut into shape or merely bent like a hoop? and ought the runs to be cut through their full width to let the bars down to the level of the runs, or only the inside cut, and the outside remain entire? Should the straw lid lie flat on the bars, or raised in the centre, so that the bees can walk over the bars? Are the bees sure to build on the bars?

Mr. Pettigrew says, "In feeding bees in hives such as I am now describing, how easy it will be, put on empty supers, lift off their lids and put what food we want to give them on the bars. Will he please make this clearer—detail the process?—A NOVICE.

SUPERING.

HONEY is now being collected in great quantities in many parts of the country, and there is every promise so far that 1883 will rank among the red-letter bee years. The flow of honey is, however, some fortnight or three weeks later than it has been in other productive seasons. All vegetation was backward this summer, but the genial combination of sunshine and showers has caused rapid development of leaves and flowers during the latter part of the last, and so far during the present month. Where stocks have had timely attention they are now rewarding the bee-keeper's care and outlay by an ample return either in the shape of extracted or super honey.

Many cottagers in our neighbourhood lost their stocks during April and early May, but the stronger which survived have done well, especially by throwing off very heavy swarms, and in the case of some nearly equally good casts. We try to impress on cottagers the mistake they make in considering the greater number of swarms and casts they can hive as a sign of the greatest gain. The man who can boast to his neighbour of having a stock which has given him a swarm and a cast, and perhaps a colt, and a virgin swarm from the first-hived swarm, and points out the five skeps—making, it must be owned, a grand display as the product of one hive—should have done better. He is not making his bees do their best for him. He will "take up," as he puts it, three or four light-weighting hives in autumn, and for the sake of a few pounds of honey destroy most likely a heap of brood, besides breaking up comb which it has taken the bees all the summer to build. In one way it is as well that the combs be broken up, for casts invariably build greater quantities of drone comb, and the presence of this would be detrimental to the success of the colony during the following season. But it would be far better to return the casts to their parent hive, and to give more room to the bees, so that they might store super honey for their owner. When once a man has used a bar-frame hive intelligently he will not wish again to keep his bees in skeps; but very much more might be done in the way of obtaining beautifully filled supers from skeps than is now generally attempted by their owners.

A small bellglass or a miniature skep, called a cap, are nearly always the receptacles placed over straw hives for the surplus. We have before pointed out how much inferior such supers are to wooden sectional supers. Hive-dealers are now springing up in all parts of the country, and the owners of bees can purchase from them these sections at such a nominal outlay that it would not be worth their while to make them themselves. Nor could they with any amount of patience and painstaking put together such neat, handy, and convenient little articles as those turned out by machines. We would, therefore, advise every bee-keeper to have a set or two by him. These sectional supers are made up of a number of little boxes without tops or bottoms, arranged

side by side, with their dividers of zinc or wood. These sections are held together in a rack, which can be placed either over the frames of the modern hive or on a straw skep. At the risk of repeating advice often given before we will again give directions for the arrangement of supers over skeps. Where the skep is flat-topped and has a hole worked in the centre of its crown the matter is simple enough. The rack of sections is set over the central opening at the proper time and well wrapped up to prevent all loss of heat. Unless the super be kept very warm the bees will not under ordinary circumstances enter it. When bees are in a state to be supered in a dome-shaped skep, a circular hole some 4 inches across should be cut with a sharp penknife, and when the piece of straw plait is withdrawn a puff of smoke will keep the bees from overflowing. Over this hole a piece of zinc may be placed for the moment. Some plaster of Paris should then be mixed with sufficient water to render it of the consistency of cream, and this should be poured all round the central hole in such a manner as to form a flat level surface on which the section crate can be stood firmly. A piece of excluder zinc may be used over the aperture, often with good effect, but it is seldom that the queen will remain in sections, even should she go up for a short time. We would rather do without the excluding zinc over such a small opening as the 4-inch entrance. The zinc is likely to embarrass the bees, and the opening might become choked. But we have had beautiful supers filled over straw hives both with and without the excluding zinc. When the plaster of Paris is ready for the reception of the super the covering placed over the hole is withdrawn, and the sectional rack pressed well down on the soft surface. This will soon harden, and form a capital platform on which to work supers during the summer, and in autumn it will be easily removed and the skep wrapped up in its reduced form to pass through the winter.—P. H. P.

(To be continued.)

COVERING BEES.

AN article in the Journal a fortnight ago has induced me to give you a description of the way I cover up my bees, and I hope it may be useful to other bee-keepers. I use a bec horse, which stands 9½ inches from the ground and holds four hives—quite enough for my small garden. On this I place the hives, over them I put a cover made of deal about a quarter of an inch thick and high enough to go over a super when required, or feeding bottle. Over all the hives I place a piece of tarred felt, such as you see in ironmongers' shops. I then get some galvanised iron wire, fasten it at one end to the horse, pass it over the top of the covers, and fasten to the other end of the horse. I find this a very good plan; the cost is not much, and it keeps the bees cool in summer and warm and dry in winter. Having had a good hive blown over, I have now no cause for anxiety, let the gusts of wind which do so much mischief in small gardens blow as they may.—CLIFTON.

TRADE CATALOGUES RECEIVED.

Barnart & Co., Vogelenzang, near Haarlem.—*Catalogue of Dutch Flower Roots.*

J. Backhouse & Son, York.—*Catalogue of Stove and Greenhouse Plants.*

W. Dobbie, 62, Preston Street, Faversham.—*List of Pelargoniums and Fuchsias.*



TO CORRESPONDENTS

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

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

PARSLEY (*Thomas Hallet*).—Although we have seen Parsley closely resembling yours, we are not sure that we have seen any with leaves quite so

finely divided. It is very elegant and Moss-like, quite worth preserving, and we advise you to save the seed, try the variety on a larger scale next year, and send us another sample. The colour is too pale, but this is, perhaps, not a character of the variety, as the leaves sent may have lost their freshness.

THINNING ASPARAGUS (*Cottage Amateur*).—We assume the seed was sown this year. We should dig up every alternate row next spring just when growth commences, and plant other beds if wanted. The plants in the rows may be a foot apart. A great number of useful heads may be had from plants in rows a foot apart, but to have large produce more space must be afforded. Rows 9 inches apart are too close.

BROCCOLI AND POTATOES (*Idem*).—Broccoli and plants of that nature planted between the rows of Potatoes now will do no harm to the crop, but the Potato haulm if it grows strong may interfere with the progress of the plants inserted. April is a good time for sowing seed of Thyme and Sage; but as you failed to sow then you may sow now in drills in the open air, thinning out the plants when large enough to enable them to assume a sturdy habit of growth.

WHITE STOCK (*J. W., Peshore*).—We have received your note asking for "an answer," but as we did not receive your former letter, and you do not state in the present one your object in sending the Stock, we have really no question to which we can reply. If you will send another spike and enclose a letter with it expressing what you desire to know it shall have our best attention.

GRAPES SCALDED (*Tom Firth*).—Slightly increase the night temperature with ventilation to prevent the condensation of moisture on the berries, giving more air very early and gradually in the morning. Keeping vineries closed too long then opening the lights too wide at once causes rapid evaporation, which is most injurious to Grapes. See "Work for the Week," page 547 of our last issue.

MISMANAGEMENT OF PLANTS (*L. B.*).—Undoubtedly you are right. The plants ought to have been moist, but not decidedly wet when repotted. No doubt they are seriously injured by neglecting to water them for two days, and in that state to place them in larger pots. Such a case of mismanagement as this has seldom been brought before us. You do not say whether you are under the foreman or over him. We presume the latter is the case, and you had better not follow his example.

MUSHROOM CULTURE (*Cantab*).—There is no doubt plenty of soil in all the counties you mention well adapted for Mushrooms, and plenty in the same counties not of the best character for the crop; judgment must be exercised in this matter, but any sound naturally rich and rather heavy loam will answer. Not having had experience with the markets in either of the localities you name, we are not in a position to answer your question on that point. The rate of conveyance is not uniform; it can only be obtained from the railway companies. Where there is competition it is low. It is not necessary to place the manure under cover before making the beds. We never recommend dealers. You had better first try their culture on a small scale where you are situated; you will then be in a better position to select another locality if required.

CUCUMBER HOUSES AT PRESCOT (*J. M. R.*).—The span-roofed houses to which you allude vary in length from 150 to nearly 600 feet, and are 9 and 10 feet wide. The height is 8 feet from the floor to the ridge, some a little more, but the majority less. The height to the furrow or eaves is 3 feet 6 inches to 4 feet, which will give a rafter of about 7 feet. The houses are built without side lights. The beds in which the Cucumbers are planted are supported by low inside walls. The houses have a very low appearance from the outside, most of them being sunk considerably. Some of them are built in blocks of four or five, and the furrows supported with pillars instead of a wall separating one house from another, but this is done for the sake of economy. The form of boiler in general use is an improved form of the saddle. The houses are of different sizes, aspects, and roof angles, so that it is not easy to be precise; but if you require further particulars relative to the structures we will endeavour to supply them, but we cannot recommend dealers.

MANURING POTATOES (*E. F. C. B.*).—The dressing you propose—1½ cwt. of nitrate of soda with 1 cwt. chlorate of potash—is good, and the best way of applying it is to sprinkle it between the rows before earthing up. In many districts, and probably in yours, an addition of superphosphate will do good. We have found a mixture of potassic chloride and guano very good. A mixture of nitrate of soda, half cwt., potassic chloride, one cwt., and three-quarters cwt. of superphosphate is as good as any. If the Potatoes are growing weakly you had better double the amount of nitrate, if moderately give a little more than you allow. Often, in the case of very strong-growing kinds, nitrates are not necessary, but in your climate they may be freely applied with nothing but benefit. Occasionally potash does no good, but generally it is the most important ingredient in Potato manure. If our hints help you we shall be glad to hear of the result.

TEA ROSES IN DECEMBER (*T. B.*).—The condition of the plants will suggest the treatment that should be accorded for inducing them to flower in the winter. Some plants cannot with any certainty be made to produce blooms freely at the time indicated. If strong plants growing freely in pots either in a light house or plunged in ashes outside are well supported, and the buds picked off until October, they will often produce a number of buds in November, and these in a moderate temperature and genial atmosphere will expand in December. But Roses to flower freely at the time indicated must be encouraged to make their growth early in the season in a very light house, then be ripened and rested in the summer, yet keeping the roots moist, pruned, and top-dressed in October, and placed in a moderately heated structure. Roses thus prepared and managed flower very freely in the winter, but can only be produced satisfactorily in very light houses that are well adapted for the growth and forcing of the plants; and it would be little use attempting their culture with the object in question in an ordinary greenhouse, and in a mixed collection of plants.

ZONAL PELARGONIUMS FOR WINTER (*Idem*).—Healthy plants now established in 3 or 4-inch pots, the leading growth stopped and just breaking, then placed in 5 and 6-inch pots in a good compost of loam, with

a little decayed manure and a fifteenth part of bonemeal, will flower freely in the winter if well attended to in the summer and the flower buds are picked off as they appear. They may be stood in the open air as long as the weather is favourable, then placed under glass. They must not be starved with the object of ripening them, but must be encouraged to grow freely under the full influence of the sun. If dwarf plants are required the tips of the shoots may be nipped off in August. Young plants generously grown produce the finest trusses; but old plants of such free varieties as Vesuvius cut down now, partially shaken out, and repotted when they have started into growth, then carefully tended and supported, will yield a profusion of moderate sized trusses during the winter months in a light house having a temperature of between 50° and 60°. They will not continue producing trusses freely in winter in a cold greenhouse.

EPIPHYLLUMS (*Idem*).—Cuttings should be inserted in spring in light open soil in a brisk heat, keeping moist, but avoiding watering more than to keep the soil in a moderately moist state, the cuttings being inserted around the sides of the pots, and when rooted potted-off singly in 3-inch pots. If the plants have filled the pots with roots, and have made, or are making, good top growth, shift into 4½-inch pots in May or June, and by the end of July or early in August the growth will be complete. They should then have a lessened supply of water, and the sprinkling overhead be discontinued, and have a light and airy position. A warm greenhouse or cool stove gives the most suitable temperature, but the plants may be grown very well by those having in addition to a greenhouse a vinery started in February or March, which from the moisture and heat will conduce to a vigorous growth, that being completed by the time the Grapes are ripening, when the plants may be removed to a light airy position in the greenhouse with water only to keep the growths fresh. The plants if kept in an intermediate house will commence flowering in November and continue until February. If they have a month to six weeks of this rest after flowering they subsequently grow much more vigorously. When growth commences the plants should be repotted, taking away as much of the old soil as possible without injuring the roots, and they may be returned to the same pots, adding fresh soil. The most suitable compost is light turfy loam, very fibrous, and chopped up moderately small, with an addition, in equal proportions, of dry cow dung, sharp or river sand, and crocks—or what is better, soft bricks broken into small pieces. The potting should be moderately firm and the drainage thorough. When in free growth and the roots active liquid manure may be given abundantly; a peck of cow dung to twenty gallons of water answers well, or one peck of sheep droppings to thirty gallons of water, one peck of soot to thirty gallons, or one pound of guano to twenty gallons of water, avoiding making the soil sodden, and leaving off the applications of manure water when the growth is complete. Useful and attractive as are plants on their own roots, those grafted on *Pereskia* stock (*Pereskia aculeata*) are infinitely superior both in vigour of plants and their ornamental character. If you require further details of culture you will find them in No. 780 of this Journal, which can be had if you send 3½d. in stamps to the publisher, quoting the number we have given.

LARCH TREES DISEASED (*John W. Kitson*).—We print your letter, as it refers to a subject of great importance, and as our reply will then be better understood. "Will you kindly give me any information you can as to a disease at present existing in Larch trees in Dartmoor at an elevation of 1000 feet? Soil rocky, with rotten granite sand. Fine young plantations of trees, with a growth of from 4 feet high, are attacked. They appear to die back with a red gummy sap exuding from the joints, giving them a cankerous look. Can the cause be frost or the work of an insect? and is it possible to apply a remedy?" The injury is the result of frost on trees which have been constitutionally enfeebled by being raised from seed produced in low-lying positions. The Larch is a mountainous tree, and the seed should always be obtained from specimens on high elevations. It thrives at an altitude of 1800 feet, and in its native habitats lives for 150 to 200 years; but trees grown in the lowlands speedily decay, and if seed is raised from these lowland trees and the produce planted in a high exposed position disease is almost sure to overtake them. Larches are no doubt attacked by insects, but immeasurably greater injury is the result of want of care in selecting the seed. The condition of the trees in question is not the result of frost during the past winter; it may have been done two or three years ago, and is only declaring itself now. There is no remedy, and the only method we can suggest of having healthy trees is to insist on them being raised from seed that has ripened on trees in a mountainous district. If this principle of procuring seed had been adhered to we are convinced there would not be half the Larch disease in the country that exists now.

MUSHROOM SPORES AND SPAWN BRICKS (*A. W.*).—It has been held by many investigators that it is necessary for the spores to pass through the system of an animal to acquire the power of germinating, and we believe the opinion is still entertained by some botanists. We have, however, heard of experiments by which it was, we understand, proved that the spores could germinate when taken direct from the Mushroom and placed in a suitable medium and temperature, but we cannot refer you to any published record of these results. The bricks are composed of horse and cow manure and sound loam, mixed, kneaded, and pressed into moulds. When the bricks are sufficiently dry pieces of spawn are inserted in them, and they are then kept warm by being covered with fermenting manure until the mycelium spreads through the mass. The covering is then gradually removed, the bricks dried and kept in a cool dry place, and it is not necessary to cover them with anything. It is almost impossible to teach a person how to make these bricks satisfactorily who has no knowledge of the work. He must see the process throughout, and even then he may fail. It is much better for amateurs to purchase spawn than to lose time in attempting to make it.

CUCUMBERS GUMMING (*G. Cole*).—The soil is probably too rich, and may be too wet, especially on the surface. Examine it by digging to the bottom of the bed, and if it is moist there lessen the water supply; if dry make some holes in the bed and pour water in. It is not possible to say how much water the plants should have, that depends wholly on the size and the conditions under which they are grown. We can only say that plants that show a tendency to gum should have no more water than will prevent flagging; and if the gumming be excessive shading must be resorted

to for a few hours in the middle of the day, so as to lessen the necessity for water in order to prevent flagging. The atmosphere must be kept drier and warmer, so as to allow of freer ventilation, which will cause more rapid evaporation and enable the plants to part with the superfluous moisture. Gumming is, however, better avoided than remedied. The soil should not be kept very wet in the early stages of growth; indeed no more water should be given than to keep the plants in steady progressive growth until the fruit is set and swelling, when copious supplies will be necessary. Encouraging a free growth in the plants in the early stages and up to the fruiting stage, and afterwards keeping the growths closely restricted, is likely to induce gumming, as are also large reductions of growth at one time and at distant intervals.

PRESSING AND PRESERVING FLOWERS (J. S. U.)—It is very difficult to preserve the forms of some flowers in drying them, and all that can be done is to spread the parts carefully and then press them heavily for some time. A little practice will soon enable you to accomplish this in the majority of cases fairly well; but in others you must be contented if the flower is recognisable when dried. Blotting paper will answer the purpose; but there is a special kind of botanical drying paper sold that is far better if you intend making a large collection. It can be obtained from wholesale stationers at a moderate price per ream. Employ boards a little larger than the paper, one at the top and one at the bottom of the specimens, distributing them evenly, and place heavy stones, weights, or similar substances upon the top. Examine the specimens frequently, placing them on fresh papers if necessary—that is if they are damp or any signs of mould be observed. When mounting the dried plants it is preferable to employ separate sheets for each specimen, either neatly securing it to the surface with thin gum or with narrow strips of gummed paper placed across the stems or branches. A collection of leaves alone would be comparatively useless; but an herbarium of well-dried and carefully mounted specimens would give you much agreeable and instructive employment. We do not know any book specially devoted to the subject, but in most works on botany some instructions are given that might be of use to you.

PHYLLOXERA ON VINES (W. S.)—There is no doubt whatever that your Vines are attacked with this destructive pest, as we found numbers of the sluggishly active insects on the roots. We have seen a case where phylloxera-attacked Vines were saved by saturating the border with ammoniacal liquor from gasworks. This was poured on the border until it passed through the drainage freely. It was not done with any confidence that it would have the effect it had. The Vines were doomed, and the gardener thought he would try the experiment indicated, thinking it might kill the insects, but feeling sure it would also kill the Vines. To use his own words, it "gave them a shaking;" but in the course of a week there were signs of fresh growth. On this account a respite was given to the Vines. Their growth progressed satisfactorily, the gas liquor evidently proving a good stimulant, and they are now as healthy as others in a very long range which were not attacked by the enemy. If you decide to try the experiment—and it would not be very costly, as you have gasworks in your neighbourhood—you must remember the saturation of the border must be complete. Water of itself appears in some degree an antidote, as the insects always increase the most freely where the soil is dry, and are sparingly found where it is wet; it has, in fact, been recorded on good authority that when some Vines that had been planted with the phylloxera on the roots were afterwards destroyed, no insects were found on the roots in the moist outside border, while they swarmed on the roots inside where the soil was much drier. If there are galls on the leaves as well as the roots there is no doubt the Vines must be destroyed and the house thoroughly cleansed. On this question you had better avail yourself of Mr. Bardney's experience, published in this Journal May 26th, 1881, and if you do not possess that number it can be had from the publisher in return for 3½d. in postage stamps. We are very sorry you have been overtaken with such a misfortune, for there is no doubt of the presence of the pest, and you must proceed at once to extirpate it. Mr. Bardney, as others have done, quite banished it from the vine in his charge; but it is for you to determine whether you will first try the effects of the gas liquor. If you do you had better dilute it with three or four times its volume of water, and we shall be glad to know the results.

GYMNOCLADUS CANADENSIS (J. Hartland).—We are not surprised that you were unable to identify the tree from the "shoot" you received and have sent to us, because it is not a shoot, but a portion of a pinnate leaf. Although much crushed and withered, we believe the above is the name of the tree, which has been described by Loudon as follows:—"The branches have almost always an upright direction; and the appearance of the head in the winter season is remarkable, from being fastigate, and from the points of the branches being few, and thick, and blunt, as compared with those of almost every other tree. They are also wholly without the appearance of buds; and this latter circumstance connected with the former gives the tree during winter the appearance of being dead, and hence the Canadian name of Chicot or Stump Tree. The leaves on young thriving trees are 3 feet long and 20 inches wide; but on trees nearly full grown they are not half that size. The leaflets are of a dull bluish green, and the branches of the petioles are somewhat of a violet colour. It is very hardy and flowers freely in the neighbourhood of London, but does not produce pods. The wood is hard, compact, strong, tough, and of a fine rose colour. In America it is used both in cabinet-making and carpentry, and, like the wood of the Robinia, it has the remarkable property of rapidly converting its sap-wood into heart-wood, so that a trunk 6 inches in diameter has not more than six lines of sap-wood, and may, consequently, be almost entirely employed for useful purposes. The seeds were at one time roasted and ground as a substitute for coffee in Kentucky and Tennessee; but their use in this way has been long since discontinued. The pods, preserved like those of the Tamarind (to which this genus is nearly allied), are said to be wholesome and slightly aperient. In Britain the only use of the tree is for ornamental purposes; and, considered as an object of curiosity and beauty, no collection ought to be without it. A rich, deep, free soil is essential to the thriving of this tree, and such a soil is never met with naturally in exposed situations. The tree is generally propagated by imported seeds; but it will grow freely from cuttings of the roots, care being taken in planting to keep that end upwards which is naturally so."

NAMES OF PLANTS (W. H.).—The flower arrived in such a crushed con-

dition that it was quite unrecognisable. (*G. C. S.*)—*Bromus erectus*. (*Castleford*).—1, *Heraclium Spondylium*; 2, *Torilus Anthriscus*; 3, *Rhinanthus crista-galli*; 4, *Hordeum sylvaticum*; 5, *Festuca pratensis*; 6, *Bromus sterilis*. (*W. McK.*)—1, unrecognisable without flowers; 2, *Kennedyia monophylla*. (*J. E.*)—*Stellaria graminea*.

COVENT GARDEN MARKET.—JULY 4TH.

LARGE quantities of fruit reaching us, and prices are generally lower, Cherries realising high prices.

		s. d.		s. d.				s. d.		s. d.	
Apples	.. .. .	½ sieve	2 0	to	7 0	Grapes	.. .. .	lb.	1 3	to	3 6
"	.. .. .	per barrel	20 0		40 0	Lemons	.. .. .	case	10 0		20 0
Apricots	.. .. .	box	2 0		2 6	Melons	.. .. .	each	3 0		6 0
Cherries	.. .. .	½ sieve	8 0		18 0	Nectarines	.. .. .	dozen	6 0		10 0
Chestnuts	.. .. .	bushel	0 0		0 0	Oranges	.. .. .	100	6 0		10 0
Currants, Black	.. .. .	½ sieve	0 0		0 0	Peaches	.. .. .	dozen	6 0		12 0
" Red	.. .. .	½ sieve	0 0		0 0	Pears, kitchen	.. .. .	dozen	0 0		0 0
Figs	.. .. .	dozen	4 0		6 0	" dessert	.. .. .	dozen	0 0		0 0
Filberts	.. .. .	lb.	0 0		0 0	Pine Apples, English	.. .. .	lb.	3 0		4 0
Cobs	.. .. .	100 lb.	0 0		0 0	Raspberries	.. .. .	lb.	0 0		0 0
Gooseberries	.. .. .	½ sieve	3 6		4 6	Strawberries	.. .. .	lb.	0 6		1 0

VEGETABLES.

		s. d.		s. d.				s. d.		s. d.	
Artichokes	.. .. .	dozen	2 0	to	4 0	Mushrooms	.. .. .	punnet	1 0	to	1 6
Asparagus, English	.. .. .	bundle	3 0		6 0	Mustard and Cress	.. .. .	punnet	0 2		0 3
Asparagus, French	.. .. .	bundle	2 0		0 0	Onions	.. .. .	bushel	2 6		3 6
Beans, Kidney	.. .. .	100	0 0		0 0	Parsley	.. .. .	dozen bunches	3 0		4 0
Beet, Red	.. .. .	dozen	1 0		2 0	Parsnips	.. .. .	dozen	1 0		2 0
Broccoli	.. .. .	bundle	0 9		1 0	Peas	.. .. .	quart	1 0		1 3
Cabbage	.. .. .	dozen	0 6		1 0	Potatoes, New	.. .. .	lb.	0 2		0 4
Capsicums	.. .. .	100	1 6		2 0	Potatoes	.. .. .	cwt.	6 0		10 0
Carrots	.. .. .	bunch	0 4		0 0	" Kidney	.. .. .	cwt.	6 0		10 0
Cauliflowers	.. .. .	dozen	2 0		3 0	Radishes	.. .. .	dozen bunches	1 0		0 0
Celery	.. .. .	bundle	1 6		2 0	Rhubarb	.. .. .	bundle	0 4		0 0
Coleworts	.. .. .	doz. bunches	2 0		4 0	Salsafy	.. .. .	bundle	1 0		0 0
Cucumbers	.. .. .	each	0 4		0 6	Scorzoneria	.. .. .	bundle	1 6		0 0
Endive	.. .. .	dozen	1 0		2 0	Seakale	.. .. .	basket	0 0		0 0
Fennel	.. .. .	bunch	0 3		0 0	Shallots	.. .. .	lb.	0 3		0 0
Herbs	.. .. .	bunch	0 2		0 0	Spinach	.. .. .	bushel	2 6		3 0
Leeks	.. .. .	bunch	0 3		0 4	Tomatoes	.. .. .	lb.	0 9		0 0
Lettuce	.. .. .	score	1 0		1 6	Turnips	.. .. .	bunch	0 0		0 0



THE SUSSEX BREED OF CATTLE.

THE Sussex cattle are the descendants of a very ancient breed, and have been continued with varying changes in their shades of red, being formerly of a very deep red, almost approaching black, but recently of a brighter or cherry red colour. The objects, too, for which changes have been made in the style and type of the cattle are considerable, for they were in the earliest records of the breed reared principally for the tillage of the land, and after having attained an age unfitting them for field labour they were fattened on the rich grazing pastures and marshes in Kent and Sussex, and sold to the butchers at heavy weights, frequently from 180 to 200 stone. But the system and style of breeding for working purposes seems to have been successful and well adapted to the period, as they were valued for their great size and muscular power; yet they were coarse in appearance and carrying much flesh, which gave them great power and capacity in tillage labour, especially as they were upstanding and lengthy animals.

Mr W. Housman, who is one of our greatest authorities on the subject of cattle and their types, states of the Sussex breed:—"The origin of Messrs. Stanford's herd is lost in the misty distance of the last century. Its acknowledged position in the front rank is due mainly to the judgment of the present proprietors, who are not veterans, but men in the prime of life. They farm altogether about 1100 acres, and breed, rear, buy, sell, and feed cattle, treating the pure Sussex cattle as plain-faring and rent-making stock. The grandfather of the present owners of the herd came to Eatons in 1779, bringing with him from beyond Horsham pure-bred Sussex cattle, ancestors of some families of the present herd. He soon afterwards bought Ledford Farm, where also pure Sussex cattle were bred. During his time and during the lifetime of his son, the father of Messrs. E. & A. Stanford, no systematic record of the breeding of the stock seems to have been kept. The offspring of the cows brought over in 1879 were known as the 'old sort' from generation to generation, so that their descent from the foundation stock was kept in remembrance by tradition. The cattle did all that was required of them for the dairy and the plough, and eventually fell under the butcher's axe heavy carcasses of beef.

As ploughing with oxen became a less common practice proportionally more attention was paid to the beef-points, until we have in the massive and symmetrical Sussex cattle of the Royal Agricultural Society of England, the Smithfield Club, and the Bath and West of England Society the results of continuously repeated selection, extending over many generations. The breed as it is now, its breeders maintain, is the old breed of the last century, and of time immemorial improved up to grazier's standard—improved, as any breed may be improved, by skilful breeding and good management within its own limits. It was always a breed of hardy active animals, kindly feeders, and only wanted a little care to translate the form from that of a draught ox to the butcher's model, and encouragement of the fattening propensity to cover the improved frame with prime beef in the most valuable parts. These desiderata have been supplied. Messrs. E. & A. Stanford's father, while keeping on the line here indicated, did not, as already stated, leave any record of his work, as step by step, link by link, it was continued from his father's time. He used pure-bred bulls, avoiding near relationship in animals paired; but their names and order of succession are not known. One remarkable sire, however, is remembered. In the year 1839, when the first meeting of the Royal Agricultural Society of England was held at Oxford, Mr. Rutland of Firl, near Lewes, sent his 'Brown Bull,' who walked all the way to Oxford, and carried off the first prize. Brown Bull was purchased by Messrs. Stanford's father and used in his herd."

We will now make a quotation from the account given by Mr. A. Heasman, an eminent breeder and exhibitor of the Sussex cattle, as stated in the Journal of the Royal Agricultural Society of England. He says:—"This breed of a deep red colour is fast becoming closely assimilated in character to the Devon. This useful class of stock was formerly bred principally for draught purposes, being converted into food for the public after they had cultivated the soil of the Weald of Sussex and Kent—some of the heaviest tilled land in the kingdom. Even in those early days the Sussex cattle were fully appreciated, and always possessed the finest quality of flesh, were never neglected by the grazier. Times have very much altered, and the Sussex beasts are no longer what they were, neither are they reared to the same extent or for the same purpose. They have given place to horse and steam power, and now take up the position as one of the useful and established breeds of the kingdom. The breed has been too well appreciated by the tenant farmer to be allowed to die out, and great pains and attention have been taken latterly in endeavouring to alter its style and type by breeding from the smallest bone with the greatest amount of flesh. This seems to have been successful when we compare the present animals with what may be called the old-fashioned sort, one of which, of enormous frame and weight, was fattened many years ago at Burton Park, near Petworth, Sussex, and called the Burton Ox."

The Sussex stock, which we have known and seen at the exhibitions of the Royal Bath and West, also Royal Counties, Agricultural Societies, are equal to the other best breeds as regards early maturity and weight for age, which has been proved by the weights of the animals shown at the Smithfield Club meetings, and are great favourites both of the butcher and consumer. At three years old well-fed steers will frequently weigh from twelve to fourteen score pounds per quarter. The Sussex men, however, do not often spoil their best animals by over-feeding. After having carefully looked over all the best exhibited at the various meetings for prizes during many years, we may be allowed to describe their general features and points as follows:—The nose rather wide, the muzzle of a rich yellow colour, thin between the nostril and eyes; eyes rather prominent; the forehead wide, especially of the bulls; horns of greater length than the Devon, fine, and rather turning up at the points; neck not over-long; sides straight, and not coarse at the shoulder point; full and wide at the breast, which should project at the front; deep in girth, legs not too long, chine bone straight, but they are often rather too narrow in the chine, which point may easily be corrected; ribs, too, are sometimes rather less arched than in some other breeds; loin full of flesh and wide; hip bones not too prominent, but well covered; rump long and quite flat; tail should drop perpendicularly, the outside of the thigh being flat, but full of flesh otherwise; the hair soft and silky, with a firm but mellow skin.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Hay-carting both of field and meadow crops will now be going on, but in various localities the Clover and Sainfoin hay crops have been somewhat injured, for from the 15th to the 23rd of June rain

more or less occurred every day in various districts. This, however, has been favourable for early root crops, such as Mangold, Carrots, Cabbage, and Swedish Turnips, which have been horse-hoed and hand-hoed in favourable weather, and bid fair for the production of over an average crop. Common Turnips, too, which are best sown for winter feeding in the first and second week of July, may now be sown under favourable circumstances. The month of July is also the month for cutting grass for hay on the low-lying meadows, water meadows, and pastures of the midland districts, the work attending which, together with the tillage of fallows in the strong land districts, will keep both horses and men in full employment at all favourable opportunities; and we must call the attention of the home farmer to the advantage of cutting his grass crops earlier than is customary, in order to secure the first and best quality of hay, and to get rid of the work of carting and stacking before the harvest commences, it being difficult to cope with both these farming operations at one and the same time.

Hand Labour.—This consists of haying, Turnip and other root hoeings, and singling. In the latter work the women can assist the men; boys, too, can do the same, but these are now at school until after a period when they would not only earn money to the advantage of the family, but also be learning all sorts of farm work, without which various country districts will be denuded of skilled agricultural labourers in the future. It is operating at present day by day, and in the opinion of many experienced farmers is one of the principal causes of the agricultural depression now existing throughout the kingdom, whereby thousands of useful farms have been deserted by the tenantry, and is also the cause of serious difficulties to the managers of various landed estates. In another way the education of the working classes not only withdraws young people from the country districts where they are so much wanted, but on reaching the towns to which they resort for employment, instead of being employed as they expected, they find themselves in the midst of a crowd of applicants who cannot obtain office employments and such like opportunities for bettering their condition, and in consequence become a dissatisfied portion of the population.

Live Stock.—It is now the time when many farmers make purchases of their young stock, such as short-woolled lambs. Various important fairs will now shortly occur both in Hants and Sussex, where the west country and Sussex Down lambs, and also ewes for producing early lambs next year, are to be found, because those persons who buy the ewes to put to the ram on their arrival at the farm will find it answer a good purpose, although they will have to pay long prices; and we allude to this matter in the hope of purchasers possessing stock by which they will have not only the full advantage of carrying out their objects and stock requirements, but that they will be able to manage and care for them in their own way, as the animals will become fully accustomed to the climate of their new home before the lambing period arrives.

THE ROYAL COUNTIES AGRICULTURAL SOCIETY'S WINCHESTER SHOW.—The champion prize, value £10 10s., for the best ram in any of the Sheep classes, presented by Messrs. Sutton & Sons, was awarded to H.R.H. the Prince of Wales for a remarkably fine animal of the South-down breed. His Royal Highness expressed his gratification at winning this prize, and his admiration of the silver cup which constituted it.

OUR LETTER BOX.

INCUBATORS (Hal).—The different kinds have been described and the management detailed in the paper devoted to those subjects, "Poultry." If you send a shilling in stamps we will endeavour to send you the information you require. There is no more practical book on poultry than Mr. Cook's work, published at this office, price 2s. 2d. post free.

FOWLS IN CONFINEMENT (S. S. S.).—Plymouth Rocks, Minorcas, or Andalusians would probably suit you, but try to get a good laying strain. You may keep a cock and six hens, or even one or two more, provided you attend very strictly to cleanliness and renew the earth in the run occasionally.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1883.										
June.										
Sunday, 24.....	29.90	65.8	58.2	S.	60.0	76.1	59.7	120.4	57.0	—
Monday, 25.....	29.843	65.7	60.7	N.E.	61.2	76.3	57.6	122.0	52.7	0.053
Tuesday, 26.....	29.760	55.5	53.7	S.W.	60.7	66.4	52.7	112.4	50.4	0.128
Wednesday, 27..	29.939	61.7	53.3	S.W.	59.5	66.4	54.3	106.4	45.5	0.102
Thursday, 28....	29.915	61.9	59.6	S.	59.2	71.4	56.9	117.6	55.9	—
Friday, 29.....	30.023	72.4	65.6	E.	59.7	85.6	55.0	125.5	49.9	0.437
Saturday, 30....	29.991	71.7	65.6	S.W.	62.3	80.1	61.4	117.8	58.3	—
	29.922	65.9	59.8		60.4	74.6	56.2	117.4	52.8	0.770

REMARKS.

24th.—Dull at first, bright in afternoon, calm and close in evening.
 25th.—Thick and dull at first, bright at noon, heavy shower 5 P.M. and in evening.
 26th.—Showery and cool.
 27th.—Slight showers, bright intervals, heavy rain after 8 P.M.
 28th.—Dull at first; fine, calm, warm evening.
 29th.—Fine and hot; cloudy in evening; lightning at night.
 30th.—Violent thunder storm; very heavy rain from 0.42 to 0.49 A.M., 0.38 of rain falling in the seven minutes; lightning afterwards; oppressive morning; fine warm day.
 A hot week, hotter than any week either this year or last year.—G. J. SYMONS.



COMING EVENTS

12	TH	National Rose Society's Show, Sheffield. Braintree Show.
13	F	Ludlow (Roses).
14	S	
15	SUN	8TH SUNDAY AFTER TRINITY.
16	M	
17	TU	Leek (Roses); Evesham Show.
18	W	Mottingham Floral Fête (2 days); Darlington (Roses); Loughborough.

COMPLEMENTING AND HARMONISING COLOURS.

JUDGING from the way colours are occasionally arranged, some gardeners must be specially defective either in the perception of colour, or have not put themselves to the trouble of observing what combinations are pleasing, or of studying how to avoid blundering in colour arrangements. Flowers are bright and beautiful things; the leafy colours of many plants are capable of producing pictures fit to rank as real works of art; but the brightness of the flowers and gaiety of the coloured leaves often enough—indeed oftener than is pleasant to educated eyes—illustrate how even the beautiful can actually be made hideous. Doubtless a greater number, especially among the younger members of the craft, will be glad of a few hints that may at least serve to call attention to a much-needed though neglected phase of a gardener's education.

Green is of itself naturally pleasing, and relieves the eye that is accustomed to brick-coloured streets, dusty smoky roads, or gaudy colours. Indeed, bright colours pain the eye, green soothes it, and relief has often to be found in green spectacles. It is not half so much the brightness of the flower, which Nature, indeed, furnishes with comparative scarcity, that is the charm of the country. It may be doubted if the best-planted parterre ever seen is capable of yielding so much soothing pleasure as a bright green smooth lawn on which handsome green shrubs are tastefully arranged, with a park well timbered with grand trees beyond. Nevertheless, colours properly arranged in pictures, in tapestry, dresses, or in gardens are capable of giving exquisite pleasure, and really do so to thousands. If only all were arranged according to correct principles, this pleasure could be greatly augmented, and the beholders and flower gardeners alike refined.

It is curious to see how popular anything red in a garden is, and how despised is yellow; though partly because of the necessity for variety, partly because of the ease with which many yellow-flowered and yellow-leaved plants are grown, yellow is very plentifully employed. The reason is that the red of the Pelargoniums, Coleuses, Iresines, Alternantheras, and even red Beet complements the green which everywhere so preponderates, while the yellow is really about the worst to associate with green, although it is often employed in beds as edgings next the green grass in the form of Golden Feather. But yellow separated from the grass with a good band of white, which is neutral and hardly ever wrong—and complemented with the shade of violet or plum that best complements the particular shade of yellow employed, really is as beautiful as the pleasing pink and scarlet that claim all the praise of those not possessed of an artist's eye and an artist's education. It is very seldom indeed that blue is properly employed, simply because it must be placed next white or orange to make a proper contrast, or beside a greenish blue or a bluish purple to make a pleasing harmony.

The colours and shades named are not a tithe of those at

the command of the garden artist, but all shades whatever are capable of being arranged pleasingly or otherwise, not only as contrasts but as harmonies. The rainbow is the most perfect example of a harmony, and it will be seen in studying its colour arrangements that the one shade passes gradually into the other, producing thus a most pleasing whole. To some tastes harmonies are most pleasing; to others contrasts afford most pleasure. Possibly the extent to which the beholder possesses the perception of colour determines which pleases most. One possessed with a keenly sensitive eye generally takes pleasure in gentle harmonies; when the perception of colour is not acute contrasts may be best. In this way gardeners have an opportunity of showing how much their desire to please is; but can only know how best to arrange the colours in the beds when they know what is most likely to please. Still, in a general way, it may be said that harmonies look best when close at hand; contrasts when some distance off. Much depends on whether the beds are close to the window or otherwise. Sometimes parterres may be planted on both principles. Even single beds and borders may be so planted.

The simplest way of ascertaining what colour is likely to best match any other colour is to consider that there are three colours only, and that the rest are the produce of these mixed in different proportions. Those who wish to be scientific might easily preach a long sermon to prove this statement wrong without anyone being the wiser; but the tyro will not go far wrong if he starts with such an assumption, especially if he knows nothing of the subject and blunders accordingly.

The colours, which will be here called primary, are red, blue, and yellow. The secondary colours are purple (formed by mixing red and blue), green (formed by mixing blue and yellow), and orange (formed by mixing yellow and red). There are also tertiary colours, such as scarlet, which is red with a tinge of yellow in it, and plum, which is blue with a tinge of red in it, and so on, but so deep into the subject we cannot at present go. Now, as an invariable rule, primaries always look bad beside each other and the secondaries derived from them. Thus, red beside blue, or blue beside yellow, is unbearable. Equally vulgar is yellow beside green or orange, both of which have yellow in their composition. But any primary makes a pleasing complement with any secondary formed from any of the other two primaries. Thus, red (a primary) is complemented with green, a secondary formed from yellow and blue, the other two primaries. Blue is complemented by orange, and yellow by purple or violet.

If the shade of orange should be nearer yellow than a real orange its complement will necessarily incline in the same degree to purple. If the red should have a tinge of yellow the green should be as dark as possible, or even have a tinge of blue in it, and so on. The subject is infinite. As a study in harmony the rainbow is perfection, and the nearer the approach to that the nearer perfection.

White is most useful in harmonising or clashing colours, which may often be made at least tolerable by having a band of white interposed between them, and is by itself a capital lightener of an otherwise too-heavy arrangement. While hints may be given, and are undoubtedly useful, only close study and observation can enable anyone to master the subject in order to apply the knowledge usefully. This paper may be thought unseasonable. Not so. The laggards may only have scarcely finished their arrangement, but the earnest men are just beginning them for next year. Now is the time to do this. In spring only such plants can be propagated as are in stock. Now notes can be taken and the proper stocks prepared, and entered in note books. Then visiting will shortly commence. Many pleasing beds will be viewed and forgotten, simply because the secret of the pleasing arrangement will not be understood. "Botched" beds will unthinkingly be passed, but beginners at least had better notice these. The successful ones will probably be noticed in some or other of the papers, and be referred to.

"How not to do it" may well be worth learning, for failures are not often pointed out, but now is the time to do it. If this paper does not afford a key to those who would know more about the matter we may refer them to what Mr. Thomson has to say in his standard "Hand-book of the Flower Garden;" and those who wish to go deeply into the subject will find an elaborate series of papers in Cassell's "Technical Educator," and really one must "dig deep to find the gold."—A. H.

STRAWBERRIES FOR FORCING.

As the time has now arrived when it is necessary to prepare Strawberry plants for forcing next season, perhaps a few notes on that subject might be helpful to some of the readers of the Journal. I think I could not do better than record the method adopted at Ardgowan by Mr. Lunt, the able superintendent of the gardens there. The Strawberries produced in that establishment are second to none, as those who have seen them can testify, and therefore justify the means adopted to procure them.

As early in July as strong plants can be had soil and pots are got ready, and all other necessary preparations attended to. The orthodox system of layering the runners is departed from, they being severed from the parent plant and potted singly in 3-inch pots in free but rich soil. In these pots no crocks are used, but a small piece of half-decayed leaves is placed over the hole to keep the soil from choking it. They are then placed in a shaded position and well watered. In about three weeks they are sufficiently rooted and are shifted into the fruiting pots, the earlier being potted in 6-inch pots and the later ones in a size larger. These pots are well drained, and the crocks covered with sphagnum moss, over which a little soot is dusted. The soot benefits the plants, and also acts as a check against the ingress of worms.

The soil used for the final potting is good fibry loam, which is further enriched by a liberal application of cow manure and a dash of crushed bones; a little sand is also added to keep the compost more porous. The plants are potted firmly, the soil being well rammed with a potting stick, and sufficient room is left to admit a liberal supply of water. After this operation they are again placed in a sheltered position and thoroughly watered; here they remain till they become established in their pots. They are then removed to a position where they receive every ray of sunshine—a matter of the greatest importance, as without properly matured crowns a satisfactory crop of fruit cannot reasonably be expected. They are now carefully attended to as regards watering, keeping all runners cut off and the surface of the pots clear of weeds. As soon as the weather becomes cold and frosty at night they are stored away in commodious frames, the pots being packed close together, but not plunged. There they remain till placed in the forcing pits, receiving protection when the weather is very severe, and full exposure when it is mild.

The varieties grown are Garibaldi, Keen's Seedling, President, and Bothwell Bank Prolific. The last-named variety was tried last season for the first time, and has, I understand, given very satisfactory results.—W. L.

GARDEN CHEMISTRY—LIMING.

BESIDES the effects mentioned in my last article (page) the application of lime supplies an indispensable plant food. It is hardly for this that lime is applied, but when it is wholly deficient, as it is apt to be where long manuring is practised, it acts as does ammonia or nitric acid in soils deficient in nitrogen. It is the missing link, and when supplied is frequently enough of itself. Mr. Taylor recently gave an instance where its absence caused failure in Vine-growing even in new loam. Mr. Speed of Chatsworth also chronicled the recovery of failing Vines through the application of lime alone. At Longleat it is said to act "like magic" on everything to which it is applied.

It is to be feared that sometimes it is imagined that lime is given where it is not. Most writers on the Vine recommend mixing lime rubbish with the soil when the borders are made up; but what lime rubbish is, is not defined. Recently the writer saw some borders made up and liberally mixed with lime siftings. These siftings (from lime intended for building purposes) had every appearance of being lime, but they were only stones coated with lime. About new places it is to be feared that this mistake is often made. Occasionally the opposite mistake occurs. Lime rubbish is taken from ancient buildings, probably pulled to pieces for the purpose. Oftener than is suspected this rubbish contains very little lime. Long ago it was dissolved out by rain charged with carbonic dioxide.

Lime favourably affects most plants. To some, however, it is death. Heaths, Rhododendrons, Azaleas, and other plants will not

bear its presence. Often when excluded from the soil it is supplied in the water, and the gardener cannot conceive what can be wrong with his plants. Getting just such treatment as others that thrive somewhere else, he is at his wit's end. If the water supplied turns immediately white when lime water is mixed with it, the plants are being poisoned by lime. (In a paper on Waters we will show how to soften and purify such water.)

Gaslime is a waste product, and may often be had for nothing. Farmers and gardeners fight shy of it "because it kills," as they will tell you. But this is because it is not properly used. It is chiefly composed of calcic carbonate and calcic hydroxide. But along with these there is a varying quantity of calcic sulphide, calcic hypsulphite, calcic oxysulphide, and other substances. These are very hurtful to vegetable life; in any considerable quantity certain death, in fact, as many have proved to their cost. But when exposed to the air these substances change to the sulphate, which is not only not hurtful, but a valuable addition to any soil. Spread thinly on dry ground in October or November gaslime is perfectly harmless by March. It is a valuable insecticide, and no better exists for destroying the insects that prey on Onions, and sometimes make the cultivation of the Cauliflowers an impossibility.

The quantity necessary for an application wholly depends on the soil to which the application is to be made. In the case of heavy sour clays as much as from 10 to even 15 tons have been applied with nothing but advantage; but in gardens it will not be good economy to give so much unless in extreme cases. Two tons of quicklime applied early in spring and afterwards forked in lightly will, in most cases, be enough. Too heavy applications on soil rich in humus will liberate more food than the current crop can assimilate, and this would cause loss. Again, too much lime frequently makes soil too light and loose. When small doses are given this can be guarded against. Lime disappears sooner or later, and in time even heavy doses have to be repeated. In such cases there is at one time more than is necessary, at another not enough. When gaslime is used only small quantities should be used. Chalk, marl, or shell sand may, however, be put on in much greater quantities and at wider intervals. Acting less rapidly they are less apt to cause a too rapid waste of humus.

When it is deemed necessary to apply lime to Vine or other borders which cannot be dug up, and when, notwithstanding, it is desired that the lime should reach every portion of the border, it should be watered in while yet soluble—that is, when in the form of the hydroxide. Of course in rich borders this will at once become insoluble, but as fast as the carbonic and humic acids are neutralised by the descending lime, a constantly increasing thickness of soil will be charged with lime. To completely impregnate a whole border at once would be a herculean task; but it will be found better only to saturate the surface soil. Every watering will take down some, and indeed under such conditions wash it away; for in carbonic dioxide lime is soluble, and where constantly decaying organic matter is there is no want of that. We are all familiar with the lime "icles" that hang from bridges through which the water drains. These are pure calcic carbonate. The rain which passed through the bridge contained some carbonic dioxide, and small as is the portion so carried, it gradually dissolved the lime of the mortar and carried it down through the brick or mason work; but when exposed to the air the excess of the carbonic dioxide immediately left the lime it had dissolved, which once more became insoluble, and settled down in the form with which we are familiar. In this way great caves have been filled with pillars of stalactites, as they are technically called. Now the same process goes on in the soil, but with greater rapidity, for the supply of the acid is much more constant and abundant. For this and other reasons lime should not be too liberally applied to soils heavily manured or rich in organic remains.

Some years ago Professor Way drew attention to the double silicates which generally accompany clay. Double silicates are silicates of alumina in which part of the base has been displaced and its room taken by soda, lime, potash, or ammonia. These have been considered of great importance. Curiously, they may be altered—that is to say, if a silicate of alumina and soda exists the soda will be displaced if lime be applied, the lime taking its place. In the same way potash takes the place of lime, and ammonia that of potash, but only in the order we have named—that is to say, soda cannot displace ammonia. To this fact clay owes much of its value as a disinfectant as well as a deodoriser, and in this way for one ammonia becomes "fixed." How these double silicates are first formed is not very well understood, but it has been supposed that the application of quicklime is useful in originating them. The double silicate once formed easily passes through the form we have named. Lime water is frequently recommended for driving worms out of the pots, to cause them to come to the surface of lawns, bowling greens, tennis courts, and similar purposes. From what we have said it will be understood that it cannot be applied to all plants without harm, but

it may to the majority of what we may call loam plants. Indeed, although no worms exist, it may often prove beneficial to such, for it will remove acidity in the soil—a thing not unknown where large specimens are kept many years in the same soil. In some cases, where watering is not properly done, the soil even in small pots is sour more or less; and though a renewal of the soil is always the best cure, the application of lime water will remove the sourness and also add plant food to the soil.

Lime water is made by dissolving newly slaked lime in water. The idea some people have of the possibility of "making it strong" is wholly erroneous. Water can only take up in solution one part of lime to 732 of water. Weaker it may be, but not stronger. When much is wanted for applying to lawns, greens, &c., for the purpose of removing worms, it is not necessary to be particular whether the mixture is allowed to stand till clear, as the lime in suspension in the water will do good and not harm. When it is for anything more particular the water had better be skimmed of oily matter, allowed to stand till clear, and then decanted by means of a pipe bent to act as a syphon. If to be kept in jars or bottles it must be securely corked or the air will speedily precipitate the lime, when it will not be lime water, but a mixture of water and the mild carbonate. Hot lime made into whitewash is considered good for killing insects when applied to back walls of houses, brick pits, &c.; it certainly is effective in destroying moss or lichen on trees or walls. It may be applied for this purpose dry. Nothing will prove more effective for removing moss on lawns, and for this purpose it may be liberally applied in winter. On light soils such applications often cause a thick turf of white Clover to appear.

Cabbages of all kinds are greatly benefited by applications of lime. On the Continent, in this country, and in America it has been found to be almost a specific against Clubroot, and it is valuable for preventing finger-and-toe among Turnips. When liming is done on a small scale every year (the best plan), it should always be given to the land intended for Cabbages, Turnips, &c. The wild Cabbage grows best among shell sand by the seashore, and its ash yields 20 per cent. of pure lime (calcic oxide). The Vine has been rightly named a potash plant, but the ash of its wood contains from 30 to 45 per cent. of lime, and that of its fruit close on 20; and we all know how experienced gardeners prefer a calcareous soil or make one for their Vine borders. In well-manured soils from which the carbonic dioxide has dissolved and the rain washed out the lime, Peaches and Plums fail to set. The cure is new soil. A cheaper by far, and a thoroughly effective one, would often be a simple application of lime.—SINGLE-HANDED.

ENDIVE CULTURE.

As there are so many promising crops of Endive annually spoiled through being sown too early or too late a few brief notes on the subject now may be helpful. Endive is truly a winter salad plant, and although it is sometimes grown for summer use it is not worth cultivating to come in before October or November. We have had well-blanch heads ready to cut in August and September, but these were only for show, and where we secured half a dozen or so that were good, dozens in the same batch "bolted." This always happens with early-sown crops, hence our reason for objecting to them. Another reason is that when abundance of the best summer Lettuce can be had Endive is not valued as a rule, but in winter if well grown it may be said to be more valuable than Lettuce.

To secure a continuous supply from October until spring we would sow three times. First, at once; second, on or about July 20th, and again about the same time in August. The seed may be sown thinly broadcast or in drills. In any case do not cover it more than 1 inch deep, and let the soil be rich and not too dry or light. A very small piece will produce a great number of plants, and seed-sowing should be curtailed accordingly. When once the plants are seen above ground they will make rapid progress, and about three weeks after sowing will be ready for transplanting. Ground recently cleared of Potatoes, Peas, or Spinach is suitable. It is hoed and raked over, and then planted. The plants are dibbled in 1 foot apart each way, and the hoe is run between them to keep the surface of the ground free from weeds. Where varieties are grown which require tying up to blanch this is done when they have become good large tufts of luxuriant leaves, and a fortnight or three weeks before they are wanted for use. Subsequent sowings are all treated in the same way, and we never have any lack of the most useful Endive through the winter months.—A KITCHEN GARDENER.

CELOGYNE CRISTATA.—Mr. Grindrod has read my last note (page 531) like the first—rather hurriedly, or he would not have come to the conclusion he has. He will find that I do not use the word "impossible," but it is "possible." He appears to consider that cutting out useless crowded pseudo-bulbs from specimen plants altogether wrong; but plants

may be covered with growths, and still would be better if the crowded pseudo-bulbs were removed. Cutting out is done to give the principal pseudo-bulbs more room to develop, consequently finer flower spikes are obtained than from plants under the crowded system.—A. YOUNG.

SHOW AND DECORATIVE PELARGONIUMS.

THE present month being a good time to raise a supply for next year a few hints may be useful to beginners. I have learnt from experience that young plants every year give me better returns than old cut-backs, and occupy less space through the winter months when house room is scarce.

Propagation.—The cuttings should be taken from a clean healthy stock free from green fly. Strong young side growths are the best, and should be dibbled singly in small 60-size pots, the compost consisting of loam and leaf soil, with a good dash of silver sand, the soil to be made firm about each cutting. The pots may be arranged on ashes in a cold frame and the lights kept close, shading from bright sunshine. One good watering should be given to settle the soil. A slight damping after a hot day will be all that is required till roots are formed, after which they will require more air and water.

Potting.—Before the plants become root-bound transfer them into large 60-size pots, drainage being provided, on which some of the roughest of the compost should be placed. When the plants are sufficiently advanced shift them into 48-size pots, or, if very large specimens are required, another potting must be given into 32's, though I find with good attention plants in 48's are large enough for all practical purposes, either for the conservatory or for supplying cut flowers. For the final shift I prefer oyster shells as drainage, and a compost consisting of three parts strong loam to one of well-decomposed hotbed manure that has been kept dry and is free from worms, with sufficient sand to cause the water to pass freely through. Pot firmly, and allow sufficient room for watering.

Stopping.—The point of the shoot should be nipped out immediately roots are formed and growth has commenced, causing them to break close to the soil. Another stopping should be made when the young growths have formed three or four leaves. Some varieties will require stopping once more when grown strongly. I am quite content with from four to six growths, as these growths will throw side shoots and form a good head. I have some now from cuttings last summer 18 inches through in 48-pots; have been flowering since the middle of May, and will continue for some time, though the trusses are not so strong as at first. All flowers have been removed once a week.

Ventilating.—When roots are formed too much air cannot be given. The lights may be taken off to allow them the benefit of a warm shower or evening's dews. Drenching rains should be avoided. Keep them in cold frames while safe from frost, when no longer safe remove them to greenhouse or where space can be found. I winter mine on a suspended shelf near the glass in a span-roof house, where they get plenty of air. Being young plants they take up but little room.

Watering.—To grow Pelargoniums to perfection watering should be attended to carefully through all stages of their growth, watering just when the soil becomes dry and before the leaves flag. When the flower buds appear by no means allow them to flag, but supply water more copiously, as the pots being full of roots the soil will not become sour. Liquid manure should not be applied till they are well established in their flowering pots, when a little weak soot water may be given. When the flower buds appear it may be increased in strength and given every third watering, but not in excess, or they may east their foliage and the trusses will be weak. The point to be arrived at is strong short-jointed growth with plenty of healthy foliage. I also use liquid manure from the cow yard.

The varieties I grow are Dr. Masters, Sultana, Captain Raikes, Digby Grand, Madame de Clercy, Triomphe de St. Mandé, Claribel, Beauty of Oxtou, John Bright, Prince of Wales, Prince of Pelargoniums, Madame Thibaut, Sappho, Hesperus, Mons. Bollard, Lucie Lemoine, Madame Charles Koing, the last named being the best white I know; Duchess of Bedford, and Bridal Bouquet. All the above varieties are good and worthy of good cultivation. Besides being so pleasing to the eye they are useful for cutting, as they travel so well after being cut and gummed.—A. J. SANDERS.

VENTILATION.

I THOUGHT to have something more to say on this subject; but Mr. Taylor in his recent article on page 510, last volume, has so completely taken the wind out of my sails and expressed my ideas on the matter so

fully in a far better manner than I could possibly have done, that I really feel that I have nothing more to say. Mr. Taylor wishes for some information respecting the construction and aspect of Cucumber houses as used in this district. I am sorry I cannot give any definite information, for they are built in many forms and positions, and I cannot see any substantial difference in the results. As to the inclination on the roof, perhaps an angle of 45° is as good as any, and some of the largest growers use no putty in glazing, the glass being slipped down grooves in the rafters. Shading is pretty generally resorted to.

As to highest temperature that may be considered safe I cannot say, but have no doubt it will often range from 120° to 130°; but no grower expects too much heat will do any harm provided the moisture is in proportion.

In conclusion I may say that the only failures I have seen have generally been in houses that were too "airy," for they may be that without ventilators, those with least air space and closest construction and glazing being the most successful.—J. J., *Lancashire*;

TUNBRIDGE WELLS SHOW.

JULY 6TH.

THE annual summer Show of this well-supported Society was held, as usual, in the Public Hall and the beautiful grounds attached to the Calverley Hotel; and though in some classes, particularly for buttonholes, table decorations, and fruit, there was much less exciting competition than at many previous shows, the exhibits generally were numerous and of most satisfactory quality. This was particularly observable in the plant classes, a large number of the specimens entered being of remarkable merit, the flowering plants being bright and the fine-foliage plants most healthy and fresh. The arrangements were good, and the whole conduct of the Show was very creditable to the Secretary, Mr. E. F. Loof, who is ably assisted by an energetic Committee, the Messrs. Charlton taking a prominent part in the Society's management.

STOVE AND GREENHOUSE PLANTS.

The principal class in this portion of the schedule was for eight specimens, four fine collections being staged, as fresh, bright, and well grown as any that have been exhibited this season. Mr. T. Gilbert, Hastings, won the chief position with admirable examples of *Kalosanthes coccinea* over 5 feet in diameter and most profusely flowered; *Statice profusa*, magnificent; *Allamanda Hendersoni*, *A. grandiflora*, both large and beautifully flowered. *Aphelaxis macrantha rosea* was similarly fine, with several others. Mr. Tudgey, Waltham Cross, was placed second—an award that created some dissatisfaction, as the collection included three *Allamandas* and three *Ericas*, the former large, healthy, and well flowered, but the latter were poor. Messrs. Jackson & Son, Kingston, followed, their plants comprising three beautiful *Heaths*, the specimen of *E. Dennisoniana* being probably the finest in cultivation. *E. ventricosa Bothwelliana* was also in splendid condition. In the class for four stove and greenhouse plants the same exhibitors were the prizetakers—Messrs. Jackson, Gilbert, and Tudgey—in that order, with smaller but very neat plants.

Zonal *Pelargoniums*, both single and double, *Achimenes*, *Fuchsias*, which were especially well flowered, *Gloxinias*, *Caladiums*, and *Tuberous Begonias* all contributed considerably to the attraction of the Show, the chief prizetakers being Messrs. Allan, Wilkins, Scammell, Perkins, and Holland.

FINE-FOLIAGE PLANTS.

The exhibits in the classes for fine-foliage plants were some of the best that we have seen this year, their fresh vigorous condition being most pleasing. Mr. Rann, The Gardens, Handcross Park, Crawley, took the lead, having *Crotons* *Queen Victoria* and *C. Youngi* finely coloured, *Cycas revoluta* very fine, and *Gleichenia Mendelii* also being exceedingly vigorous. Mr. S. Pope, gardener to J. F. Barron, Esq., Holmwood Park, Langton, was a close second, the three best plants in his collection being *Beaucarnea longifolia*, *Croton angustifolius* beautifully coloured, and *Alocasia metallica* superbly grown. Messrs. Tudgey and Gilbert also were prizetakers, the latter having a magnificent *Kentia Fosteriana*. In the class for six plants Mr. Rann was again first, *Phoenix tenuis* and *Croton albicans* being notable. Mr. Pope second, with *Croton angustifolius* especially fine; and Mr. A. Waterman, gardener to H. A. Brasse, Esq., third, with *Acalypha Macaefiana* handsome.

Exotic Ferns were chiefly shown by Mr. Johnston, The Gardens, Bayham Abbey, and Mr. Pope, each of whom had fine examples of *Davallias*, *Cyatheas*, and *Dicksonias*. Messrs. Scammell and Allan were the prizetakers for hardy Ferns, fresh healthy plants of moderate size.

GROUPS.

One tent was devoted to the groups of plants arranged for effect, six being entered, differing greatly in the style of arrangement and in the plants composing them. Premier honours were awarded to Mr. Waterman for a high group of rather formal appearance, chiefly comprising foliage plants, the *Acalyphas* being very good, *Caladiums*, *Coleuses*, and *Adiantums*, with *Dracaenas*, *Palms*, &c. It was too heavy and stiff, representing a style that is usually discouraged by judges, preference being given to the lighter and more freely arranged groups. The second-prize group from Mr. Perkins, gardener to the Rev. R. W. Kinleside, was much preferred by many visitors and horticulturists, and the correctness of the awards in the class was much questioned. It was flatter than the others; but *Orchids*, such as *Cattleyas*, *Odontoglossum vexillarium*, and a few *Masdevallias*, were most tastefully arranged with *Adiantums* and other Ferns, so that a very bright yet informal effect was produced. The chief defect in this was that one of the sides had not been well finished, the pots being rather unpleasantly prominent, and but for that it would have been all that could be desired. This fault, however, was not sufficient to lower it to the second place. Messrs. Wilkins, Bashford, and Pope followed, each with groups of moderate merit, bright and effective.

Cut flowers, buttonholes, and bouquets were not in very strong force, but Rose blooms were well represented, especially in the nurserymen's

classes for forty-eight and twenty-four, in which Messrs. J. Mitchell & Son, Uckfield; B. R. Cant, Colchester; and Bunyard, Maidstone, secured the prizes with very brightly coloured blooms of good substance. The best collections from the amateurs were shown by Mr. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate; Mr. H. Summers, gardener to the Rev. R. C. Hales, Woodmancote Rectory; R. Buston, Esq.; and Messrs. Slaughter and Allan. In the buttonhole and bouquet classes Miss Blanch Charlton, Mr. S. Cooke, gardener to D. B. Crawshaw, Esq., Sevenoaks, and Miss Ware were the most successful exhibitors.

FRUIT.

The collections of fruit were not so good as usual, but Mr. Waterman's first-prize lot included a great diversity of sorts, the Black *Hamburgh Grapes* being particularly fine. The best white *Grapes* were shown by Mr. E. Adams, gardener to W. H. Trigo, Esq., The Brokes, Reigate—Buckland Sweetwater, well ripened. Mr. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, Sussex, had the finest black *Grapes*—Black *Hamburgh*, admirably coloured. *Strawberries* and other small fruits being exhibited by Messrs. F. Bridger; J. Allan, gardener to G. Hanbury Field, Esq., Ashurst Park; Waterman, and Hopgood.

A STRAWBERRY ENEMY.

GARDENING may, in one phase at least, be described as a constant warfare with a variety of enemies, and no amount of caution is always successful against their surprises. We have just lost a fine crop of *Strawberries* in a novel and mysterious manner, as yet a puzzle to my gardener and myself. Going to look at the bed to see if the fruits were beginning to colour, so as to necessitate their being protected by netting against the birds, I was horrified to find the green three-parts-grown berries lying on the ground beneath the plants, the stalks all cut or bitten through at exactly the same distance (about half an inch) from the fruit. Quarts upon quarts of fine promising berries thus wantonly ruined were lying around. What had been the perpetrators of this senseless mischief? It would have taken a neat hand a considerable time to have done it with a sharp pair of scissors, and it would have been difficult even then to have severed the stalks with so great a nicety. It was obvious that the birds were not the guilty parties, as they would have plucked off the berries unevenly, and, besides, would hardly have attacked them in a green state. Slugs and snails were also to be put out of consideration, for, thanks to the spell of dry weather, these pests have not been plentiful, and there were no apparent traces of them on the bed; nor could we find any beetles about, although I searched the plants to see if any were lurking among them. My gardener talked doubtfully of slow-worms, seeing a dead one lying on the path near at hand; but this explanation I at once scouted, and suggested field mice, and I suspect that these were the mischievous aggressors. But I should be glad to hear what your readers think upon the subject, as never before have I seen a *Strawberry* crop similarly destroyed.

Some six weeks ago, when our *Pelargoniums* were standing out on the paths to harden off before the operations of bedding-out commenced, we had several dozen of them ruined by their stems being eaten through just level with the ground, and on setting traps among them caught some mice, which no doubt had been devouring them; and as our garden has always been a bad one for mice, it is quite probable that they have also been the assailants of the *Strawberry* beds. But when describing the damage done I ought to have added that there was no injury to the fruit beyond the severance in an unripened state from the plants. The green berries were lying intact, and whatever enemy had cut them off had not thought them worthy of further notice.—MURRAY A. MATHEW.

CHISWICK AND TURNHAM GREEN SHOW.

JULY 7TH.

FAVoured by fine weather the above Society held their third annual Show on Saturday last in the gardens of the Royal Horticultural Society at Chiswick. Two large marquees were devoted to the exhibits, which were distinguished by considerable merit in all the principal classes; and the arrangement being well conducted, produced a display of great beauty, the fresh green turf upon which the groups and large plants were placed contributing greatly to the neat appearance of the Show. The Honorary Secretary, J. T. Musgrave, Esq., deserves much praise for his efforts to render this Exhibition worthy of a neighbourhood which gained world-wide fame in bygone days for its horticultural shows; and it need be scarcely said that, in the arrangement of the exhibits and practical management, he received every assistance from Mr. A. F. Barron and his willing staff.

GROUPS.

The entries in the class for a group of plants to occupy a space of 100 square feet nearly filled one side of a long tent, and the taste displayed by the exhibitors, together with the bright graceful appearance of the plants, rendered this portion of the Show particularly pleasing. Messrs. Fromow and Sons, Chiswick, took the lead with a very light arrangement of *Palms*, *Ferns*, and miscellaneous fine-foliage plants, with *Lilium auratum*, *L. longiflorum*, *Gloxinias*, &c., on a ground of *Adiantum cuneatum*, margined with tricolor *Pelargonium*, in very small pots. Messrs. Hooper & Co., Covent Garden, followed, also with a light graceful group somewhat similar in style, but with a distinct margin of *Adiantum*, *Gynura aurantiaca*, and *Isolepis*. It may be remarked that both these groups were very similar to those shown at Teddington a day or two previously. Mr. W. Brown, Richmond, was placed third, and Mr. James, Castle Nursery, Lewisham, was awarded an extra prize, both staging effective and bright groups. Another class was devoted to groups to occupy a space of 60 square feet, and several pretty collections were entered, the best being from Mr. A. Wright, gardener to

E. H. Wallis, Esq., Devonhurst, Chiswick, who had a due proportion of Cordylines, Crotons, Dracænas, and similar foliage plants, with Liliiums, Pelargoniums, Hydrangeas, and Gloxinias, neatly margined with Adiantums and Selaginellas. Mr. Buckland, gardener to H. Pearks, Esq., Heathfield Cottage, secured the second prize for a neat combination of Fuchsias, Lilies, Abutilons, Caladiums, with *Panicum variegatum* and *Selaginella* as a margin. Mr. Huckle, gardener to B. Hardy, Esq., Gordon House, took the third position with a fairly good collection of Begonias, Fuchsias, Coleuses, *Cissus discolor*, and others.

Stove and greenhouse plants were only represented by one collection, from Mr. H. James, Castle Nursery, Lower Norwood, which, however, comprised some very healthy and well-flowered specimens. Caladiums were well shown by Mr. Buckland; and Mr. Harding, gardener to J. R. Starling, Esq., The Chestnuts, Harwood Road, large well-coloured plants. Coleuses also were contributed by Messrs. Wright; Barker, gardener to C. Brown, Esq., Evasleigh, Harwood Road; and Hardy, who were the prizetakers. Mr. G. Wheeler, gardener to H. Irving, Esq., The Grange, Brook Green, staged six neat Coleuses of Mr. King's new varieties, such as *Ada Sentance*, *Edith Sentance*, &c., well coloured and praiseworthy, but too small to gain a position in the class. Gloxinias were well represented by Messrs. Prewett, Brown, and Hardy; table plants of a most suitable size being shown by Mr. Otto Hickle, The Gardens, Lebanon House, Twickenham, and Mr. Hardy.

Fine-foliage plants were large and vigorous, especially those from Mr. H. James, which gained the premier position in the class for six. *Pandanus Veitchii*, *Thrinax elegans*, and *Croton Wiesmanni* were remarkably good. Mr. W. Brown, who was second, also had a finely coloured *Croton Wiesmanni*, and a healthy *Ptychosperma Alexandræ*, Messrs. Hooper & Co. following with smaller examples. Six handsome exotic Ferns were contributed by Mr. A. Wright. *Gymnogramma ochracea*, *Adiantum decorum*, *trapeziforme*, and *farleyense*, with *Pteris serrulata cristata*, were uncommonly vigorous and fresh, well deserving the chief honours accorded them. Messrs. Fromow & Son had a similarly fine half-dozen, *Davallia Mooreana* and *Dicksonia antarctica* being good.

Fruit was very moderately shown, but two exhibits of Grapes were remarkable. These were from Mr. Baird, gardener to C. H. Daw, Esq., Holmfield, St. Stephen's Road, who was placed first in the classes for black and white Grapes. In the former two magnificent bunches of Black Hamburgs were staged, large alike in berry and bunch and finely coloured. In the other a superb bunch of Buckland Sweetwater, grandly ripened, with remarkably large berries, attracted much attention—as it well deserved, for it is one of the finest we have ever seen. A handsome bunch of Duke of Buccleuch was also staged, the berries being of enormous size and excellent flavour. Other prizetakers in these classes were Mr. Coombs, gardener to Sir H. Meux, Sheen House, Mortlake, and Mr. Huckleby, who had small Black Hamburgs and Muscats. Small fruits, such as Currants, Raspberries, Strawberries, &c., were contributed by Messrs. Coombs, Stanton, Stedman, and Hickle.

Vegetables were rather small, Messrs. Huckleby, Stanton, and Coombs taking the prizes; while Messrs. Carter's prizes for new Peas were won by Mr. G. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, Sussex, and Mr. R. Phillips, The Gardens, The Deodars, Meopham.

Miscellaneous groups and collections of plants were numerous, one of the most notable being that from Mr. May, gardener to the Marquis of Butc, Chiswick House, which comprised handsome specimens of *Pandanus*, *Anthurium acaule*, *Adiantum farleyense*, and flowering plants. Messrs. C. Lee and Son, Hammersmith, had a tastefully arranged and beautiful collection of ornamental variegated shrubs and trees, together with Roses in pots and cut Roses. Messrs. Hooper & Co. had a collection of double *Potentillas*, choice hardy flowers, Dahlias, and Pinks; Mr. H. Howell, Hammersmith, having a large collection of Gold and Silver Tricolor *Pelargoniums*.

AUTUMN CABBAGES.

By these I do not mean the plants raised from seed sown in July or August and planted in September to head the following spring. The most valuable autumn Cabbages are those planted out at the present time, and which come in for use in October and November. Cultivators, more especially those having large demands for autumn vegetables, would find it profitable to put out a good plantation of Cabbages now. A piece of ground from which early Potatoes have been cleared would answer capitally for the crop. If rather poor it must be made rich with manure, which should be dug in; but if the soil is in good order it need not be moved, but simply levelled down, the surface cleaned and planted. Many persons will still have some small plants on hand which were left when the first spring-sown plants were selected and planted, and if these were thinned out or transplanted, and grown 2 or 3 inches apart, they will now be in excellent order for planting in the manner indicated. Savoys are frequently planted to become useful in autumn, but they are never really good until after the first frost, or about Christmas time, and all who can now be induced to grow Cabbages for an autumn supply will find an ample compensation for the labour and ground devoted to their culture.—A KITCHEN GARDENER.

FRITILLARIA MELEAGRIS.

THE Crown Imperial is one of the most common of garden flowers, though it was a "rare strange plant" in Gerard's time, and when bearing its majestic heads of blooms it has a very attractive appearance in borders amongst dwarfer plants. The "Chequered Lily or Daffodil," as *Fritillaria Meleagris* has been variously named, is quite as well known in most gardens, but as an old favourite a figure is now given of it to remind amateurs who are commencing the culture of hardy flowers that some of the best are to be found in the ranks

of the oldest. This *Fritillaria* is a native of Europe, but was early introduced to this country, and has now become naturalised, being found wild in some parts, generally in moist meadows or similar positions, but is rare. Phillips mentions that "it has been found between Mortlake and Kew, where the plant was formerly called Snakeshead; and on account of its growing plentifully in a particular pasture of that neighbourhood there is a field called Snakeshead Meadow." It is now found from Norfolk and Bedford to Sussex and in neighbouring counties. The flowers are usually of a yellowish or white ground, regularly barred with red or purple, varying in depth and richness.

The plant succeeds well in any moist light soil in a shady position



Fig. 7.—*Fritillaria Meleagris*.

and can be readily increased either by offsets or seed, the latter being sown immediately after it is ripe, and the seedlings subsequently planted out.

NOTES ON CUCUMBERS.

A BREAKDOWN OF THE "EXPRESS."

CONTINUING this subject from last week, I will now describe my culture in a lean-to house facing east. It is 14 feet high at the back, 5 feet 6 inches in front, giving me a 13-foot rafter, glazed with 12 by 20-inch squares. There are three rows of 4-inch pipes under the bed and two rows in front, and three rows down the path for heating the atmosphere. I planted intending to give the Express system a full trial. For the first month all went well, then I began to have great difficulty in preventing flagging and burning. For two very hot days I watched the plants, and did all I could in the way of watering, syringing, and keeping replenished forty evaporating troughs 3 feet long. The house is 80 feet. I then to my grief found after two unusually hot days I had lost all my first crop of fruit. They looked well before they were in bloom. In addition to losing the fruit I lost a quantity of good foliage, the thermometer registering 120°. Seeing the damage I procured some serim canvas and shaded as required, and the plants are now just coming round. Elliott's

Yorkshireman at the cool end of this house were not injured, the plants being also smaller. Perhaps your readers may fail to see why I am thus writing, but I will endeavour, without condemning the system, to give my experience as far as I can, as it may be useful to someone. I am now growing with moderate, not excessive, fire heat, no ventilation, plenty of water at the roots, moderate syringing once a day early in the afternoon, and there is no sign of red spider.

I said in my former paper that I did not think it possible to give too much water to Cucumbers grown with dry bottom heat; in fact, for the guidance of perhaps some who are afraid to apply water, I may say I have this week given the bed, which is 3 feet wide, six gallons to a length of 9 feet. Never forget, if the weather be dull and more fire used, to give the water all the same.

To make sure that all is right at the roots do as I have done—namely, with a trowel carefully dig down to bottom of the bed to ascertain its condition. Cucumbers can and will subsist, and apparently do well, more especially in dull weather, as far as regards their foliage, but if the fruit sets badly and is at all deformed be sure something is wrong at the roots. The severe burning of the plants was caused, I am sure, by root-dryness in part. I now have the pleasure of seeing straight fruit 6 and 7 inches long, with flowers yet to open. This is what I like. I used nothing but turf or loam, but am now giving them slight top-dressings of stable manure. I am pleased to say under my system I cut Cucumbers 2 feet long; yet quickly grown, thus tender and of a good colour, whereas without shading the fruit was very small and very deficient in colour. In my smallest house I endeavoured to cut a great quantity, but failed, and I cannot claim to have cut largely out of this house, but shall hope to do so presently. Still, if I make as much money by one good fruit as I did by two smaller grown in the same time I see little to commend in the Express system, nor do I think it very practicable in such light houses as these, with the wires only 14 inches from the glass; 2 feet is quite near enough. Then I am not sure whether shading would be necessary.

I shall be pleased for others to record their experience. I am quite sure if burning can be avoided, great heat and moisture combined are just what Cucumbers like, yet I do not believe in a high night temperature. One grower tells me he succeeds grandly with the Express system in a frame, on the same day another tells me he fails, so there are always two sides to a question, or two ways of carrying out a system.—STEPHEN CASTLE, *The Vineyard, West Lynn.*

AMARYLLIS VITTATA VAR. CLOVIS.

I AM very much surprised that so little attention has been given to the very beautiful varieties of *A. vittata* which were raised by my late lamented friend M. Souchet of Fontainebleau. More than once on my visits to him I had been struck with their beauty, and wished to try what could be done with them. So two years ago I obtained half a dozen of the best raised from M. Charles Verdier of Paris, and as they were perfectly hardy at Fontainebleau, where the winter temperature is so much lower than with us in the south-east of England, I did not see why they should not do as well with us as there. I planted them in the same position as the Belladonna Lilies—namely, in the front of a greenhouse on a warm border facing the south. Like all of the tribe they do not like removal, and so I did not expect much from them last year; but this season, after passing the two winters, I have been rewarded. Clovis (a flower of which our Editor saw at the Rose Show at South Kensington) is a dark crimson flower of large size and good form, with a white band in the centre of each petal, and is a remarkably striking flower. It has been said that we cannot do these Lilies here because of our wet and sunless autumns, and that the bulbs do not ripen. Well, we have not had much to ripen them the last two years, and yet they have with me succeeded well, the only protection given them being some ashes.—D., *Deal.*

WANDERINGS AT THE NATIONAL ROSE SHOW.

A DETAILED account of so extensive and interesting display as that of Tuesday, the 3rd inst., would probably occupy many pages of the Journal, but a short *résumé* of what I saw and did not see may help to place on record the effects of the Rose season, 1883. Although it must be admitted that the best was done to adapt the large tent of the Royal Horticultural Society to a Rose Show, it can hardly be said that cut Roses in boxes seemed there at home, and for purposes of comparison and judging it did not appear to me satisfactory, and exhibitors had some difficulty in alighting upon their allotted quarters. One of the most attractive and best features of the Show of Tuesday was the freshness and purity of the Teas, and perhaps at no time has a more regular display of such floral beauties been brought together, and the Committee when they projected a class for ornamental baskets of Teas could hardly have anticipated such a successful result. Jean Ducher in the stand of A. J. Waterlow, Esq., Mr. Cant's, and the Rev. W. H. Jackson's *Souvenir d'Elise*, and Innocente Pirola in several stands testify not only to what sort of a season it is for Teas, but what splendid Roses these are. By Innocente Pirola it would almost seem that *Niphotos* would be displaced,

and that the *Maréchal* must bend to the beautiful *Etoile de Lyon*, which is said to be a hardier and more generally shapeable yellow than the king of Teas. The amateur classes, and even that for suburban-grown Teas, were barely inferior to Cheshunt, Oxford, or Colchester, and the judging of the Teas generally must have been neither an easy nor an enviable task.

Amongst Hybrid Perpetuals I could not help noticing the important absence of really good darks and reds, good blooms of Alfred Colomb, Marie Baumann, and Charles Lefebvre, and many others of their colours being conspicuously wanting, whilst Roses of the Madame Gabriel Luizet, Mons. Noman, Julie Touvais, and Duchesse de Vallombrosa types were almost universally well shown. Marie Cointet and Madame Julie Dymonier (a fine light of good substance) were both finely shown by Mr. B. R. Cant; and Duke of Teck, a really hardy and fine red Rose, does honour to, if it has not enriched, Mr. George Paul, as it is a Rose, like Star of Waltham and Magna Charta of Mr. W. Paul, which has with the two latter improved upon acquaintance. François Michelin stood prominent in several stands as a model of the globular rose-pink type. Madame Isaac Pereire, Ulrich Brunner, Madame Eugène Verdier, and Georges Moreau seem promising Roses of recent introduction, the three first having good size and well-formed and arranged broad petals, and of different shades of peach and pink. Alfred Dumesnil a good red, and Comte de Flandres a dark of the Charles Darwin build and colour, will also probably be heard more of. Amongst the older bright-coloured Roses I ought to have excepted from the 1883 black list A. K. Williams, still the most perfect Rose shown. Comte de Raimbaud almost in as good form, and one very fine Marie Baumann, Xavier Olibo, and Sultan of Zanzibar were also fairly represented. Amazon and Madame Caroline Kuster, and Comtesse de Nadaillac and William Allen Richardson, have now all established themselves as beautiful and indispensable Teas, and were well shown.

Mr. Bennett has a promising novelty in Mary Bennett, and Mr. Waterlow's new break, a well-marked striped sport from Comtesse d'Oxford, in the absence of Her Majesty would have deserved the gold medal. The latter Rose, however, from the *atelier* of Mr. Bennett, appears likely to distance all other light H.P. Roses, and indeed to call it an improved and enlarged Baronne de Rothschild is almost to depreciate this magnificent variety, which in size equals the largest form of Edouard Morren, with the colour of the Baroness and the form and fulness of Marie Cointet at her best, whilst the scent which savours of its Tea parentage is in advance of that of the Baroness. Although shown largely by Mr. Bennett in both tents I did not detect a single malformed bloom, and the raiser will probably be able to point to the year 1883 as that of Her Majesty. It is a Rose that will do much to allay the hostility which some of Mr. Bennett's former productions have rightly or wrongly created in this country from their reported unsuitability to the climate.

Although it may be said that Roses upon the whole have been seen better at the National than on Tuesday, this may, I think, be considered a year for lights. So far as my own experience goes I have only on one occasion during the past quarter of a century seen in the eastern districts of England Roses after starting go straight on without a check, and I have never seen fewer confused and ill-shaped blooms, the exceptions being Roses of the Madame Boncenne and Jean Liabaud build and colour, which have come almost universally bad. Madame Gabriel Luizet as a contrast, which has rarely come good with me, has this season hardly shown a defective bloom.—T. LAXTON, *Bedford.*

I COUNTED all the boxes exhibited in competition at the National Rose Society's Show at South Kensington, and found that several hundred blooms were shown in excess of last year's Rose Show, making this the largest Show the National Rose Society has yet held. Considering how hampered up the Show was with the Fisheries Exhibition and the irregularities of the ground in the big tent and the unprecedented number of exhibits, the arrangements were admirable, and great credit is due to Mr. Barron for the way in which the marquee was made to look as well as it did.

The one drawback to the beauty of the Exhibition was the closeness of the weather during the previous night and on the morning of the Show. To my mind after the middle of the day at least one-half of the Roses were unpleasing objects to look at. Some varieties stood, however, remarkably well, and notably A. K. Williams. This as a crimson, and Madame Gabriel Luizet as a light rose, were very numerous exhibited, and are both grand flowers. A remarkable number of blooms (for a new variety) of "Her Majesty" were shown by Mr. Bennett, and were on all hands much admired. For several years past the Society's gold medal has been withheld, no Rose being shown considered worthy of it. "A first-class novelty," as the schedule has it, Mr. Brown's sport from Comtesse d'Oxford was a pleasing and interesting novelty. The challenge trophy was again won by Mr. Cant, who also, as last year, had the best Hybrid Perpetual and best Tea in his seventy-two. In the amateurs' class the best Hybrid Perpetual and also best Tea both came from Reigate. The other trophy was won by Mr. Slaughter, who only two years since secured a first prize in the class "open only to amateurs who have never won a prize at an Exhibition of the National Rose Society." Mr. Slaughter was also first in the chief class this year at Croydon and Reigate. No. 3 in the trophy class came Mr. Girdlestone, who last year showed for the first time, and on that occasion secured the first prize in the never-before-won-a-prize class just referred to. Both of these remarkable strides.

The baskets of Roses was a new and interesting feature, and broke the

monotony of the other exhibits. The Tea Roses were as a rule numerous and very good. The new exhibition label recommended by the National Rose Society were numerous used, and gave a finish to the boxes much better than written labels on white card.—ROSARIAN.

P.S.—It is very curious to notice how the successes or non-successes of exhibitors influence their view of a show as a whole. My own idea is that it was, taken as a whole, the finest show we have held since the St. James' Hall show—that is, judging of the flowers as the Judges saw them, and taking their average quality.

THE most striking feature of the whole Show appeared to me the high average quality of the blooms, there being scarcely a single really bad box, I should say, in the Exhibition. The weather shortly before the Show was too forcing to allow the plants to fully mature their flowers, and when cut many grand blooms must have everywhere been cast aside as useless at the last moment, owing to the heat of the previous day and night, and also of the morning of the Show. Had air been freely admitted all round the tents (it was a calm day) there can be no doubt the blooms would have stood better than they did. Then the dashing rains of the previous night were, of course, against the permanence of the Roses when cut, during their transit to the Show. I thought the Roses looked much better—the flowers uninjured by the heat and close atmosphere, I mean—under the subdued light under canvas than in the raw light from the windows of the arcades last year. There is one fact that might be noticed, and that is the unprecedented event of the "wolf" being filled to overflowing with cut Roses.

The nurserymen's exhibits will no doubt be better later on. Of my own few maidens only three or four plants have yet flowered at all, and most will not be in flower for about another week, I should say. As to the competition for the amateur grand challenge trophy, it is very difficult, owing to the forcing weather—and I did not see the flowers when first set up—to judge as to their position if compared with similar exhibits in former years; but the opinion I formed was that the Roses in the two leading boxes were not equal to those shown by Messrs. R. N. G. Baker and T. Jowitt in some of their contests for the Cranston challenge cup. Mons. Noman was, I noticed, frequently and well shown. It would be interesting to know what was thought of the Show by rosarians generally. Will those who can do so send a note to the Journal? —AN EXHIBITOR.

I HAVE been asked by one of the Honorary Secretaries of the National Rose Society to give you my impression of the great Show recently held at South Kensington. Your reporter's account was so very full and good that it would not have occurred to me to have tried to supplement it in any way. It is to me a matter of wonder and admiration how any reporter could, in the short space of time during which it is possible to take notes, furnish such a report. I am afraid that my impression of the Show as a whole is not a very favourable one. Being engaged in judging most of the time, I had very little opportunity of taking notes, but from what I saw of the Roses I should say that with regard to quality it was the worst Show the Society has held. With regard to quantity it was of course a very great success, but I do not think any of the exhibitors showed in their best form. This to me is quite accounted for by the very hot and stormy weather we had on the days immediately preceding the Show, particularly Monday. This day was very appropriately described by one of the amateur exhibitors as a "ghastly" one—the blooms were over before they had well nigh fully opened. The great amateurs that we are accustomed to see in such force at this Show were nowhere. Mr. Cant was the only nurseryman who showed in first-rate form, with the exception of Mr. Prince's Teas, which were superb, as were also Mr. George Paul's. Amateurs were principally noted for their Teas. My old friend, the Rev. A. Foster Melliar, had a most beautiful box, and so had his friend who was bracketed with him.

Mr. Paul's prize for baskets of Tea Roses turned out to be a very popular one. I would suggest that another year, for the sake of effect, he should allow Ferns to be introduced, then I think these baskets would prove to be the most delightful exhibits of all. The great drawback to the Show was the want of freshness discernible everywhere except in the Teas. It is wonderful what a much greater amount of heat these Roses will bear than Hybrid Perpetuals.

I found Teas doing well in the gardens at Kandy, Ceylon, side by side with Allamandas, Stephanotis, Gardenias, and Bougainvilleas. It is to be hoped that another year we may be able to have our Show in the arcades, for though Tuesday was by no means a hot day, yet the heat of the "Wolf" tent was very great.—WYLD SAVAGE.

BUCKLAND SWEETWATER GRAPE.

TALK about a sea of gold! These last few days in the bright sunshine I have been particularly struck with the grand appearance of three of the above Vines, which cover a fruiting space of 14 feet in length of rafter by 10 feet wide. One Vine, a single rod, has seventeen bunches; the second Vine, three rods, with forty bunches; the third Vine, with four rods, with forty-three bunches, making a total of just 100 bunches, which I estimate to weigh 120 lbs. As you will see by this weight the bunches are not over-large, but suitable for ordinary purposes, and they have a beautiful appearance. The single-rod wire is bearing the best bunches and berries. I can see no perceptible difference

in the three and four-rod Vines. The berries on the worst Vine measure $3\frac{1}{8}$ inches in circumference, and they have a fortnight yet to hang before they are ripe. I am very pleased with the size, as I find Mr. Barron gives the natural size of berry in his valuable book a full inch in diameter. Strange to say, under the same treatment Black Hamburgh falls, the berries being just under 3 inches in circumference. This, while, however, being the size given by Mr. Barron, does not please me, nor does it come up to Mr. Taylor's average. Still, as they have two or three weeks to ripen yet, and as I know they are swelling, hope to get them larger. The colour will be good. I have berries of Gros Colman quite as large now as the Black Hamburgh, so shall expect these to be full size according to Mr. Barron again, $3\frac{3}{4}$ inches.—STEPHEN CASTLE, *West Lynn*.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY South Kensington, 10th July, James McIntosh, Esq., in the chair, the following candidates were unanimously elected Fellows—viz., V. F. Bennett-Stanford, Mrs. V. F. Bennett-Stanford, Hon. Mrs. Charles E. Bright, Joseph Parker, Miss Alice Edith Middleton, and Miss Jessie Caroline Middleton.

— WILLIAM PAUL & SON announce that their collection of ROSES is now in full bloom at the Nurseries, Waltham Cross, adjoining the Waltham Cross Station, G.E.R., half an hour's ride from London, and an inspection is invited by the proprietors, also of the hardy trees, which are now in full beauty.

— Mr. W. GODWIN, JUN. desires us to insert the following APPEAL TO ROSE-GROWERS:—"As one of the Committee of the Market Drayton Horticultural Society, I beg to ask the assistance of Rose-growers at our forthcoming Show. I know the time is rather advanced, and also that the prizes are not tempting; but we are most anxious to resuscitate a show that was a great success some fifty years ago, and we have strained our funds in the hope that some of the large Rose-growers may be induced to add to the attractions of our Show, and so help us to give more worthy prizes another year. I can only say that to all who do visit us we shall be greatly obliged, and we will endeavour to find them every accommodation."

— BY permission of the Dean of Westminster, who is President of the Association, the Society for Promoting WINDOW GARDENING amongst the Working Classes in the united parishes of St. Margaret and St. John, Westminster, held their seventh Annual Show on Tuesday afternoon in the Dean's Yard. There were fifteen general prizes open to working men and women, ranging in value from 10s. to 5s., besides 126 "local prizes" apportioned among the parochial districts, to be competed for by those not successful in the former division, Class 1 under this heading being devoted to adults, and Class 2 for children in parochial, national, infant, Sunday, and ragged schools. The flowers in pots and boxes, ranged on long stands, looked very well, showing evidences of considerable attention and skill in rearing and training, a result much to the credit of the Society's laudable efforts to encourage the working classes in taking advantage of every opportunity for brightening their homes. The Earl of Shaftesbury subsequently distributed the prizes.

— A BOUQUET OF LILIES was shown at Kensington on Tuesday which attracted much attention and received some condemnation also, although a vote of thanks was accorded it by the Floral Committee. It was chiefly composed of flowers of *Lilium candidum*, but some of these had been painted or stained pink and others blue—a piece of artificiality that was most displeasing. Nevertheless, the bouquet was greatly admired by one distinguished lady, who, we believe, carried it in triumph at a ball that evening.

— A CORRESPONDENT in Lincolnshire writes:—"THUNDERSTORMS in this district have been fearful, and the damage done most serious. On some farms there will practically be no harvest, and several farmers will be ruined. One man's losses are estimated at £3000. The hail or

pieces of ice, weighing from 1 to 6 ozs., have cut off the corn as if it had been reaped, and Potatoes the same."

— THE SOUTH SHIELDS CEMETERY (a local paper states) has a very pleasing appearance at the present time, the grounds being tastefully laid out and the flowers in full bloom. The Board, through their energetic Superintendent, Mr. B. Cowan, have recently effected some much-needed improvements and offered advantages for which there was pressing need. The usual summer bedding is just now near completion, and some of the spring flowers and plants, especially Stocks, are yet very attractive. Hardy carpet bedding in beautiful designs is being carried out, and the effect is very pleasing. Mr. Cowan intends to increase the geometrical designs in the flower beds between the churches by adding one in commemoration of the Sunderland calamity.

— "B." observes:—"Though it is now seven or eight years since the good qualities of the roots of strong-growing FERNS FOR ORCHID CULTURE were pointed out, it is only now, when peat seems to be getting scarce, that a few writers seem to have known about that material all the time. I would now like to call attention to another home-grown material of the greatest value for Orchid culture, this is the stems of such Ferns as *Lastrea Filix-fœmina* and *L. dilatata*. These are exactly like the stems of Tree Ferns, with this advantage, that a certain amount of fibrous material can be secured along with the stems. We employ them both with sphagnum and without it, and I am not sure but that a stem with a fair amount of roots to it is better than additions of sphagnum. At any rate, it may be relied on that these stems are admirably adapted as blocks for certain Orchids."

— IN an article printed locally upon MADAGASCAR PLANTS by the Rev. R. Baron, the following appears in reference to a well-known occupant of English gardens:—"Sóngosongo (*Euphorbia splendens*), with its brilliant scarlet and yellow bracts, which may be easily mistaken for petals or sepals, is perhaps the most attractive plant in all Imerina. Its beauty has gained for it a place in many conservatories in England. Its prickly stem gives it a resemblance to the *Cactaceæ*, but its flower and fruit show that it is a true *Euphorbia*. There are two varieties, one having bright scarlet bracts with leaves all along the stem, the other having yellow bracts and leaves, which are terminal and larger than those of the scarlet variety. The plants are monœcious, and not, as the Malagasy suppose, unisexual. The milky juice with which the plant abounds is sometimes used by the natives as birdlime. Another use the plant affords is this—the bark of the root is pounded, put in water, and given to calves to help them at their birth. The Sóngosongo is commonly employed for hedgerows and fences."

— IN a well-printed treatise entitled "ENSILAGE IN AMERICA" Mr. James E. Thorold Rogers, M.P., has produced a work of 160 pages that all who are interested in the subject under consideration may peruse with advantage. The character of the treatise cannot be better indicated than by citing the preface as follows:—"I have put together in this little work the result of my own observations on ensilage in the United States, and the comments on the system which have been made by those who had adopted the practice and recounted their experience to me in conversation. I have freely quoted from such papers, periodicals, and books as have been written on ensilage, and have copied such illustrations as seemed to me essential to a right understanding of the process, with the satisfaction, perhaps, of being able in a slight degree to adopt, retail and piecemeal, the wholesale practice of American publishers. I do not, however, fear the indignation of my authors, whose good feeling is no doubt extended to the Old Country. I have no fear that they will resent the use which is made of the facts which they allege because an English writer has recounted the advantages which they claim to have discovered, for the consideration, perhaps for the benefit, of English agriculturists." To that we need only add that the work is published by W. Swan Sonnenschein & Co., Paternoster Row.

— MR. W. BARDNEY writes as follows concerning the ORCHIDS AT MR. BULL'S NURSERY, CHELSEA:—"Few can form any idea of the effect Orchids have when grouped tastefully together, such as I saw in the above nursery a few days ago. Upon entering the house the wealth of beauty displayed by *Odontoglossum vexillarium* was really gorgeous, some being remarkable for the large size of their flowers or the dark rich colour. One form was particularly noteworthy, having on the labellum a dark crimson blotch. *O. Alexandræ* was also conspicuous, varying from pure white to the most lovely spotted varieties, some of the plants

having spikes of great length, and carrying as many as sixteen or seventeen flowers on each. *O. Halli* was grand, and the same may be said of *Oncidium macranthum*; but one form distinguished as *Aurea* was very striking. Varieties of *Cattleya Mossiæ* were very numerous, and amongst them some of the most beautiful flowers. *C. Mendelli* was equally as numerous and fine, one named *C. Mendelli Victoria* deserving special note; the sepals and petals being white, slightly suffused with lilac, while a good portion of the labellum was remarkable for its ivory whiteness, with a few faint yellow markings down the throat. *C. generense* attracted attention, being after the style of *C. intermedia*, and undoubtedly a variety, but without the dark purple-crimson blotch on the labellum. A good plant of *C. Skinnerii alba* was bearing two or three of its pure white flowers. Several grand forms of *Lælia purpurata* were staged, also of *L. majalis*; one plant bearing a single flower was particularly striking for its large size and high colouring. Some grand varieties of *Sobralia macrantha* were in flower, the flowers being larger and more highly coloured than are generally to be met with. *Cymbidium Lowianum* was represented by many plants, one form noticed being very much finer than the rest by having dark markings on the lip. *Cypripediums Parishii*, *Veitchii*, *Lawrencianum*, and others were also well represented. No attempt is made to note half the many beautiful species and varieties to be seen in flower."

— GARDENING APPOINTMENTS.—Mr. J. Cleare, previously foreman at Stoke Rochford, has been appointed head gardener to Lord Sudeley, Toddington, Gloucestershire. Mr. W. Milne, for the past six years foreman in the gardens, Wimbledon House, has been appointed gardener and forester on the Levens Estates, Westmoreland; and Mr. J. F. Davies, also of the gardens, Wimbledon House, has been appointed gardener at East Hill House, Wimbledon.

— A CORRESPONDENT of the *American Cultivator* has the following respecting the ROSE-CHAFFER IN MICHIGAN:—"The most obnoxious of all insect pests in the Michigan fruit belt is the rose-chaffer or rose-bug. They have scourged the country for several years, appearing in swarms early in June, and devouring vegetation in a manner as destructive as the western grasshoppers. They attack Grapes, Peaches, and Apples especially. Whole orchards have been every year denuded, in spite of the most persistent efforts to protect them. Grape-growers catch the beetles by knocking them off into pans in early morning. This practice cannot be followed on large trees, where absolutely no remedy has yet been devised to stay their ravages. Orchards are entirely stripped of leaves and fruit, and the grower is powerless to resist. Two or three layers of insects can often be seen on an Apple, sometimes as many as a hundred or more congregating on a single fruit. As soon as the day grows warm the beetles become very active and cannot be captured. The most astonishing experience is the fact that poisons have no effect upon the rose-chaffer. This has been so often verified by good experimenters as to be beyond dispute. Even arsenic has been applied with no effect. The damage to the fruit interests of western Michigan from the rose-chaffer has been very great, especially upon warm sandy soils, where the pests multiply with astonishing rapidity. The South Haven Pomological Society has lately invited Prof. A. J. Cook of the State Agricultural College to visit the fruit belt to study the habits of the insects."

ORNAMENTAL TREES AND SHRUBS.

OBSERVATIONS are proposed to be made occasionally on noteworthy objects in parks, on lawns, and shrubberies, and to diffuse a taste and interest in trees and shrubs any remarks furnished by our readers will be highly valued. Instead of shrubberies being planted with common Laurel, lawns with few kinds of trees, and the park displaying a great similarity, those objects that are calculated to give variety and the most interesting and effective enjoyment will be described.

New Golden Laburnum (Smith).—What the flowers of the Laburnum are to the park and garden in early summer—viz., a flowing mass of bright golden yellow, the foliage is afterwards—a mass of bright gold, forming a striking and conspicuous object at any distance within reach of the eye. It is the most beautiful golden-leaved tree known, and is the sort of small tree required in front of plantations in parks, telling most effectively amid the greenery of other trees, and in the mass must be extremely beautiful. Ours, however, are isolated, worked standard high, and are extremely attractive with a background of green formed by taller trees of the commoner kinds, chiefly Elms.

In the pleasure grounds it is the finest of pictorial trees. In any position it is simply lovely—bright gold from spring to autumn, and it appears quite as hardy as the common Laburnum. Its value for park and garden scenery is obvious at sight; once seen its merits are apparent.

Golden-netted-leaved Horse Chestnut (*Æsculus Memmingeri*).—A bold-foliaged Horse Chestnut, having an Australian sovereign tint, with the midribs of a deep green hue. It is very telling at a distance, and enlivens the sombreness of park tree verdure in a remarkable manner—with the sun upon it it appears to throw off golden rays. In growth it is as free as the Horse Chestnut, and apparently quite as hardy. I have not noticed its flowers. Contrasted with Purple-leaved Beech the effect is grand, the crimson purple being toned down through being associated with green, of which there is no scarcity in parks generally.

Variiegated Negundo (*Acer Negundo variegata*).—If we take the Purple Beech, the Golden-leaved Horse Chestnut, and the variegated Negundo, a trio of the finest and most beautiful of variegated trees is obtained for park scenery. The variegated Negundo is almost white in foliage, and, being cut or divided, contrasts in outline with entire-leaved trees. In contrast with a dark green background it is decidedly the most beautiful of all variegated trees of its colour—white. Unfortunately it is not very hardy, but it is quite as free and hardy here as the species (*Acer Negundo*), of which there are very large trees, the soil being light, an admixture of loam and alluvial overlying gravel on the oolitic formation.—G. ABBEY.

GRAPE DUCHESS OF BUCCLEUCH.

THIS unquestionably highly flavoured Grape has every good merit that a Grape should have, except size of berry, and in these days of "show" the popularity it should have attained to has been reduced to a minimum. When I gave this kind a first trial I was anxious to improve its size, and grafted several on Vines of a different character. On a West's St. Peter's the size of berry became equal to a small Muscat, which it was supposed by strangers to be. Flavour convinced them of the contrary. The Duchess partook of the form of the St. Peter's, was quite as large, and inherited in a measure the juicy nature of that kind. The size of bunches were less than those grown on its own roots, and more dumpy in form—qualifications which we did not object to.—M. T.

CARDIFF ROSE SHOW.

A GREAT change from Reigate, beloved of artists and dear to all who value the peculiarly English scenery of our home counties, to this busy bustling town, the centre of the coal trade of South Wales, with its rapidly increasing docks filled with the ships of all nations. A great change, too, from the intense heat of the last few days to a cool and pleasant atmosphere. Pleasant, too, for exhibitors, for Roses would not fly and fall as they did in the greater heat of the previous days. But in one respect they were both alike—there was the same hearty appreciation of the Rose and the same eager desire for success; and although Reigate is the oldest, I believe, of our Rose societies, and Cardiff one of the youngest, yet there is so much of zeal and earnestness that I should not be at all surprised if under the able secretaryship of Mr. Pettigrew, whose name is so well known to readers of the Journal by his many valuable contributions to its pages, that I should not be at all surprised if in a few years it will be found to equal any of our provincial shows. The climate of South Wales is so favourable for the Rose, and there are many wealthy supporters of the flower. As it is, it is the only Society which awards two gold medals—a sufficient proof that they are ambitious enough, and without ambition no person or society can prosper.

The Exhibition was held, as usual, in the Drill Hall, one of the best rooms I ever see Roses staged in. The light is all in the roof, the building is very lofty, and there is ample room for the company to move about without inconvenience, and the admirable way in which the staging was managed made everything pleasant for judging. I have rarely seen in any place so marked an improvement in amateur showing as here. The first year nothing could have been much worse either in the blooms selected and in the manner of setting up. The mistake which most young exhibitors make was made here. Blooms look beautiful on the tree and when cut, but before they come under the Judge's eye the colour is flown, and perhaps the eye shows; then foliage was added. Roses were set down on the moss without having the aid of the wire, which lifts them up and shows them off to advantage. Last year a great deal of all this was remedied, while this year a most marked improvement in every particular was shown. Doubtless still much remains to be done, and if the local exhibitors will only look at the open classes and see how such experienced exhibitors as Mr. Grant of Ledbury and Mr. Hobbs of Bristol set up their Roses they will still further improve. We have always need to remember that we should make good use of our opportunities and that we are never too old to learn.

The following were the awards. In the class for twenty-four the first prize and the National Rose Society's gold medal was won by Mr. Hobbs, Lower Easton, Bristol, with a very good stand, containing the following flowers: Annic Laxton, Mons. Noman, a very fine bloom; Auguste Rigotard, La France, A. K. Williams, Marquise de Castellane, Madame Lacharme, Edouard Morren, Madame Bravy, Mons. E. Y. Teas, Caroline Kuster, John Hopper, Anna Ollivier, Duke of Edinburgh, Marcellin Rhoda, Thérèse Levet, Duchesse de Vallombrosa, Mdle. Marie Cointet, Duchess of Bedford, Egeria, Star of Waltham, Devoniensis, and Belle Lyonnaise. Mr. W. E. Grant of Ledbury ran it very close, there being only a few points between the

stands. His blooms were La France, Countess of Oxford, Marquise de Castellane, Ulrich Brunner, large and promising new flower of the Etienne Levet type; Duchesse de Vallombrosa, Mons. Noman, Duchess of Bedford, A. K. Williams, Baronne de Rothschild, Horace Vernet, Madame Willermoz, Marie Rady, Sophie Fropot, Duke of Edinburgh, Marie Verdier, François Michelin, Duke of Wellington, Jean Pernet, Dr. André, Madame Gabriel Luizet, Devoniensis, and Devienne Lamy. In the class for twelve trebles the first prize was awarded to Joseph Pully, Esq., Lower Eaton, Hereford, for Gabriel Luizet, Madame Charles Wood, Marquise de Castellane, La France, Mons. E. Y. Teas, Duchesse de Vallombrosa, Madame Charles, A. K. Williams, Mons. Noman, Le Havre, Maréchal Niel, and Princess Béatrice. Mr. Grant was second with Marie Baumann, La France, Marie Rady, Mdle. Marie Cointet, Comtesse d'Oxford, Marquis de Castellane, François Michelin, Le Havre, Madame Gabriel Luizet, Xavier Olibo, Maréchal Niel, and Alfred Colomb; a very excellent stand. In the class for twelve Hybrid Perpetuals Mr. Grant was first with a fine stand of Le Havre, Marquise de Castellane, Baron Bonstettin, Madame Gabriel Luizet, La France, Marie Rady, Marie Finger, Etienne Levet, Dr. Andry, Duchesse de Vallombrosa, Xavier Olibo, and Marguerite de St. Amand. In the class for twelve Teas Mr. Grant again first with a finest stand of Souvenir d'un Ami, Jean Pernet, Madame Willermoz, Caroline Kuster, Niphotos, Madame Lambard, Amazone, Catherine Mermet, Marie Van Houtte, Souvenir de Paul Neyron, Homer, and Madame Faleot. In the class for twelve of one sort Mr. Grant and Mr. Pully were equal first with fine stands of Duchesse de Vallombrosa and Marquise de Castellane. The classes for local growers were, as I have said, well filled. In the class for twenty-four, with the National Society's gold medal, Mr. Pettigrew was first with a very fine stand containing Marquise de Castellane, John S. Mill, Duke of Edinburgh, Capitaine Christy, Cheshunt Hybrid, La France, Marie Rady, Comtesse d'Oxford, Camille Bernardin, Abel Grand, Dr. André, Miss Hassard (the finest bloom of this variety I have ever seen), John Hopper, Duchesse de Vallombrosa, Antoine Mouton (large, but not a flower for an exhibition stand), Madame Clemence Joigneaux, Baron de Bonstettin, Marquise de Castellane, Baronne de Rothschild, Prince de Portia, Princess Louise Victoria, a good bloom of a variety I have never before seen on an exhibition stand, and Charles Lefebvre. Mr. Pettigrew also won the five-guinea cup given by Messrs. Cranston & Co. with Baronne de Rothschild, Marquise de Castellane, Baron de Bonstettin, Duchesse de Vallombrosa, John Hopper, Princess Louise Victoria, Victor Verdier, La France, Charles Lefebvre, Madame Lacharme, Duke of Wellington. He was also first for twelve trebles with Hippolyte Jamain, Duke of Edinburgh, Capitaine Christy, Eugène Appert, Baronne de Rothschild, Richard Wallace, Dr. André, Duchesse de Vallombrosa, Marie Rady, and Madame Lacharme. The Marquis of Bute's prize for a box of York-and-Lancaster Rose brought together two fine boxes, not of York-and-Lancaster, but the Rose which is always known under that name, the true York-and-Lancaster being quite distinct, and were placed equal, Mr. Pettigrew, as before, showing them in fine condition, the other stand being equally good.

In the nurserymen's classes the Cranston Company carried off all the first prizes, Mr. Davison of Hereford being second. Amongst the best of Cranston's were Madame Gabriel Luizet, Constantin Tretiakoff, which has been very good this year; Star of Waltham, Marguerite de St. Amand, Alfred Colomb, Marie Baumann, Duke of Wellington, Duchesse de Vallombrosa, Louis Van Houtte, Captain Christy, Mons. Noman, Princess Mary of Cambridge, Duke of Edinburgh, Général Jacqueminot, Marquise de Castellane, Duchess of Bedford, La France, Fisher Holmes, A. K. Williams, Madame Charles Wood, John Hopper. His box of Teas comprised Anna Ollivier, Maréchal Niel, Marie Van Houtte, Rubens, Madame Willermoz, Madame Bravy, Catherine Mermet, Devoniensis, Souvenir d'un Ami, &c. He had also a very beautiful box of twenty-four Marie Cointet, a Rose one very seldom sees in the perfection shown here to-day.

Such is a brief record of this most creditable Show. The arrangements were well carried out, thanks to Mr. Pettigrew and his Committee.

My time was so hurried that I could not do more than have a rush through the houses at Cardiff Castle; but I did have time to see one of the most beautiful sights in the way of collections of Melons and Cucumbers I have seen for a long time, that well-known Cucumber, Cardiff Castle, being the only one grown here, and suitable for all purposes.—D., Deal.

EARLY PEAS—AMERICAN WONDER.

I AGREE with Mr. Smith that this is the most opportune time for comparing the merits and demerits of early Peas, as the subject will just now be uppermost in the minds of the majority of cultivators. I have tried everybody's earlies in order to find out the variety most suited for this locality. After repeated trials William I. was decided on as the best, although a few days later than Kentish Invicta and Veitch's Extra Early, preference being given to the former because of its excellent flavour when cooked, and secondly because the quantity of produce was much heavier than from the other two. If confined to these three and an early dish was an object, the last-mentioned would be grown, because it is dwarfier than the others and the earliest. Day's Early Sunrise, however well it may have done in some places, is here only a second-rate Pea as regards flavour; it is also ten days later than those enumerated above, but will carry the heaviest crop.

I now come to American Wonder. After three years' trial of it I believe it will prove a good field Pea for market purposes, and will prove the best of all early Peas yet raised. It is dwarf, the earliest in the market, and wonderfully productive; in short, my experience of this Pea coincides exactly with that of Mr. Smith. It is a little taller than usual with me this year, but the ground was rich and the crop is heavier than that recorded by Mr. Smith. I sowed about twenty short rows, and they have been, and are to-day, laden with pods. Hitherto I have planted them 18 inches from row to row, but the distance recommended by your correspondent is preferable. In future I shall grow no other early Pea here, as it has proved much more productive than the others. It requires no stakes; in fact old besoms after they have done service for sweeping

are ample to support it. It is also more suitable for growing on narrow wall borders than a Pea that will attain a height of 4 feet.—W. BARDNEY, *Liverpool*.

KINGSTON AND SURBITON SHOW.

THE nineteenth annual Exhibition of the Kingston Royal Horticultural Society was held on Thursday last in a well-wooded park-like enclosure, peculiarly adapted to an exhibition of this kind, for the fine densely foliaged trees afford shelter from the rain or shade from the sun, whichever may be needed; and it is almost always either too wet or too hot for somebody on flower-show days. Last Thursday, however, was one of those agreeable days with which it is difficult to find fault. The Show, like the weather, was in turn almost proof against adverse criticism. Plants, flowers, and vegetables were excellent, as also were table decorations, while some good fruit was staged. The weak point was the bouquets, but fortunately, considering their quality, there were not many of them.

In the large plant tent the semicircular groups were prominent. There were eleven of them; and when such an exhibitor as Mr. Henry James, The Castle Nursery, Norwood, was placed third in the open class it is evidence that the collections were good. Mr. Beckett, gardener to J. P. Currie, Esq., Esher, secured the premier prize with a beautiful group—bright without being gaudy, full without being crowded, and bold without being lumpy. Tuberous Begonias shone through a canopy of Palms, and the front was chaste yet cheerful, with Ferns and *Isolepis* pleasingly associated with *Gloxinias*, and sparingly with variegated *Panicum*. Messrs. Fromow & Sons, Turnham Green, were a close second, this group being striking by a margin of small Silver Tricolor *Pelargoniums*, which gave quite a bead-like finish to the group. The most valuable plants of all were those arranged by Mr. James. Only one 50-foot group was arranged—namely, by Mr. Waite, Glenhurst, Esher, who was awarded the first prize. The smaller—35-foot—groups were better, that of Mr. Brand, gardener to W. Clay, Esq., Grove Park, Kingston, being noticeable by the pleasing association of *Agrostis nebulosa* and *Lobelias*; the second-prize arrangement of Mr. Clark, gardener to A. Nagle, Esq., Kingston, being bright with *Kalosanthes*. With this fine summer-flowering greenhouse plant the same exhibitor secured the first prize in the single specimen class; and grand examples were staged by Mr. Beckett in his first-prize group of six plants; Mr. Child, gardener to Mrs. Slade, Claygate, Esher, being a good second in this class. Mr. Henry James, Norwood, was first with twelve specimens, his *Ericas Paxtoni* and tricolor *impressa* being particularly effective.

Fuchsias were very creditably shown, the first-prize six of Mr. Dorsett, gardener to Mrs. Welsh, Westcroft, being 4 feet high and 3 feet in diameter at the base, the pots being nearly veiled by drooping sprays and fine flowers. Mr. Beckett was a close second with very healthy plants. *Caladiums* were grandly staged by Mr. Gregory, gardener to J. F. Weymouth, Esq., Bushy Nook, Teddington, who also had the first prize for six foliaged plants, a *Caladium* among these being 6 feet in diameter, and in shape and colour faultless. Tuberous *Begonias* from Mr. Child were exceedingly bright and good. Excellent also were *Achimenes* and *Gloxinias* from Messrs. Brand, Waite, French, Slade, and Croxford, who secured the prizes in the classes. Mr. Watson's *Selaginellas* were fine, as also were *Hydrangeas* from Messrs. Atrill and Beckett, the last-named exhibitor having the best *Pelargoniums*. For Ferns the prizes were well won by Messrs. Gregory and Atrill, *Davallia pyxidata* being admirably shown by the last-named exhibitor.

In the cut-flower tent *Roses* were the chief attraction, and Mr. Moorman the chief prizewinner in the leading classes, Messrs. Starr, Orchard, Otley, and Waite being also successful exhibitors; but the majority of them might take a hint from Mr. Moorman in staging, at which he is an adept. Mr. Bennett sent magnificent blooms of the right royal *Rose Her Majesty* and other beautiful seedlings. Messrs. Veitch staged a grand collection, and Messrs. Lee of Hammersmith contributed boxes of handsome blooms. Messrs. Veitch also staged a group of *Roses* in pots, remarkable by their freshness and close compact growth. Messrs. Jackson & Son contributed effectively to the Exhibition by a choice assortment, the specimens being admirably grown and tastefully arranged; *Ericas*, *Dracophyllums*, and *Impatiens Sultani* being in superb condition, while *Orchids* imparted richness to this valuable collection of plants. It is wonderful what a pretty effect can be produced by arranging flowers in soup plates. There was great competition in the class for these, Mr. Orchard being the most successful exhibitor; and in dinner-table decorations Mrs. Clay secured *Lady Peck's* prize with charming stands, such indeed that we have rarely seen excelled.

Fruit was sparingly exhibited, but was generally good. The prizes for *Grapes* went to Messrs. Starr, Wilson, and Gregory; for *Melons* to Benson and Child; *Peaches* to Wilson, Croxford, and Atrill; *Nectarines* to Waite and Croxford; and *Strawberries* (fine) to Messrs. Waite, Gregory, and Beckett.

Vegetables were wonderfully fine, better collections of twelve dishes being seldom seen than those arranged by Messrs. Beckett, Waite, and Starr. The produce of the first-named exhibitors was of striking excellence and admirably staged. This is a very brief sketch of a very good Show, admirably conducted by the Hon. Secretary Mr. Clay and his skilled and industrious co-worker Mr. Moorman.

CUTTING DOWN CHRYSANTHEMUMS.

In your last two issues the reader's attention is drawn to the plan of cutting down *Chrysanthemums* at this time of the year that are intended for the production of exhibition blooms. Such was practised a few years ago, and I believe is still by some of the most successful growers around *Liverpool* with good results.

There is one good point in its favour which should not be overlooked. The plants are dwarf, and are quite as eligible for home display as the so-called pinched plants. With regard to the flower, I have found plants that have been topped generally carry the most perfect flowers; those, on the other hand, that

have been allowed to grow naturally may carry with some varieties larger flowers, but they will be coarse, and generally will be unsuitable for an exhibition table.

No doubt for the south the present would be a very good time for this operation, but here and far north I am afraid with many varieties it is rather late. However, I am trying a few, and will note the result. The northern growers have, as a rule, generally produced the finest flowers. They select the crown bud; in the south the terminal bud is taken, for the crown bud there would be too early. Mr. Harding has solved the difficulty. He simply retards his plants, works the crown bud. The flowers consequently are of equal substance to them grown in the north. Both are placed upon a more equal footing. The final issue will then rest with him who is the most clever with the tweezers. I should like to see this and disbudding thoroughly discussed, for I believe there is still room for improvement in the *Chrysanthemum*, not with soils, stimulants, or the time of propagation, but by the selection of buds.—C. WARING, *Liverpool*.

THE advice recently given on cutting down *Chrysanthemums* is so totally opposed to what has been advocated by recognised authorities hitherto, who always advised all who desired grand blooms to take out nothing but the extreme point of the shoot when stopping. I think, therefore, we may safely call the cutting-down system a new departure in *Chrysanthemum* cultivation, and one that if found workable will be largely followed by all growers, as dwarf plants must be so much easier to manage than tall ones. My own plants now range from 2 feet 6 inches to 4 feet 6 inches high, and some of the tallest will doubtless reach nearly 9 feet by the time of blooming. How much better 5 or 6 feet would be as a maximum height. The questions I should like answered, and doubtless many others will be glad of the information, are: When are the cuttings inserted? What size pots are they in now? What size pots are they flowered in? Are all varieties equally free to break after cutting down? I ask the question about the time of propagating, as mine are propagated in December and January and are in their flowering pots by the first week in June.—CORNUBIA.

CYPRIPEDIUM SPECTABILE.

OF all the hardy *Orchids* that are grown successfully in this country none can compare with *Cypripedium spectabile*. There are several other North American species that are well worth growing in gardens, but the colours of the flowers are not nearly so bright and showy. Although the species under consideration has been introduced to this country more than 150 years, yet how seldom do we see it in perfection in gardens, or how seldom do we see it at all. Plants are annually imported from North America, and from the quantity imported one would feel inclined to ask the question, What becomes of them all? This question can be answered in the following manner—that more plants are killed than are grown, for the simple reason that the plants are not studied, are planted in almost any situation, the consequence being they dwindle away and die right out. Yet *C. spectabile* is one of the easiest plants to cultivate if properly managed, and anyone desirous of giving it a trial will, I am sure, be satisfied with it. If this plant were of recent introduction, and a tropical species, it would no doubt cause quite a sensation amongst *Orchid* fanciers; but like many other plants that have been in the country for upwards of a hundred years, and comparatively easy to manage, is thought but little of, although at the same time it equals in beauty many of the tropical species which are purchased at enormous prices. It is greatly to be regretted that *C. spectabile* is not more generally cultivated, for this is one of the plants that will thrive where others will not; indeed, it should be cultivated in every garden where choice flowers are required in quantity.

At Messrs. R. Smith & Co.'s, nurserymen, Worcester, may now be seen in perfection a splendid bed of these beautiful *Ladies' Slippers*. The above firm have long enjoyed a very high reputation for fruit trees, Conifers, *Roses*, *Clematis*, &c., but on coming to Worcester some six or eight months ago I was most agreeably surprised to find herbaceous plants grown in such large quantities. I had often seen *C. spectabile* grown before, but never have I seen it better than it is at Worcester. I will describe the way in which it is so successfully managed. In the first place it must be understood that the best position that can be selected for it is behind a hedge or tree where the sun has little or no power, but at the same time it should have abundance of light. The position having been decided, the soil should be taken out about 15 or 18 inches deep, and filled in with a compost

consisting of half peat, the remainder part being loam, leaf soil, and a good sprinkle of sand, well mixed together. About 15 inches of soil should be placed in the bed, made moderately firm. Upon this the

autumn and through the winter, care being taken that the operation is not deferred too late in the spring. During the growing season the plants require abundance of water—in fact they should never be allowed



FIG. 8.—CYPRIPEDIUM SPECTABILE.

plants should be placed, with the remainder 3 inches of soil over them. Plants that have been grown and established in this country are far the safest, as imported plants sometimes fail to give satisfaction.

C. spectabile can be removed at any time during the latter part of

to become too dry, and after they have done flowering this should be particularly attended to. In favourable seasons the flowers commence expanding about the middle of June, and last several weeks in perfection. They are extremely useful for cutting, the fine, dark green

broad foliage contrasting admirably with the white and purple flowers. I find the flowers vary in colour, some being much darker than others. With this note I forward you a small box of flowers for your inspection to see the size and colouring of the flowers.—GEORGE WALTERS.

[They are very fine indeed, as may be seen by the engraving, in which the flowers and foliage are represented of their natural size.]

BATH ROSE SHOW.

JULY 5TH.

It was expected by those competent to form an opinion on the subject that the Rose Show at Bath would, providing the season was at all favourable, prove a great success, and such was the case. Roses of the best quality were very abundant, the weather was fine and warm, and the attendance of visitors large and fashionable. The prizes offered were sufficiently liberal, and this, coupled with the well-known love for Roses shared in by all classes of society of Bath and district, attracted exhibits from most of the leading professional Rose-growers—notably the Cranston Company, Hereford; Paul & Son, Cheshunt; Prince of Oxford, Keynes of Salisbury, and Curtis, Sanford, & Co., Torquay. The Hereford Roses are always late, but when they have attained to perfection are not easily excelled, and at Bath were invincible. Those shown by G. Paul & Son, however, were only very slightly inferior. Among the amateurs Miss Watson Taylor, Mr. A. Evans, Mr. John Scott, Mr. Joseph Hinton, Mr. R. B. Cater, Mr. T. B. Hall staged highly creditable stands of blooms in the different classes open to them.

NURSEYMEN'S CLASSES.

There were six competitors in the class for seventy-two single trusses, the whole forming an imposing array. After a most careful examination the Judges eventually awarded the premier prize to the Cranston Company. The majority of their blooms were very fine and fresh—notably Dr. Andry, Beauty of Waltham, Countess of Rosebery, Marquise de Castellane, Dupuy Jamain, Marie Baumann, Mons. E. Y. Teas, Star of Waltham, Jean Ducher, Général Jacqueminot, Etienne Levet, Madame C. Wood, Reynolds Hole, Countess of Oxford, Victor Verdier, Alfred Colomb, La Duchesse de Morny, Gloire de Bourg-la-Reine, and Mary Pochin. The last-named is in the way of but richer and brighter in colour than Thomas Mills, and was greatly admired. Messrs. G. Paul & Son were awarded the second prize for a collection a few points only behind the first; this, in addition to most of the above varieties, including fine examples of Edward André, Olivier Delhomme, R. N. G. Baker, Innocente Pirola, J. S. Mill, Niphotos, Duke of Teck, and Marie Rady. Keynes & Son took the third prize for a collection in which the most noteworthy blooms were Sénateur Vaisse, Duke of Edinburgh, John Bright, Ferdinand de Lesseps, George Moreau, Marie Baumann, and Star of Waltham. The Cranston Company were again first with thirty-six distinct triplets, and among these Marie Rady, Princess Mary of Cambridge, Abel Carrière, A. K. Williams, Countess of Rosebery, La France, Madame Lacharme, Marie Baumann, Mdlle. Marie Cointet, and Mdlle. Eugénie Verdier were strikingly good. Messrs. Paul & Son followed with, among others, grand examples of Alfred Colomb, Horace Vernet, Olivier Delhomme, Countess of Oxford, and Niphotos. Keynes & Co. were deservedly awarded the third prize.

With twenty-four distinct triplets the Cranston Company also took the lead, among these being brilliant examples of Richard Laxton, Duchesse de Vallombrosa, Pride of Waltham, Marguerite de St. Amand, Charles Lefebvre, and Duke of Edinburgh. The second prize was secured by Keynes & Son, who had Catherine Mermet, Dr. Andry, Fisher Holmes, Dupuy Jamain, and Niphotos in good condition. The latter was exceptionally fine, and one of the blooms was selected for the silver medal of the National Rose Society, to be awarded to the best Tea or Noisette in the Show. Curtis, Sanford and Co. occupied the third position, the competition in this and the preceding class being close and good. Eight lots of twenty-four distinct single trusses were staged, and the class was generally excellent. Mr. G. Prince had a very bright and even stand, and was deservedly awarded the first prize. His best blooms were, Teas Souvenir de Paul Neyron, Jean Ducher, Alba Rosea, Comtesse de Nadaillac, Louis Van Houtte, and Sultan of Zanzibar, Marie Baumann, and A. K. Williams, the last-named securing the silver medal of the National Rose Society for the best Hybrid Perpetual in the Exhibition. G. Cooling & Son, Bath, had among others good examples of A. K. Williams, Star of Waltham, Charles Lefebvre, and Bouquet d'Or, and secured the second prize, the remaining prize rightly going to Messrs. Cross and Steer, Salisbury. With eighteen Teas or Noisettes, distinct, Messrs. Paul & Son took the lead, and was closely followed, if not equalled, by Mr. G. Prince. Messrs. Paul's most noteworthy blooms were Etoile de Lyon, Madame Cusin, Innocente Pirola, and Souvenir d'Elise Vardon. In Mr. Prince's stand were good blooms of Madame H. Jamain, Amazone, Niphotos, and Souvenir de Madame Pernet. Mr. J. Mattock, Oxford, was a good third

AMATEURS' CLASSES.

The silver cup, value £5, offered for thirty-six single trusses, was well won by Miss Watson Taylor, this lady's stands including among others beautiful examples of Marie Cointet, Baron Adolphe Rothschild, Marie Rady, and Marie Baumann. Mr. T. B. Hall was second with a generally good lot, and Mr. T. Hobbs was deservedly awarded the third prize. For twenty-four distinct trusses Mr. A. Evans took the lead with a fresh and grand lot, noticeable among which were Madame Gabriel Luizet, Mrs. Baker, Marie Baumann, Charles Lefebvre, and La France. Mr. John Scott followed with an even lot, comprising Marquise de Castellane, Alfred Colomb, Dupuy Jamain, and Marie Baumann in good condition. The third prize was deservedly awarded to Mr. E. S. Cole, gardener to Mr. W. Pethick, and nine others staged very creditable collections. Mr. T. B. Hall took the lead with twelve distinct triplets, these including fine examples of Etienne Levet, Louis Van Houtte, Dupuy Jamain, and Dr. Andry. Miss Watson Taylor was second, and the third prize was gained by Mr. D. C. Powell, with six triplets, distinct. Mr. J. Scott and Mr. A. Evans were equal firsts, the former having, among others, good blooms of Edward Morren, Charles

Lefebvre, and Marie Baumann, and the latter A. K. Williams and Marie Baumann in good condition. Mr. E. S. Cole had the third prize. Mr. G. Tanner staged the best six distinct single trusses, these including capital blooms of Mons. Noman, John Hopper, and Louis Von Houtte. The second prize was awarded to Mr. H. Hooper, and the third to Mr. H. Hall. Miss Watson Taylor had the best twelve Teas or Noisettes, distinct, single trusses, the best of them being Alba Rosea, Niphotos, Belle Lyonnaise, David Pradel, Jean Ducher, and Souvenir d'un Ami. Mr. T. B. Hall was a good second, and Mr. T. Hobbs third. Mr. J. Hinton, Warminster, staged the best six Teas or Noisettes, distinct, single trusses, these consisting of good blooms of Madame Bravy, Innocente Pirola, Souvenir d'Elise Vardon, Marie Van Houtte, Souvenir d'un Ami, and Maréchal Niel. Mr. W. Garraway followed. The third prize was awarded to Mr. R. B. Cater, and several others in this and preceding classes exhibited very creditably.

OPEN CLASSES.

The competition was very keen in the classes for twelve single trusses of any Rose, and several grand lots were unplaced. The first prize was awarded to Mr. G. Prince for Catherine Mermet in good condition, G. Paul and Son following with splendid examples of Marie Baumann; and the third prize went to Mr. J. Jefferies, Cirencester, for a charming stand of Cannes la Coquette. Mr. Prince was again first for any yellow Rose with Jean Ducher, very fine, and was followed by Mr. J. Mattock with good examples of Marie Van Houtte. Twelve single trusses crimson Rose were also well shown, Messrs. Paul & Son and Mr. G. Prince being placed equal first with very fine stands of A. K. Williams, while Messrs. Keynes had rather coarse but richly coloured Duke of Edinburgh, and obtained the second prize. Messrs. Cooling & Son took the lead with beautiful examples of Madame Gabriel Luizet in the class for any pink variety, Mr. A. Evans following with La France; and Cranston's Company were third with the same variety. Mr. John Mattock arranged a very pretty basket of Teas, and secured the first prize, the second prize going to Mr. R. B. Cater for a much too formal arrangement.

LOCAL PRIZES (AMATEURS).

The exhibits in this section were creditable, and much interest was naturally taken by the visitors in the awards. For twenty-four single trusses, distinct, Mr. G. Campbell, gardener to Mr. S. P. Budd, was first, his most noteworthy blooms being Mons. E. Y. Teas and Madame Gabriel Luizet. Mr. H. Catley and Mr. G. Fluke took the remaining prizes in the order named, and others staged good collections in this class. With twelve single trusses, distinct, Mr. R. B. Cater took the lead, and was followed by Mr. J. Stuckey and Mr. G. L. Hobbs. The best six single trusses, distinct, were staged by Mr. W. Meddick, the second prize going to the Rev. C. C. Layard. Messrs. H. Catley, R. B. Cater, and Thomas Jelly were the successful exhibitors in the order named of nine Teas, single trusses, distinct. A considerable number of bouquets of Roses were entered, Messrs. Cooling & Son taking the lead with twelve, Mr. J. Mattock following, the third prize going to Mr. W. C. Drummond. Mr. H. C. Mayell was first for six, Mr. W. Pethick and Mr. W. Meddick being the other successful exhibitors.

There were two classes for plants, these being arranged so as to set off the Roses. The best twelve ornamental-foliaged plants were staged by Mr. E. Bryant, Mr. W. C. Drummond following, and Mr. T. Chandler had third place. Mr. W. C. Drummond staged the best twenty-five Ferns, and was followed by Mr. W. Meddick. Groups of cut Roses were presented by Messrs. Cooling & Son, and Mr. H. Hooper exhibited a considerable number of Carnation, Pansy, and Rose blooms.

FRUIT.

Three classes were provided for Strawberries, and a great quantity of fruit was shown. As a rule the awards appeared to have been affected by mere size of fruit, and in some cases of the dishes. But why encourage monstrosities in Strawberries? Mr. H. Scott exhibited the best six dishes, Mr. H. S. Dutton and Mr. W. G. Garraway following in the order named. Mr. G. Garraway was first with three dishes, Mr. J. Bullock second, and Mr. H. Scott third. Mr. Garraway was also first with one dish, and was followed by Mr. G. Bullock. The favourite varieties were Sir J. Paxton, President, Eleanor, and Sir C. Napier.

STRAWBERRIES FOR LONDON FIFTY YEARS AGO.

THE following narrative, written half a century ago, may possibly interest our readers. Times have changed since then, and different customs now prevail. Yet there are some who sigh for the return of the "good old times."

"The supplying of a large city with some of even trivial luxuries is often a curious operation, and of great importance to a number of persons to whom it affords employment and subsistence. There are not many of the inhabitants of London who do not every summer partake of the delicious Strawberries with which it is so abundantly and so cheaply supplied. Yet few of them, when they have before them a small portion of that fruit, are aware that some hundreds of persons derive their livelihood during the time they are in season from the various operations which the supplying London with them occasions. It may not, therefore, be uninteresting to take a view of the mode in which that city is supplied with Strawberries.

"Most of the Strawberries consumed in the metropolis are grown within ten miles of it, and by far the greatest number of Strawberry gardens are on its western side. The chief places at which they are situated are Isleworth, Brentford, Ealing, Hammersmith, Fulham, Deptford, Mortlake, Hackney, and Camberwell. The extent of land cultivated for Strawberries has been much increased within a few years, and has been estimated at more than a thousand acres for the supply of London alone. The greatest number of persons who derive employment in producing Strawberries for the markets are females, with the exception of those who dress the ground on which they grow. In the season in which

Strawberries are ripe, which is usually the end of May, the women who gather the fruit assemble in the Strawberry garden in the morning as soon as it is light, which at that time of the year is between three and four o'clock, and commence plucking the fruit. The best fruit, which is gathered earliest in the morning, is taken to the packing-room and carefully put in pottle baskets; fifty or sixty of these are placed in a large basket, and before seven o'clock in the morning a number of women are dispatched to the metropolis, each with one of these larger baskets, which she carries on the top of her head, with only a small cushion to make the pressure of the weight equal over the upper surface of the head. The weight of the baskets and fruit is from 30 to 40 lbs., and sometimes even more.

"A party of these carriers then set off with their burdens, walking at a quick pace, and occasionally running, so that they generally accomplish five miles in an hour during their journey. And it is pleasing to observe with what skill and address, from habit, they manage their head-loads, as they are called, seldom having occasion to hold them with their hands. The burden being placed at the top of the head makes it necessary for the carriers to keep a very upright posture in walking, so much so that young persons in higher ranks of life have been corrected of a bad habit of stooping by being made to walk with a small weight on their heads, without being allowed to touch it with their hands, in imitation of these poor women. When men occasionally carry the fruit they have a shoulder-knot similar to those used by porters, so that part of the weight rests on the shoulder and part on the head, but by this mode of conveyance the fruit is generally more injured than when carried by women.

"The carriers arrive at the principal fruiterers in London early enough for their customers to be supplied with fruit gathered the same morning. The same women sometimes proceed with a second load to London even when the Strawberry ground is situated seven or eight miles from the fruiterers. The employment of females as carriers of fruit is within the last three or four years greatly diminished by some of the largest Strawberry growers having established light kinds of cars, hung on very pliable springs, like those used for coaches, and drawn by a quick-paced horse; one of these cars carries about twenty baskets, each of which would be a load for a woman. Though this mode is a considerable saving of expense yet it does not convey the fruit in such perfection as when carried on the head. The fruit not sent by these two methods is conveyed in carts with springs during the night to London for the early markets, which commence at daybreak, and is sold wholesale by the gardeners to the various retailers of fruit.

"Connected with the supplying of Strawberries to the metropolis is a very ingenious manufacture, that of pottle-baskets. These are made by women and children. The women prepare the wood by steeping it in water and splitting according to the parts of the basket it is designed to form. Then the most skilful arrange the slips of wood, which form the upright supports of the basket, and fix them in their place by weaving the bottom part. The sides are woven by children with pliable strips of wood, and the top is bound over by the more accustomed workwomen. If any of our readers will take the pains to examine one of these baskets they will feel surprised that it has passed through several hands in making, and the wood been purchased and prepared, and yet that it is still supplied to the gardener at the rate of about 6*d.* the dozen. The baskets are formed of the wood of the Fir or Willow tree, the latter is the best. The manufacture of them is carried on by the poor at their own homes in the towns near the Strawberry gardens, particularly at Brentford.

"The women employed in gathering and conveying Strawberries to London cannot be estimated at less, during the time they are in season, than 2000 persons. Part of these are the inhabitants of the adjacent towns, but a great number of them are young women who migrate annually from Worcestershire, Shropshire, and Wales, and after the Strawberries, Raspberries, Currants, and Gooseberries are passed, return to the country in time to assist at the harvest, having usually during their migration saved enough to buy a good stock of clothes and to lay by some money towards their support during the following winter."

[Far more than 2000 persons are now engaged in gathering Strawberries for London, but they do not carry them to the market. Kent is now the great centre of production. Last Friday one grower alone sent 20 tons to London, and his daily consignments have since probably doubled that amount. This same grower, Mr. Vinson, in addition to his London trade, sent 117 tons to Manchester and Liverpool last year. We have seen crops near Swanley that have been sold by the cultivator this year for £60 per acre, the purchaser gathering them and incurring all risk. If any of our readers have not been to Swanley let them call at once on Mr. Cannell, and with the flowers in his nursery and the fruit all round it, they will see sufficient in a few hours to think about for years; but if the present hot weather continues (there has been no rain around Swanley) the Strawberry season must be very short this season, and the bulk of the crop will be gathered this week.]

ROYAL AQUARIUM ROSE AND STRAWBERRY SHOW.

JULY 4TH.

THE Royal Aquarium Company offered very liberal prizes for Rose blooms and Strawberries, which might have been expected to bring a greater number of competitors together than was the case, particularly as the date chosen for the Show was a most suitable one both for the flowers and the fruit. Two classes were devoted to Roses—one for seventy-two blooms confined to nurserymen, the other for forty-eight blooms to be shown by amateurs. Three prizes were offered in each class, those for nurserymen being £15, £7, and £5, while the amateurs' prizes were £10, £5, and £3. In the first-named the leading award was secured by Mr. C. Turner, Slough,

who had a collection of beautiful varieties, the blooms generally being of good substance, though a few weak examples were observable, which looked as if they had figured at Kensington on the previous day, and the same remark might be applied to each of the other stands. Some of Mr. Turner's best blooms were Duchess of Bedford, Star of Waltham, Mrs. Baker, A. K. Williams, Horace Vernet, Baronne de Rothschild, Edouard Morren, Alfred Colomb, Madame C. Crapelet, and Madame Gabriel Luizet. Mr. B. R. Cant, Colchester, followed, a magnificent bloom of A. K. Williams being very remarkable in his box. Innocente Pirola, Le Havre, Auguste Rigotard, and Mons. E. Y. Teas were nearly as fine. Messrs. Paul & Son, Cheshunt, were third with a neat collection that ran Mr. Cant very close for the second prize, as the blooms were fresh and bright. Several stands of Roses not for competition were also contributed by Mr. H. Bennett of Shepperton, who had fine examples of his new gold-medal Rose Her Majesty, Lady Mary Fitzwilliam, Mary Bennett, and Earl of Pembroke. Messrs. Cranston & Co., Hereford, exhibited boxes of Teas and Hybrid Perpetual Roses, the former being especially good.

In the amateurs' class there were four competitors, Mr. G. W. Girdlestone securing the chief honours with a beautiful stand, comprising Beauty of Stapleford, Prince Arthur, Marie Rady, Catherine Mermet in grand condition, Charles Lefebvre, Camille Bernardin, and A. K. Williams extremely bright. The Rev. E. Fellowes was a close second with fresh richly coloured blooms, Star of Waltham, Baronne de Rothschild, and the favourite A. K. Williams being the most prominently noteworthy varieties. Mr. G. Rushmore took the third position with smaller but clean and neat blooms.

Strawberries were contributed by six growers, the prizes being £3, £2, and 10*s.* for three dishes, distinct varieties. First honours were secured by Mr. C. Herrin, Gerrard's Cross, who had Sir Joseph Paxton very fine, some of the fruits $2\frac{1}{2}$ inches in diameter. President and Empress Eugénie also were large. Mr. J. Smith, Romford, followed with Sir Joseph Paxton, even and richly coloured; Dr. Hogg, good; and British Queen. Mr. Meadmore, Romford, being third with James Veitch, Sir J. Paxton, and Rifleman, even but scarcely sufficiently coloured. Mr. T. Sharpe, Chertsey, showed boxes of Prince Arthur, British Queen, and Comte de Paris, very good. Mr. Bennett, Potter's Bar, exhibited baskets of Strawberries, Peaches, Tomatoes, Nectarines, and Grapes.

SUTTON ROSE SHOW.

JULY 6TH.

It will not surprise anyone who has watched the vigorous proceedings of this young Society, that in writing of its second Show one should have to report that it had already made a very forward step towards not maintaining but also increasing its position. When a Society—knowing that the place in which its operations are carried on is of a peculiar character, that the soil is not a naturally good one for Roses—issues a pamphlet in which sound and practical advice is given by which these difficulties can be overcome: when, during the winter months, in order to keep the *esprit du corps* alive, the members meet together at a grand dinner at the Café Royal, under the presidency of that valued friend of horticulture Sir Trevor Lawrence, we may be sure that nothing would be wanting to insure success in their Show; and when to this it is added that a most liberal schedule is issued—sufficient to tempt amongst nurserymen Messrs. Cranston, Cant, Turner, Paul & Son, Piper, &c., and amongst amateurs such growers as Mr. Slaughter (the champion of the year), Messrs. Cutbush and Mawley, the Rev. Alan Cheales, &c., we might naturally expect a goodly gathering of Roses. And so it fell out. But as all things cannot be expected to go exactly right, so it fell out this year that the Show was too late for the local growers, and consequently they were not in the running, as they ought to have been, and there was not that improvement in the local classes which was so manifest at Cardiff, Mr. Ernest Wilkins, the indefatigable Secretary of the Society, who carried off the challenge cup last year, being hardly able to show at all; but, with this drawback, the Show was in every other respect a most excellent one. The day was very favourable, the hall in which it was held looked exceedingly well, and it was a great treat to all lovers of the Rose; and, if one may judge from the large number of visitors who thronged it during the afternoon, must have been a great success.

As the classes for amateurs are those which are most interesting to the general bulk of the readers of the Journal, I give in detail an account of most of the winning stands. Mr. A. Slaughter took the chief prize with an excellent stand containing some truly magnificent flowers. The varieties were La France, Dr. André, Charles Lefebvre, Le Havre, Capitaine Christy, Général Jacqueminot, Baronne de Rothschild, Camille Bernardin, Marquise de Castellane, Duchesse de Vallombrosa, Marie Rady, a grand bloom; John Stuart Mill, Madame Gabriel Luizet, Comtesse d'Oxford, Mons. E. Y. Teas, Madame Charles Crapelet, Anna Ollivier, Maréchal Niel, Duke of Teck, Belle Lyonnaise, Marie Baumann, a splendid flower; Souvenir d'un Ami, and A. K. Williams. This was a magnificent bloom—the finest I have yet seen anywhere this year, and deservedly gained the National Rose Society's silver medal for the best bloom in the Show. In the class for eighteen Mr. Stone of Reigate was first with fine blooms of Duke of Edinburgh, Capitaine Christy, Marie Rady, La France, Marie Baumann, Marie Finger, Madame Victor Verdier, Madame Lacharme, Madame Joigneaux, White Baroness, a very fine pure white flower; François Michelin, François Thuger, a good Tea Rose I do not remember to have seen; Madame Gabriel Luizet, Madame Lambard, Jean Ducher, Star of Waltham, and Maréchal Niel. In the class for twelve blooms Mr. Cuthell was well first with fine blooms of Etienne Levet, Marie Baumann, Alfred Colomb, Capitaine Christy, Sénateur Vaisse, Mrs. Baker, Marie Verdier, Royal Standard, Marquise de Castellane, Marie Rady, Gabriel Luizet, and Devienne Lamy. In the class for nine blooms the Rev. Alan Cheales was first with beautifully finished blooms of Marie Baumann, Capitaine Christy, Star of Waltham, Madame Victor Verdier, Charles Lefebvre, Madame Gabriel Luizet, Marie Baumann, William Kælle, and Dupuy Jamain. Mr. E. Mawley was second with a hardly inferior stand, consisting of Marie Baumann, Marquise de Castellane, Charles Lefebvre, Comtesse d'Oxford, Dr. André, Countess of Rosebery, Duke of Wellington, Madame Eugène Verdier, and Duc de Montpensier. In the class for six the first prize was withheld. The second was won by the Rev.

F. H. Gall of Hitchin, and had his flowers been better set up they would have been placed first. La France, Alfred Colomb, Prince of Portia, Marquise de Castellanc, Le Havre, and Jules Finger. In the class for twelve Teas Mr. Slaughter was first with Jean Ducher, Souvenir d'un Ami, Anna Ollivier, Madame Willermoz, Innocente Pirola, Maréchal Niel, Belle Lyonnaise, Madame Lambard, Catherine Mermet, Madame Bravy, Comte de Paris, and Caroline Kuster. Mr. George Mount of Harbledown, Canterbury, was second with Souvenir d'Elise, Maréchal Niel, a fine bloom; Innocente Pirola, Marquise de Lauria, Madame Willermoz, Niphotos, Catherine Mermet, Souvenir d'un Ami, Comtesse de Nadaillac, and Hippolyte Jamain. For six Teas the Rev. Alan Cheales was first with a beautiful stand of Souvenir d'un Ami, Maréchal Niel, Madame Bravy, Catherine Mermet, Souvenir de Paul Neyron, and Niphotos. In the class for eight varieties, trebles, the first prize was won by Mr. E. Pawle of Wray Park, Reigate, with a good stand of Alfred Colomb, Mdlle. Eugénie Verdier, Le Havre, Capitaine Christy, Camille Bernardin, Prince Arthur, three very fine blooms; Marie Finger, and Comtesse d'Oxford. For four varieties, three of each, Mr. E. Mawley—Madame Gabriel Luizet, Marie Baumann, Star of Waltham, and Baron Rothschild. For the best six of any one variety Mr. H. Slaughter was first with Maréchal Niel; the second was taken with Marie Baumann, and the third by Mr. Cuthell with Madame Gabriel Luizet. These comprised the open classes. Mr. H. H. French took the Ladies' challenge cup, and Mr. Samuel Wilkins the prize for English-raised Roses. Messrs. Paul & Son were first in the nurserymen's class with a good stand of fine flowers of many of the leading varieties.

There was a good display of stands composed of Roses and foliage. It may be considered a heresy to say it, but it is almost impossible to make a really pretty stand. The only pretty stand I ever really saw was one at Reigate some years ago, but then it was made of wild Roses. There is a heaviness about the Rose for such purposes that seems to require other flowers of a lighter character to set them off, and I do not think one ever sees in a private house vases of flowers so composed. Brackets of Roses were very pretty, and as only a few of these are required the case is different. Let me add that in one respect Sutton sets an admirable example: the room was ready for the Judges at the time specified, and there was nothing to hinder quiet and leisurely examination of the flowers. *O si sic omnia!* This was due to the favour and courtesy of the Secretary, Treasurer, and very effective Committee of the Society.—D., Deal.

CRYSTAL PALACE ROSE SHOW.

THIS was so far the Rose Show of the season, and I think it will be very hard for any future show to come up to it. Owing to the cool evening of Friday the blooms travelled beautifully, and the freshness of the boxes was delightful. Mr. George Paul had it all his own way at this Show. His boxes were very fine, particularly his seventy-two. I regret to say that Mr. Cant of Colchester was disqualified for forty-eight trebles for having four blooms of Mrs. Baker in his box. It was perhaps a rather hard thing to do, but I do not see what the Judges were to do. I sympathise with Mr. Cant very sincerely, particularly as it was my unpleasant duty to be one of the Judges. His boxes were, however, not nearly so fine as they were at the National, and Mr. Paul and Mr. Cranston were undoubtedly first and second in this great class. The Teas were very fine, particularly Mr. Mitchell's of Piltdown. Among the amateurs the Roses that made most impression on me were the Rev. Mr. Pemberton's. His trebles were superb. Mr. Whitwell had a hard fight with Mr. Slaughter for forty-eight singles, but the former was slightly smaller throughout, and the latter had a most magnificent bloom of Innocente Pirola, which carried immense weight. The classes for Roses of one colour did not fill so well as usual, and I fancy that many of the growers are not quite in yet.

The crowd was very great, and after the judging was over it was next door to impossible to get near any boxes that you wanted particularly to see. Mr. Bennett of Shepperton showed some very fine novelties. Her Majesty made a great sensation; and Mary Bennett, a new Rose, obtained a certificate. Some beautiful Irises and hardy flowers were staged by Messrs. Hooper of Covent Garden, and Mr. Rivers sent some splendid dishes of fruit, which made one long to be judging them.—WYLD SAVAGE.

BROCKHAM ROSE SHOW.

THIS Show was held on Saturday last in the beautiful grounds of R. Barclay, Esq., Bury Hill, near Dorking. One of the advantages that this Association possesses is the keen competition that exists among the gentry of the neighbourhood for holding the Rose Show in their grounds. The neighbourhood of Dorking can scarcely be second to any in Surrey for the beauty and picturesqueness of its country residences and estates, and Bury Hill certainly ranks very high amongst these. The Show is almost entirely one of Roses, and the blooms exhibited were for the most part of great excellence as regards form, and freshness, and size; and in the latter respect there were several specimens, such as La Rosière in Lady Mary Legge's box, M. de Castellane, Marie Baumann, Prince Camille de Rohan, and A. K. Williams that were almost as fine as blooms could possibly be. The number of boxes shown was very large, and in some cases the competition was exceedingly keen, but in no case did the Judges have any difficulty in arriving at an unanimous opinion.

In the twenty-four class the Rev. A. Cheales, the zealous and most excellent Hon. Secretary, was *facile princeps* with a box of almost faultless blooms, only two specimens being at all weak. The second prize was taken by C. E. Cuthell, Esq., who, it will be seen, was a very successful winner of prizes at this Show. His twenty-four was indeed a creditable box. In the twelves, for which three prizes were given, there was good competition. The palm was just snatched from Mr. Wollaston, who took second place, by Mr. Stone of Eastcote, Redhill, whose Roses throughout the Exhibition were very fine indeed. The third prize was carried off by Mr. E. Horne of Reigate, who came in an easy winner. Another successful exhibitor was Mr. Leopold Seymour of Brockham Park, who showed some fine blooms in the class for six distinct Roses. A. K. Williams in this box almost ran a dead heat for the best H.P. Rose in the Show with the La Rosière of Lady Mary Legge,

which actually carried off the medal of the National Rose Association. Mr. Parr's box of six were also worthy of mention.

The triplets at this Show were very strong in point of numbers and merit. Mr. Cheales, who showed his third in triangles, just won first honours by one point, Mr. E. Horne being well up for second place. The six Marie Baumans of Mr. Stone in the next class were almost perfect, and well deserved the gold medal awarded to them; while Messrs. Cuthell, Cheales, Horne, and Capt. Lang were well entitled to the honours they received.

The Tea Roses were, as they usually are at this Show, very good, both in the twelves and six class. A magnificent bloom of Jean Ducher in Mr. Cuthell's box carried off the silver medal for the best Tea in the Show, a fine bloom of Marie Van Houtte in Mr. Wollaston's box coming second. These two gentlemen took first and second places in the twelves class, while Mr. Leopold Seymour and Mr. Birket took similar honours in the six class; while the Hon. H. D. Rider took a first prize for a box of six for competitors who have been hitherto uncrowned.

It only remains to speak of the decorations, which were not well represented either in point of numbers or special merit. They consisted of dining and drawing-room devices, brace and buttonhole bouquets. The winners were Mrs. Benccke, Mrs. Mortimer, Miss Fuller, Mrs. Nicholls, Mrs. Cheales, and Mrs. Fowke. Miss Fuller showed much taste in her arrangement of a brace bouquet of Dipladenias and brown cut Japan Maple leaves, and in her buttonhole bouquets. The Committee and Judges were entertained at luncheon by the owner of Bury Hill (Mr. R. Barclay), and as the day was very fine a large number of visitors was present. The Committee are much to be congratulated on the success attending their Show.—A. B. A.

HITCHIN ROSE SHOW.

JULY 5TH.

WHEN Mr. Geo. Paul takes his A's to Hitchin and sends his B's to the great Show at Bath, it will be apparent that notwithstanding the concurrence of half a dozen other shows on the same day Hitchin was not the most despicable of trysting grounds. The perseverance of the Rev. F. H. Gall, whose quiet and kindly endeavours are always appreciated by exhibitors, was rewarded with a highly satisfactory show. Hitchin is always pleasant, and no grumbling is heard, as the unsuccessful exhibitor, whose temerity may have provoked a good thrashing for him, is unable to appreciate his defeat. This is largely owing to the simple, yet considerate, arrangements which are there carried out with a punctuality cheerfully concurred in by all. In the only open class for thirty-six blooms a good competition of six stands was secured. The two Hertfordshire houses of Messrs. Geo. Paul & Son of Cheshunt, and E. P. Francis & Co. of Hertford, being both at home, were on this occasion well-pitted antagonists. Messrs. Paul & Son were, however, in finest size, and being equally good in condition, were placed first, showing especially fine blooms of A. K. Williams, Comte de Raimbaud (of a similar type, and almost equally fine with its more recent but better known rival) also first-class flowers of Annie Laxton, Jean Sury, Comtesse d'Oxford, and Souvenir d'Auguste Rivière. Messrs. Francis & Co., who as lightland growers were remarkably strong, came in second, having A. K. Williams in most perfect form and colour; Prince Camille de Rohan, Georges Moreau, Devoniensis, Madame Marie Verdier, Emily Laxton, and Duc de Wellington were also prominent as clean and well-coloured flowers. Mr. John House of Peterborough (who on the same day was a large and highly successful competitor at Newark) was here a very good third, having amongst many others a fine bloom of Charles Darwin in his box. Mr. House also staged, but not for competition, an attractive stand of the pretty Noisette, William Allen Richardson, which cannot fail to become a favourite buttonhole Rose. In the open class of twenty-four blooms for amateurs Mr. J. L. Curtis of Charteris was first; the Rev. E. L. Fellowes of Wimpole Rectory, Royston, second; and the Rev. W. H. Jackson, Stagsden Vicarage, Bedford, third; all being very nearly matched in size and quality of blooms, but varying slightly in colour and freshness.

In the class for twenty-four blooms open to amateurs within twenty miles of Hitchin, Mr. Fellowes was first; Mr. Jackson, second; and the Rev. F. Jenyns, Knebworth, third. For twelve varieties Mr. Jackson was first and Mr. Fellowes second. In twelve Teas open to amateurs Mr. Jackson was again first, Mr. S. Tuke, second, and Mr. Curtis, third; and for six varieties Mr. Fellowes was prominently the winner, Mr. Jackson being second. Very good Roses were staged successfully by Mrs. Lucas and others in the local classes, and some tastefully arranged epergnes for dinner table were exhibited; in this class Mrs. Lucas being first, Mrs. Marlborough Pryor second, and Mrs. E. King of Madingley third. The Exhibition, on the whole, was a considerable advance on both predecessors, the competition being strong in most classes, although it is to be regretted only a select and limited company attended.—T. LAXTON, Bedford.

THREE SUBURBAN SHOWS.

THE great demand upon our space this week prevents us giving more than a brief outline of the following three Exhibitions, which were held in three widely separated districts, and equally well proved how admirably such local Shows are supported both by exhibitors and visitors.

WIMBLEDON.—JULY 4TH.

The eleventh annual Show of this Society was held in the beautiful grounds at Belvedere, Wimbledon, which were liberally placed at the disposal of the Society by A. Schlusser, Esq., the well-kept garden also being thrown open to the visitors. This proved almost as great an attraction as the Show itself, and numbers took advantage of the opportunity to enjoy the charming views obtainable from several portions of the garden. Two large marquees were occupied with the exhibits, plants being very well shown. Rose blooms also were a distinctive feature, and vegetables were fairly represented. The principal prizewinners for plants and groups were Messrs. G. Stevens, Putney; Bentley, Edgecombe Hall; Starr, Coombe Warren; Law, gardener to R. S. Dean, Esq., The Priory; Runnacles, gardener to Mrs. Schuster, Cannizaro; W. H. Cannon, Queen's Road; E. Collins, Pelham Road; and Smith, gardener to J. F. Schwann, Esq., Oakfield. In the Rose classes J. E.

Coleby, Esq., Rosenheim, and Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, were the principal exhibitors, both showing fine blooms. Fruit was not largely shown, Messrs. Davis, Starr, Alderman, Bentley, and Gibson taking the chief prizes. Four very handsome Melons not for competition were staged by Mr. Lyons, gardener to A. Schlusser, Esq., Belvedere, the chief varieties being Scarlet Premier and Hero of Lockinge.

Miscellaneous collections of plants were staged by Messrs. J. Lang and Co., Forest Hill; Jackson & Son, Kingston; J. Veitch & Son, and D. S. Thomson, Wimbledon.

TEDDINGTON.—JULY 4TH.

For twelve years the above pretty district has produced an annual Exhibition of more or less merit, that held on Wednesday last week being entitled to a position amongst the best in the annals of the Society. The grounds of Bushey Park Cottage, the residence of E. P. Watson, Esq., were devoted to the Exhibition, which was remarkably well attended during the afternoon, as the weather proved very fine. Two marquees were occupied with the exhibits, and, as is often the case at local suburban shows, the groups formed one of the chief features. In the chief class for these Messrs. Hooper & Co., Covent Garden, took the lead with a pretty arrangement, light and graceful yet bright and effective, comprising Palms, Ferns, &c., in due proportion, with Gloxinias, Begonias, Achimenes, and *Chrysanthemum frutescens* and a ground of *Adiantum*. Messrs. Fromow and Son, Chiswick, followed with a similar arrangement, and nearly as light and pleasing, though a little more crowded. Mr. Brown, Richmond, was third, the other prizes being gained by Messrs. Sutton, gardener to W. J. S. Sassoon, Esq., Walton; J. Gregory, gardener to J. F. Weymouth, Esq., Teddington; and Stephenson, gardener to J. Bull, Esq., Redholme, Teddington.

Pelargoniums, Coleuses, stove and greenhouse plants, Caladiums, fine-foliage, and Ferns were exhibited by Messrs. Bates, The Gardens, Poulett Lodge; Stephenson, Gregory, Coombs, Brown, Sallows, gardener to J. Flack, Esq., Twickenham; and W. Bond, gardener to Mrs. Evans, Beccholme, Teddington. Dinner-table decorations were fairly well represented, but several exhibitors had laid their tables for six instead of eight persons, and were consequently disqualified. In the fruit classes Mr. Bates gained several honours, Mr. Charney, gardener to W. Howard, Esq., Teddington, also taking prizes in some of the principal classes.

HIGHGATE.—JULY 5TH.

Most fortunately the weather proved extremely fine for this Show, and thus gave the Society an opportunity to regain a substantial financial position, which has not been the case at shows in recent years. The Baroness Burdett Coutts again generously placed her beautiful garden at Holly Lodge at the service of the Committee, the visitors being allowed to wander unrestricted through the whole of the garden and houses—an advantage that was evidently greatly appreciated by the visitors. A marquee of considerable size was filled with the exhibits in competition for the numerous prizes offered, and as in most cases the entries were numerous a fine display was produced, to which we cannot do justice in the limited space at our disposal. There was a number of classes for distinct plants or stands of plants, and though so many were of excellent quality, there was not a particularly strongly marked character observable. Zonal Pelargoniums, Caladiums, Begonias, Ferns, fine-foliage plants, stove and greenhouse plants, were all well shown, the chief prizetakers being Messrs. C. Shephard, gardener to Mrs. Horwood, South Grove, Highgate; Aldous, gardener to J. Heriot, Esq., Cholmely Park; J. Osborn, gardener to J. N. Mappin, Esq., Southgate House; J. Tong, gardener to J. S. Law, Esq., South Lodge, Southgate; Brooks, gardener to W. Reynolds, Esq., The Grove, Highgate; and G. Tubbs, gardener to Basil Wood Smith, Esq., Hampstead. Fruit was shown in small quantities, and vegetables also. Messrs. Cutbush & Son, Highgate, contributed a beautiful group of miscellaneous plants, a fine collection of variegated Ivies being very notable. Mr. B. S. Williams, Upper Holloway, also had a group of Orchids and choice stove and greenhouse plants that occupied a position near that from Messrs. Cutbush, and was equally attractive.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

No. 5.

THE Pea and the Bean are so nearly related to each other, and they are so frequently visited by the same insects, that the two may well be brought together in this series of articles. Probably, taking one year with another, the Pea, of the two, is the greater sufferer through insect attacks. Some of the insects that infest these plants are also found upon the Clover and allied species. It may be considered that about the worst enemies the cultivator of Peas has to contend with are certain beetles in the genus *Sitona*, for they direct their attacks upon the plants while these are yet young and tender, although they also occur later upon well-grown plants if they are not looked after, but then the injury is less perceptible. Several of these species are remarkably active amongst our leguminous crops from March to May, beginning business when there are the first intimations of approaching spring, and persevering until they have deposited their eggs. These, however, are not laid upon either the Pea or Bean, and the history of the grubs that produce these beetles remains yet to be discovered. It is possible they are subterranean in habit; and there emerges after, during the summer, a second brood at a variable period; but the attacks of this brood upon the plants are less important, because in that season they suffer comparatively slight injury. It is the survivors of a summer or autumn brood that trouble us in the earlier months, they having lived through the winter hidden in odd nooks and crevices, perhaps under the earth.

Specimens have been seen out on the wing upon mild days before they commence feeding, taking, apparently, a little healthy exercise. Could we hunt up and destroy these lurkers of the winter the species might be greatly reduced in numbers, but they are seldom observed save by chance.

Sitona lineata, the striped Pea weevil (fig. 9), called in the north the "cuddy," from its supposed resemblance, in miniature, to the patient ass (a name that has been brought southward by the Scotch gardeners), is the commonest species, and larger than *S. crinita*, which often occurs in its company. Both are greyish, with red horns and legs. *S. lineata* is the darker of the two. Along the wing cases in this species are ten punctured stripes; but *S. crinita*, instead of these, has blackish spots. The markings are caused by scales, and are best seen when the insects are fresh out; subsequently they present a mongrel appearance, owing to the scales being rubbed off. Their bites are made all round the leaves, and they, if left undisturbed, persevere till only the stalks are left where they have congregated. At night they leave the Peas and conceal themselves until daylight; yet though they feed during the day it is not easy to catch them in the act, as a voice or a heavy footfall sends them dropping to the ground, assuming the appearance of being lifeless. Some have tried the expedient of pressing the ground, so that the insects cannot enter it after dark, but this plan seems of small utility and hurtful to the growing Peas. A good dressing of lime and soot, the plants being previously wetted, makes them very unpalatable to the beetles, and this plan has been commended by many. Several gardeners have stated that they have



Fig. 9.—*Sitona lineata*.



Fig. 10.—*Bruchus granarius*.

escaped trouble from these insects by using turf or wood ashes when sowing. With Beans, as with Peas, it has been found that a crop which is growing slowly is much more liable to attacks than one in a vigorous and healthy condition. It is also bad to grow Peas season after season on the same spot. Taking advantage of the fact that the beetles seek the ground at night, some have applied to the soil round the Peas sand wetted with paraffin, or dressed it with diluted gas lime, so making them have an unpleasant or fatal journey back to their food plants in the morning. A correspondent of this Journal has informed us that he detected one of the species of *Sitona* in the act of attacking Peas that were sown in spring before they had germinated, but this is, I think, a rather unusual occurrence.

There are other beetles in the weevil group that prove injurious to Beans and Peas, and their speciality is the seed pods, hence the cook as well as the gardener frequently makes their acquaintance; for although other grubs may now and then be found, it is mostly the grub of a *Bruchus* that annoys the sheller of Peas by wriggling out of a proportion of the pods. *Bruchus pisi* is a little creature, about the same size as the small examples of the genus *Sitona*—that is, a sixth of an inch in length, of brown colour, with very fine serrated horns, and the wedge-shaped beak characteristic of many weevils. The wing-cases do not quite cover the body, so that a portion of the abdomen is exposed. For the perfect beetles, however, it is no good to search, though they occur upon flowers in spring before they resort to the Pea crops. Their eggs are laid upon the young pods, but one usually upon each that is visited. The young grubs pierce in and thrive on the contents, appearing as fat little creatures with black heads. So attached are they to the pods that they turn to chrysalids in them, burying themselves in a seed, so that they often escape notice when the Peas are gathered for seeds, and the sowing thereafter may be partly of beetles *in futuro*. But a proper examination will detect those Peas that are harbouring the pest, and all infected should be burnt, for if they are simply thrown away or buried the insects will afterwards come out. Spring is the season when they quit the chrysalis. There seems to be but one brood yearly. It is

doubtful whether there is any mode of dealing with this beetle by way of prevention. Small birds are believed to feed upon them, and toads.

The bean weevil is another in the genus *Bruchus*, rather less in size, and it has a greyish look until we examine one with a magnifier, and then we perceive it has wing-cases that are black, freckled thickly with white spots. This species (fig. 10), (*B. granarius* or *seminarius*), does not confine itself to the plants of the Leguminous order, but it also visits places where the cereals are stored, sometimes doing very considerable damage. In our gardens we observe this species is more partial to the Bean than to the Pea, and it is a curious fact that seeds containing the insects are not deprived of their power to sprout, therefore autumn-sown crops of Beans are more likely to show the effects of the pest, because its presence in the seed is not so easily seen then as in the spring. Of course such plants rarely fail to die off, their vitality being impaired by the destruction of the greater part of that substance in the seed which supplies the first nutriment to the germ. There is, however, a tiny circle cut by the grub, just within the husk, in preparation for its emergence as beetle; and in a close survey we may see that portion of an infected Bean is duller, and a trifle transparent in autumn. When the insect is ready to appear a bit falls like a lid, leaving a hole.

The beetles quit the seeds from February until May, in readiness for the season enabling them to deposit eggs upon the Bean pods. It is not uncommon to find several of the grubs lodged in a single pod, but Mr. Wood concludes that many of the eggs fail to hatch, perhaps because they are attacked by some minute insect parasite. No plan has been suggested for warding off the beetles, which would, indeed, be difficult, even if the Beans were constantly watched; but at the time of gathering for storage the seeds (so some advise) may be dipped into hot water slightly under the boiling point, and if they are removed in about a minute it is said their germination is not interfered with, though the immature beetles will be destroyed. Probably neither of these *Bruchi* are natives of Britain.—ENTOMOLOGIST.

ROYAL HORTICULTURAL SOCIETY.

JULY 10TH.

HARDY flowers were the great feature of this meeting, and together with the collections of plants from Chiswick a pretty display was formed in the conservatory.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. There were also present Messrs. Phillips, Crawley, J. Bunyard, A. W. Sutton, F. Rutland, and R. D. Blackmore. Mr. A. Faulkner, Inkpen, Hungerford, sent a dish of a fine seedling Raspberry, the fruits large and of good colour. Mr. Ernest Whitehouse, Kidderminster, sent a dish of a seedling Strawberry, some being large, flat, and dark in colour. Mr. Fitt, The Gardens, Cashiobury, Herts, also showed a seedling Strawberry, flat, large, over 2 inches in diameter, and remarkably dark red, nearly black. It was of poor flavour, and was thought to be *Empress Eugénie*. A cultural commendation was awarded to Mr. W. Carmichael, gardener to J. H. Porteus Oakes, Esq., Bury St. Edmunds, for six handsome fruits of *Bellegarde* Peaches, richly coloured and of good size. Mr. Carmichael also sent a fine fruit of a new Melon named *Captain Larks*, weighing 7 lbs., and of excellent flavour, the flesh being remarkably deep. New Melons were also sent by Mr. C. Herrin, Chalfont Park, Gerrard's Cross; Mr. Gilbert, Burghley; and Messrs. R. Veitch & Son, Exeter. A vote of thanks was awarded to Mr. Bloxham, The Gardens, Brickhill Manor, Bucks, for good close samples of Veitch's Superb White Cos Lettuce. Messrs. Veitch & Son, Chelsea, exhibited a large collection of Cabbage Lettuces, for which a vote of thanks was accorded.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. There were also present Messrs. T. Moore, J. Laing, W. Bealby, H. Bennett, James McIntosh, John Wills, J. James, J. Dominy, H. Ebbage, M. T. Masters, H. Cannell, H. Turner, and J. Fraser. Mr. T. S. Ware, Hale Farm, Tottenham, exhibited a magnificent collection of hardy flowers, forming by far the most important feature of the meeting. A great number of choice species and varieties were represented, *Gladiolus*, *Lilies*, *Carnations*, and single *Dahlias* being amongst the most notable. Fine clusters of *Spiræa aruncus*, with *Lilium candidum*, *L. colchicum*, and *L. auratum*, formed the background, the *Gladiolus*, *Antirrhinum*, *Veronica spicata*, *Campanula glomerata*, *Polemonium Richardsoni*, *Geum coccineum*, *Alstromeria aurea*, *Carnations*, *Pinks*, *Campanula persicifolia*, *Armerias*, *Stenactis speciosa*, *Pentstemons*, *Galega officinalis alba*, and innumerable others being arranged in front. Messrs. H. Cannell & Sons, Swanley, staged a handsome collection of *Delphinium* blooms, with *Campanula persicifolia coronata alba*, *Petunia Beautiful Star*, a striped form; *Pelargoniums*, *Lobelias*, and *Oenothera speciosa*. Mr. Vicary, gardener to J. T. Peacock, Esq., Sudbury House, Hammersmith, was awarded a vote of thanks for a collection of *Odontoglossum vexillarium* var. *Klabochorum*, which has small but deeply coloured flowers.

Messrs. Veitch & Sons, Chelsea, showed several new plants and a fine collection of varieties of *Iris Kämpferi*, for which a vote of thanks was accorded. Votes of thanks were accorded for plants of the fine *Lilium auratum platyphyllum* and *virginale*, the white and free *Escallonia Phillipiana*, and a neat double Stock—*White Gem*. A vote of thanks was accorded to Mr. J. Aldous, Gloucester Road, South Kensington, for a large bouquet

of *Lilies* nearly 2 feet in diameter. A vote of thanks was accorded to Mr. Noble of Bagshot for a beautiful group of *Spiræa palmata*, the trusses of rich rosy-coloured flowers being very large. A vote was also accorded for a flower of *Rose Duchess of Connaught*, a rich scarlet variety. A cultural commendation was adjudged to Messrs. Hugh Low & Co., Clapton, for a strong plant of *Grammatophyllum Ellisi* with a spike of thirty-two flowers. A vote of thanks was accorded to G. F. Wilson, Esq., Weybridge, for a grand spike of *Lilium giganteum* with sixteen flowers and flowers of *Iris Kämpferi*. Mr. W. Bealby, The Laurels, Roehampton Park, Putney, sent several fine double *Tuberous Begonias*—one, *Rosamonde*, with enormous globular rosy flowers nearly 4 inches in diameter; *Agnes Sorel*, pale pink, also full; and *Goliath*, scarlet, wonderfully fine. Handsome collections of *Achimenes*, *Tuberous Begonias*, and *Sweet Peas* were contributed from the Society's gardens.

First-class certificates were awarded for the following plants:—

Cattleya superba splendens (Mr. Ebbage, gardener to J. S. Bockett, Esq., Stamford Hill).—A most richly coloured variety, the sepals and petals warm purplish crimson, the lip intensely deep magenta.

Notospartium Carmichaelia (Veitch).—A hardy shrub from New Zealand of Rush-like aspect, the pinkish pea-like flowers being borne in small dense racemes near the apex of the leafless branches.

Oncidium nigratum (Veitch).—A very distinct species from British Guiana, with small flowers in a long compound raceme. The petals and sepals are narrow undulated, white, blotched with dark chocolate, the lip being triangular, yellow spotted with brown.

Davallia brachycarpa (Veitch).—An elegant Fern with fronds 2 feet long, 8 to 9 inches broad, graceful and feathery, tripinnate, the pinnæ and pinnules in the fertile fronds being very narrow, giving a feathery appearance to the frond.

Lilium Szovitzianum pallidum (Wilson).—A variety distinguished from the type by the pale delicate lemon-yellow colour of the flowers.

Begonia Goliath (Bealby).—An enormous double scarlet variety, the flowers globular and 4 inches in diameter.

Lilium Bloomerianum ocellatum (Ware).—A distinct and beautiful Lily, the leaves in close whorls, lanceolate, tapering; the flowers in terminal racemes, pendulous; the petals revolute, orange yellow ground, with numerous reddish brown blotches.

Milla biflora (Ware).—A novel form with two flowers on a scape, the divisions of the corolla elliptical, narrow, and white and spreading. The flowers are about 2 inches in diameter.

Lobelia speciosa Prima Donna (Carter).—One of the most distinct *Lobelias* that have yet been obtained. It is of dwarf habit, very free, the flowering being of a rich reddish-crimson colour, with a white dot in the centre.

Nemophila atomaria atro-cerulea (Carter).—Distinguished by the deep ultramarine blue of the flower. Much darker and richer than any others.

Lobelia Swanley Blue (Cannell).—A charming variety, the flowers exceedingly large, very bright blue with a white eye; the plants dwarf, compact, and remarkably floriferous.

Pelargonium Abel Carrière (Cannell).—One of the Ivy-leaved section, with fine trusses of glowing rosy double flowers.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Pinus pinea, with "primordial" foliage on adult shoots.—Dr. M. T. Masters exhibited specimens showing the above conditions, and remarked that the young foliage was glaucous, provided with many stomata all over their surface instead of in lines.

Dimorphic Foliage of Juniperus and Retinospora.—The small adnate leaves are borne on the quick-growing terminal shoots. The broad free leaves do not occur on the leader shoots, and when the plant is variegated these free leaves (on the stem with arrested growth) are much more variegated than they are on the quick-growing leader shoot.

Rhododendron Maddenii.—Mr. Mangles showed a spray of this species with white, tubular, Lily-like flowers, which had been grown all through the winter under a canvas roof, proving it to be possessed of considerable hardiness.

Photographs of Mexican Scenery.—Mr. W. G. Smith exhibited three beautifully executed photographs, showing gigantic specimens of *Cereus*, having straight erect stems 35 feet in height. They were taken by Herbert Green, Esq., in the desert of Arizona. Mr. Loder reminded the Committee that Dr. Bell was the first to photograph these plants in 1867.

Phylloxera.—Mr. MacLachlan said that he had received specimens of Vines from houses in Accrington infested with this insect, and in reply to inquiries remarked that he believed it had not been discovered on any plants growing in the open air in this country. He recommended bisulphide of carbon or complete destruction by burning.

Plants Exhibited.—Mr. Loder brought the following plants:—*Eriogonum umbellatum* from the Rocky Mountains, *Morina longifolia* from the Himalayas, *Arnebia Griffithii* and *A. echioides*, plants with yellow flowers and a dark spot on each petal. This gradually disappears with age. Mr. Henslow inquired if it had been noticed whether this was the result of pollination, as the golden spot on the labellum of *Oncidium Roezlii* fades away in a few hours after artificial pollination. *Ligularia* sp., a tall Composite with spike of yellow flowers and cordate leaves; *Oxytropis Halleri* (?), *Campanula Hendersoni* (hyb.), *Papaver* sp. with orange petals (*crocea* ?), *Erigeron Roezlii* (?). These latter were referred to Kew for identification. *Masdevallia Carderi* and *Phalænopsis maculata*, two new species, were shown by Mr. Veitch.

Meconopsis sp.—Mr. G. F. Wilson showed a blossom with dark-coloured petals: the species was uncertain.

Puccinia arundinacea.—Mr. Plowright of Lynn sent leaves of *Rhubarb* artificially infected with this fungus, and which had given rise to well-defined patches of *æcidium*. He remarks that hitherto the *Rhubarb æcidium* had been thought to be due to *P. Magnusiana*, but this latter failed to produce any *æcidium*. He also sent leaves of *Medlar* infested with a *Pœstelia* (?) apparently not hitherto recorded in Britain. Its spores are smaller than those of *R. cornuta*, *penicillata*, or *lacerata*. He also sent specimens of *Puccinia poaxum* on *Poa trivialis*, showing its generic appearance in circles, as well as its *æcidiospores* on *Tussilago Farfara*.

Fasciated Pine Apple.—Mr. Nicholas, gardener to Earl Fortescue, sent a curious specimen of fasciation. The Pine Apple weighed 9½ lbs., and had about thirty small crowns at the summit.

Proliferous Double Begonias.—Mr. Laing exhibited several specimens of scarlet Begonias in a more or less proliferous state.



HARDY FRUIT GARDEN.

Young Trees—Training.—The midsummer growth is now advancing with even greater vigour than that of spring. No cold north-east winds now prevail. Clean, healthy, and robust as this second growth is, therefore, let us see that it is turned to best account by training it to the required form, and nipping it wherever it is necessary to induce lateral growth for the formation of spurs or to obtain enough shoots to fill vacancies. Rigid training is not often desirable; rather aim to secure clean straight growth with all the leading shoots of branch or stem pointing upwards, or at a sufficiently acute angle to maintain an equal freedom of growth in every part of the tree, and gradually impart the required form as the growth gains age and strength. Tie loosely but securely; never suffer swelling growth to be string-bound; never suffer the stem to rock in the soil, nor branches to chafe against supports and make unsightly bark wounds. All these apparent trifles tell in the end, and close attention to them is absolutely necessary in the rearing and development of a handsome healthy fruit tree.

Watering.—We have reason to fear that the object of watering fruit trees is not generally understood. Not merely to promote growth and aid the swelling fruit is it necessary, but also to assist the entire economy of the tree, the formation and perfect development of fruit buds, the free and regular action of the sap, the full expansion of blossom, the setting of fruit, and, above all, the prompt growth of the fruit as soon as it is set. Were this as well done as it ought to be we should no longer hear of premature fruit-shedding. Soil differs greatly, a cool alluvial deposit needs far less water than a thin warm sandy soil. Let, then, the fruit-grower become thoroughly acquainted with the nature and condition of the peculiar soil he has to treat, and adopt his measures accordingly.

Mulching.—As supplementary to watering the importance of mulching can hardly be overrated. It checks evaporation, keeps the soil moist in the most parching weather, and enables the tree to derive full benefit from watering. It promotes a free quick root-action, helps to insure abundant and regular crops of fruit, and exercises a beneficent action upon the general health of the trees. Our favourite mulching is the mixture of half-decayed leaves and stable dung which an old hotbed affords. We regularly apply this every year, not only to fruit trees but also to Raspberries and all bush fruit. The mention of this reminds us that another important effect of mulching is to attract the roots to the surface and to afford a supply of rich food, which the rootlets may now be seen laying hold of in every direction.

Strawberries—Making the Beds.—Well drain the soil, trench and thoroughly enrich it with manure. If it be at all of a close adhesive nature without many stones, and is liable to settle into an inert hard mass, cover the surface with 6 inches of coal ashes, or even more if you can procure them, before trenching, so as to mix the ashes with the soil as you proceed, and thus render it sufficiently porous to allow surface water to pass freely through it to the drains.

Planting.—The runners layered as was explained a fortnight ago are rooting freely, and will soon be ready for planting. Not a day should be then lost, because early planting in July insures a moderate crop of fine and early fruit next year. Plant 1 foot apart every way in view of securing a double quantity of fruit next year, and with the intention of removing each alternate row immediately after fruiting is over next year, so as to leave the permanent rows 2 feet apart. In districts where the rainfall is heavy it is desirable to go even further and remove every alternate plant in the permanent rows so that the plants may in the second year be 2 feet apart every way, and thus not only be more open to light and air on all sides, but that the fruit may all be raised from contact with soil, grass, or straw, and thus be kept from premature decay.

PLANT HOUSES.

Cypripedium insigne.—Plants started in a little heat early in the year to make their growth should now be placed in a cool house. A cool vinery is a good place for them if the roof is not too densely covered with foliage. They should remain under cool treatment until their flower sheaths are visible, when a little heat is again beneficial. An abundant supply of water is necessary. If root-bound weak stimulants given every alternate watering are beneficial.

Cyperus lawus variegatus.—Where dwarf plants in 2-inch pots are used for furnishing purposes this is a capital plant. Its striped variegated grass-like foliage renders it very attractive when associated with Ferns and other dwarf plants. It is easy and readily propagated by taking off the creeping side shoots, which are produced plentifully from strong plants, and which form roots from every joint. No handlights or frame are necessary in which to root the cuttings after insertion, as they

do equally well in any warm shaded place. Do not grow this plant in too much heat, or its foliage assumes a greenish hue and much of the plant's beauty is gone.

Fittonias.—Few plants are more useful for furnishing purposes than these, and they are easily propagated and grown, and very few dwarf plants where foliage is appreciated can be used to greater advantage. Where baskets, oval or other shaped, have to be filled with plants, Fittonias amongst Lycopodium and small Ferns for an edging have a charming effect. They can be established in small pots, pans, or boxes, and lifted out when required. When grown in the latter a number should be lifted out ten days or a fortnight before they are required for use, and a little moss tied round each ball of soil, so as to allow them time to become established in it, which answers equally as well as growing them in pots.

Imantophyllum miniatum.—This and its varieties are amongst the most serviceable plants for forcing during winter and spring. Large plants are noble when profusely flowered, but for decoration those in 6 and 7-inch pots are the most useful. Those required for early flowering and have been assisted by heat to make their growth must now be placed under cool treatment; the greenhouse or a cool frame is the place for them, the latter being preferable, as the lights could be thrown off frequently. When they remain in heat after their growth is completed they are very liable to be started, and in consequence push up their flowers. Give abundance of water, or the foliage will soon present a sickly appearance, and occasionally clear soot water, which quickly imparts a fine dark hue to their foliage.

Roses.—Hybrid Perpetuals that have been used for forcing purposes, and have been well hardened and stood outside after the completion of their growth, should have their pots plunged in a sunny position. Feeding should not be discontinued now the plants have done blooming, but should be persisted in, and the benefit of this practice will be seen next forcing season in the size and quality of their blooms. The foliage must be kept in a healthy condition by frequent syringing, which will, if thoroughly done, keep them free from red spider. If mildew attacks them syringe at once with softsoap water mixed as previously advised, and in which a little sulphur has been mixed.

Tea varieties that are planted out under glass require much attention at this season of the year to keep them free from spider. Thorough syringing twice daily during fine weather with water in which softsoap has been mixed is the only means of keeping them clean. Abundance of water will also be needed at their roots, or else they will soon become a prey to mildew. Those required for flowering during the winter and spring should have all flower buds removed as they appear from this date, and air should be admitted abundantly day and night. Those in pots required for flowering in the autumn should be stood outside, and if the plants are cramped in their pots for root room place them into a larger size without delay. They will become thoroughly established in these, and if flower buds are removed as they appear, and the wants of these plants properly attended to, some valuable flowers will be the result after those in beds and borders are cut off by frost.

Young plants from cuttings rooted in spring should now be in 6-inch pots, and be grown on under glass. Remove flower buds as soon as they can be seen, and strong shoots that spring from the base should be pinched when they are 6 or 7 inches high. This will be the means of inducing others to spring from the base, or, failing this, the shoots operated upon will branch freely, and compact little bushes that will flower profusely in autumn and winter will be secured.

FLOWER GARDEN AND PLEASURE GROUND.

Wallflowers and Sweet Williams.—Those sown for early blooming next spring are now in rough leaf, and if under glass should be gradually exposed and hardened off preparatory to pricking out. Sow more seed for later blooming, and in boxes recently used for the bedding plants in preference to risking the seeds in an open border. Sow thinly, protect from heavy rains, and shade from bright sunshine. This, in addition to the ordinary bedding Wallflowers, also applies to the large-flowering double German Wallflowers. Cuttings of double Wallflowers may be struck under handlights or a north wall, as advised for Pinks, and cuttings of Alyssum saxatile will root similarly to the Wallflowers.

Pelargoniums and other Bedding Plants.—The recent showery weather has been of service in establishing the late-planted batches of these, and in the case of Pelargoniums at least no further waterings will be required this season. If not already done the surface of all the beds should be well stirred with a small flat hoe and then be levelled down with a rake. This will destroy all the young weeds, and prevent cracking and undue evaporation of the moisture. A mulching of cocoa-nut fibre refuse or of grass from the mowing machine will also prove beneficial should we experience much hot weather. Pelargoniums where planted in masses or where very thin will cover the ground more evenly, and are also more effective when pegged down. Strong pegs may be cut from faggot wood or from the common-Bracken. We save all the winter thinnings of young growth from standard and large bush-trained Apple trees, and these are bent round the growths of plants to be trained, and the two ends thrust into the ground. Verbenas, Gazanias, Ivyleaf Pelargoniums, Alyssum, Iresines, and Heliotropes where disposed in the front rows, Gnaphalium, Phlox Drummondii, Petunias, and Cineraria maritima, should all be regulated and pegged down till they have covered their allotted spaces. Calceolarias if not planted uprightly can also be pegged down, but in every case everything depends upon the positions assigned to each. The bloom should be kept pinched off weakly plants of all

kinds, or they will make poor progress. Slugs where troublesome may be checked by nightly dustings of soot and slaked lime, or they may be trapped with Cabbage leaves. Wire netting only will keep off rabbits and hares, and this if unsightly may as a rule be taken up in the daytime.

Carpet Beds.—The Sedums and Pyrethrums in particular are growing rapidly and require frequent attention. The flowers are usually trimmed off the former, and it is kept in its place with the hand shears. If allowed to unduly extend, Sedums most injuriously affect the growth of any plants near. Pyrethrums, especially where employed for dividing purposes, should be kept closely pinched or plucked into shape, and on the first appearance of the flower stems these should be pinched hard back. When plucking only about half the leaves should be taken, the aim being to secure a fine line of yellow without the stalks being unsightly. Alternantheras ought to be pegged down, or if only too tall should be pinched back; Mesembryanthemums to be regulated and pegged down and have the seedpods pinched off. Cannell's Dwarf Ageratum is very effective and requires but little attention. Iresine Herbstii to be pegged down, and if growing too coarsely to have some of the roots severed on each side with an old knife. All blooms to be kept pinched off the Echeverias, as carpet beds are failures unless neat and regular. Mentha and other groundwork plants where too strong should be thinned out and well flattened with the hand. This pressing will also tend to establish and spread such plants where too thin.

Budding Roses.—When the young reserved growths on the Briars are sufficiently matured so as to admit of the bark opening or running freely, budding may safely be performed. If delayed later the bark may cling to the wood, especially if the weather be dry, and a difficulty may also be experienced in separating the buds from the Rose shoots. Those budded early frequently form strong growths the same season; but as a rule these do not equal those growths resulting from buds which have lain dormant till the spring. Much of our budding was performed late last season, and from the dormant buds we have secured exceptionally strong heads this season. In dry hot weather it is advisable to water the Briars a time or two prior to budding, and to shade the inserted buds with Cabbage leaves for about a week. Excellent directions, more especially with regard to budding dwarf stocks, are to be found on page 493 of the last volume of this Journal, and it only remains to be added that the buds in the case of tall Briars should be inserted in the young growths as near the main stem as possible, to which they then eventually become strongly united.

Selection of Roses for Present Budding.—The prize blooms we see at the shows are principally obtained from the first growth from the bud, or maidens. Those beginners who are ambitious to compete should be contented with a limited selection of varieties, budding annually a considerable number of Briars with each, the aim being to have a number to choose from. In any case it is a mistake to increase the stock of second-rate varieties, seeing how cheaply buds of superior varieties can be bought. No collection should fail to include Duke of Edinburgh, John Hopper, Mons. E. Y. Teas, Marie Baumann, Charles Lefebvre, Maurice Bernardin, A. K. Williams, Etienne Levet, Alfred Colomb, Dupuy Jamain, Hippolyte Jamain, Charles Darwin, Annie Laxton, Centifolia rosea, Capitaine Christy, Comtesse de Chabrilant, Duke of Connaught, Duke of Wellington, François Michelin, Général Jacqueminot, J. S. Mill, La France, Mabel Morrison, Madame Gabriel Luizet, Marquise de Castellane, Mrs. Baker, Prince Arthur, Sénateur Vaisse, and Sultan of Zanzibar.

THE BEE-KEEPER.

SUPERING.

(Continued from page 17.)

MANY beginners in bee-keeping fail to get their supers entered through not putting them on at the right moment. Either they are too precipitate or too tardy in applying them. If the super be put on too soon it often defeats the object in view, for it gives space into which the hot air from the hive can rise, and by lowering the temperature below causes the bees to cluster closer over the brood; and should showery weather approach, the likelihood is that the bees will either not mount into the super at all, or use it as a place to hang idle in, as heaps of brood hatch out and make every preparation to swarm at the first opportunity. Again, if the super be put on too late, the chances are that the bees have already started queen cells, and after clustering in the super for a few hours, or a day or two, they swarm, and give the novice bee-keeper much trouble in finding and excising royal cells and returning the swarm, should he determine on getting honey in preference to an increase of stock. The conditions under which a super may be put on, with the greatest number of chances in favour of getting it entered at once and successfully worked out, are, first, a plentiful flow of honey from natural sources; secondly, warm genial weather, which will generally accompany the former; thirdly, such a mass of bees in the hive as to cause evident want of extra room.

When bees crowd out on the floor-board or over the outside of the hive they are generally in a state to build comb. We

speaking of bees idling under such conditions, but we have often thought that they are in such a state that they cannot work, so far as to the in-gathering of honey, pollen, and water. The food they take, subjected to the high temperature of the hive, is rapidly converted into wax, and they are so overburdened with this secretion that they cannot fly far and wide. We noticed a few days ago that the large floor-board over which a huge cluster of bees had been hanging round a straw skep was covered with minute sparkling flakes of wax, which glittered like mica. We collected a quantity of these flakes, and also examined several bees from the heap, all of which had scales of wax exuding from the segments of the abdomen. These bees, according to our own ideas, could not work in the fields, whereas natural conditions were all in a ripe state for comb-building. Yet the cottager to whom the bees belonged was losing the valuable opportunity. They have neither built super combs nor swarmed, for during the last few days unsettled weather has drawn them into the hive again; the golden opportunity has passed (at least for the present), and their owner has neither surplus honey nor additional stock.

There are many ways of getting bees to enter supers when enticement is required to supplement natural conditions. A few pieces of fresh clean comb with a little honey in them will cause the bees to mount eagerly into the super; and, once there, they will be induced to commence operations instead of contenting themselves with carrying the honey down below. When putting on supers to bar-frame hives we extract as much honey as possible from the surroundings of the brood-nest. The bees at once set to work to repair the dilapidations, and by cleaning out the cells swallow much honey, which is rapidly converted into wax, and the foundation guides at once offer in the supers a suitable place on which to work and use up the newly-formed wax. When placing supers on skeps (all natural conditions as above mentioned being present) we have taken off the caps from as much stored honey as we could get at with a thin sharp knife, and this has had the same result as in the case of extracting from the frames in the modern hives.

When bees first enter supers and a sudden change in the weather brings wet and cold, unless supers are intended for exhibition, and therefore subject to rules as to the mode of filling, we have kept the bees at work on the combs by the application of a little syrup in a feeder placed over the super, giving access to the syrup only through three pin-holes. This has been employed in comb-building, and on more than one occasion tided us over two or three days, during which the bees would have certainly retired below. We have always found it difficult to get bees to re-enter a super having once deserted it. We would use a word of caution as to the syrup dodge of retaining bees in a super. The smallest quantity should be given at a time, or some might be stored, and the supply stopped at once when the return of warmth and sunshine renews the natural flow of honey. We have again sometimes drummed bees up from a skep into a super, and succeeded in retaining them there. Above all let two things be borne in mind—natural conditions, as stated above, must be present when the super is placed over the hive, and once the bees are in it, it must be kept as warm as possible. Glass, to our mind, should be avoided; bees show a decided disinclination to accept it, and its cold nature is in every way detrimental to comb-building.—P. H. P.

STRAW STEWARTON HIVE.

YOUR correspondent, "A Novice," does not quite understand the description given of the straw Stewarton hive, and seeks answers to the following questions:—

1. What is the width and depth of the rims? Hive-rim and super are all 15 inches wide inside. The rim is $1\frac{1}{2}$ inch deep, the straw sewed to the rim 12 inches, and the super $3\frac{3}{4}$ deep.

2. Are the rims grooved for the first roll of straw? No; they are bent and made like riddle rims, about three-eighths of an inch thick, pierced with holes an inch apart for cane-stitching. The bars are let into the rims just level with their tops, or, in other words, to the depth of the thickness of the bars, but quite across the edges to the outside of the bars.

3. Should the straw lid be flat on the bars or raised in the centre, so that the bees can walk over the bars? My lids are slightly rounded, though they were ordered to be made flat.

4. Are the bees sure to build on the bars? Twenty of these hives have been filled here with swarms, and in no one instance have we found the bars disregarded, or the combs built from the crown-lids, or any attempt made to cross the bars. In this respect all has gone well so far.

As the supers are of equal width with the rims and hives, and made to fit both top and bottom of the hive, it is easy to use a super for feeding purposes by slipping it in either above or below the hives. If used above a dish of syrup could be placed on the bars, and if used below the dish should be placed on the floor board. The Stewarton hives offer many facilities in bee-management, especially in supering. We like

them very much, but our carpenter declined to bar the hive and super at 6d. each, or rather undertake to do a second lot at that price.—A. PETTIGREW.

BRITISH BEE-KEEPERS' ASSOCIATION SHOW.

THE Show, which was held in the Duke of Wellington's Riding School from Thursday to Monday last inclusive, was the ninth Exhibition of bees and bee-keeping appliances which the central Association has conducted since 1874. The Committee is to be congratulated on the success which, since the first great meeting at the Crystal Palace, has attended their efforts to teach, through the length and breadth of the land, the more humane and more remunerative system of bee-keeping. The present season has been most favourable to bee keepers generally, and a beautiful display of honey, both in the comb and in glass jars, covered the tables in the building. The exhibits of hives and appliances was unusually good. We are pleased to see that hive-makers begin to recognise the fact that the more simple the construction of the hive, combined with facilities for easy manipulation, the more popular the hive will become. We will notice some of the leading features of the Show, beginning with the exhibits of honey, for the aim of all bee-keepers must be—whatever the hive used, whatever the appliances at their command—to make a harvest of surplus honey.

The specimens of honey in sections closely approached the standard of perfection, and the golden stores in other supers were most beautiful to look at. Our opinion, however, is that the time is past when prizes should be given for large glass supers. So long as the super is to serve as a mere ornament so long only is it of any utility. But the first plunge of the knife into its lovely contents can only render it a messy object. However, we suppose that many visitors like to see their crystal palaces of honey, and Mr. W. Woodley's bellglass, with its regularly worked combs and 48½ lbs. weight of well-coloured honey, well deserved to take first prize of the three allotted to the best glass super of honey. In Class 16, "for the best super of honey not being sectional supers," Mr. H. S. Heath's by far surpassed all other exhibits. He had judiciously used glass dividers, and more regularly built combs were never put on an exhibition table. These splendid slabs of comb were perfectly sealed throughout with the whitest of capping, and the cells filled with that peculiarly coloured nectar which tells of the proximity to the hives of an abundance of fruit blossom, particularly of the mellifluous Raspberry. This honey has rather a dark appearance in the mass, but no other kind can excel it in aromatic flavour. We believe that we are right in stating that this splendid super was filled by a swarm of the current year, and in fourteen days, the swarm weighing 10 lbs. As we have never yet had a swarm of such weight, nor known of any friend hiving the same, we should rather think that two swarms leaving their hives simultaneously had gone into partnership, and driven such a thriving business; but Mr. Heath may not have been aware of this fact if it did occur. The weight of this super was 35 lbs. In this same class, Nos. 90 and 88, to which were awarded second and third prizes respectively, were both good specimens of their kind.

Class 18 was for twenty-four sections of comb honey, each to hold 2 lbs. Mr. A. Rusbridge's group of twenty-four sections was all that could be desired as to regularity of building, finished sealing, and purity of taste and colour. A more beautiful display of sectional supers never competed for a prize, and the first prize was easily gained by them. They were also displayed to the very best advantage in a beautifully arranged show frame, and the combination was a picture of the highest finish to a bee-keeper's eyes. The palm was likewise borne off by the same competitor in Class 19 with twenty-four 1 lb. sections of equally superior finish. In this class the group of 1 lb. supers entered by the Cray Valley bee-farm proprietors, deservedly carried away the second prize; they were very neatly put up for the show table, and were an excellent example of what can be done by English bee-farmers. We need not fear American competition when such an article in such a taking form is placed before the public. No. 110 of this class, to which went the third prize, was a collection of supers sent by R. W. Davies, all well finished and taken off in the nick of time, thus preserving their snowy purity, yet having every cell well covered in. In Class 20, for a dozen 1 lb. sections, Mr. Rusbridge again carried all before him, followed by Miss Gayton with some nicely sealed combs neatly embellished with pink paper. Mr. W. Woodley obtained third prize.

Class 21 contained some chaste exhibits, and from the numerous entries the judgment of those who awarded the prizes must have been sorely tried to determine which was more deserving than its fellow. Mr. Rusbridge was, however, again in the van. Classes 22 to 25 were for run or extracted honey, and the competition was keen. The number of exhibits in these four classes were as many as forty, and again the Judges had hard work before them. The purity of the honey as to colour and quality has never been surpassed, and the employment of the extractor was shown by the exhibits to be rapidly increasing all over the country. We shall leave for another letter our remarks on these classes, also those which included hives and appliances.—P. H. P.

VAGARIES OF BEES.

ON Friday a swarm issued from a skep and I hived it. Very soon the swarm returned to the parent hive. On Saturday its swarm again issued and divided into two parts. I hived both separately. One part remained, the other went back to the parent hive. To-day the swarm again issued,

but did not settle at all, immediately returning to the parent hive. Can anyone tell me the cause and remedy? It has been supered ten days; super nearly filled. Last Tuesday week I hived a strong swarm in nine-bar hive. They are clustering very much at the entrance to-night, and also the last day or two clusters have been around the entrance. To-day I supered it. The stock hive had no comb foundation. It is not likely to throw a swarm, is it, so soon as this?—T. MAINOTT, *Sandback*.

ERRATUM.—In "Clifton's" article, on page 17 of this volume, for "bee-horse" read "bee house."



TO CORRESPONDENTS

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

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

Grapes Scalded (*Inquirer*).—You can have no better reply that we are aware of than that given to "Tom Firth" on page 18 of our last issue. The large white Grape is Buckland Sweetwater, and the berries are very good.

Pelargoniums for Australia (*Novice*).—It is not likely that Pelargonium cuttings will keep good during a voyage to Australia. Why not strike them before sending, and let them go in the form of small plants with roots to them? Zonals would be likely to travel well.

Liquid Manure Water for Vines (*H. S.*).—Drainings from cow-houses, stables, &c., are much too strong for applying pure to vinery borders or anything else. As a rule we never use such stronger than one part of urine to six of water, and even weaker if the soil should be dry. It should be remembered that the active nitrogenous matter to which such manures owe their efficacy remains soluble after penetrating the soil, and is at once assimilable. This being the case strong doses prove destructive, and the maximum of good is best secured by supplying it abundantly but very weak. Plants really do not want large amounts of nitrogen or mineral salts, although they cannot thrive without them.

Pitcher Plants for a Cool House (*Idem*).—Presumably you refer to Sarracenias, all of which can be grown in such a house as you mention, where they are not too much exposed to the sun or to strong draughts of air. The pretty diminutive *Cephalotus follicularis* might also be grown under a bellglass, and if you wanted other curiosities, *Dionæa muscipula* (Venus's Flytrap), and several of the *Droseras* could be added. All these succeed in a compost of peat and sphagnum moss, the latter being planted so that it keeps fresh and continues growing on the surface of the soil. Supply water liberally, as any approach to dryness is most injurious to such plants, also shade them when the sun is powerful, as they are quickly injured in that way.

Grape Duchess of Buccleuch (*Idem*).—The berries are small, but not smaller than White Frontignan, while when well grown and the wood thoroughly matured the bunches are two or three times as large, and are profusely borne. Frequently it does not set well, but we fancy this is when lime is deficient in the border. In one case at least where it generally set badly a liberal application of lime was given, and ever since no Grape could set better. Probably the want of lime is often the cause of a bad set. See "Vines at Longleat."

Seedling Fuchsias (*J. Batchelor*).—We consider the varieties distinct and worthy of naming, as both of them will be useful and no doubt effective in either a large or small state. The white one, a seedling from Lord Beaconsfield, resembles that variety in character and in the colour of the corolla, but the long tube and sepals are white, and in this respect an improvement on the parent. The dark one, a seedling from Avalanche, resembles the parent in the leaves only, the flowers being single, with large barrel-shaped purple corolla and very long and broad coral-red sepals. This variety appears very floriferous. Although these seedlings are commendable we are not prepared to say they possess very great commercial value, still they are at least as good as many others that are sent out at more or less high prices.

Roses Unhealthy (*E. C. O.*).—There is no "blight" on the Rose leaves sent. The condition of the foliage is the result of poverty of soil, or, in other words, the trees are being starved to death, and, in fact, dying by degrees, and not very slow degrees either if you have sent us a fair sample. At once saturate the ground with liquid manure; diluted drainings from manure heaps, guano water, soot water, or even soap-suds will benefit

them; but a mere sprinkling is of no use, the ground must be almost flooded. In the winter remove the surface soil, and place a thick covering of rich manure over the roots, leaving it there to decay.

Large Parks (A. Z., Harlow, Essex).—We are not prepared to say "which is the largest park in England, public or private," but certainly not the one you name, which is small in comparison with many others, being only about 300 acres. If any of our readers can answer your question they are quite at liberty to do so through our columns.

Camellias Unhealthy (J. E.).—The root-action of your plants is undoubtedly defective, and cannot supply the foliage with moisture so rapidly as it escapes from the leaves. No doubt the roots were injured the first year you grew the plants by the change of treatment to which they were subjected. It is very difficult indeed to reinvigorate Camellias in the state yours are, and we know of no better means of doing so than as detailed in our issue of June 21st, page 508; you had better also read an article in the Journal of March 15th, both of the present year. Unhealthy plants need more shade than those do that are growing satisfactorily.

Tomatoes Unhealthy (A. S., Monmouth).—Although Tomatoes in pots need much support, it is easy to err in giving too much liquid manure and giving it too strong. Some time ago a gentleman had plants affected similar to yours and he feared he would have to destroy them; perhaps some of them did succumb to the effects of high living—unassimilated foods—but all of them did not do, for on limiting the supplies of liquid manure he had clean healthy growth, and sent us some of the finest fruit we have seen this year. We have very little doubt you have erred in the manner indicated, and you cannot do better than adopt the course suggested, and your plants that are yet unaffected will probably remain healthy and bear satisfactorily.

Bad Soil (J. R. H.).—The symptoms you describe are indicative of the presence of an excess of iron in the soil; but whether this is so or not, or what particular injurious ingredient it may contain, can only be determined by analysis. Since, however, you have found out that the soil is bad, and also where you can procure a supply that is good, you have only to avoid the one for the other to attain your object of growing plants or crops satisfactorily. You can have the soil analysed if you wish by paying the usual fee to an agricultural chemist.

Perennials for Rockery (Willesden).—There are great numbers of plants suitable for the purpose you name, but the majority would be much better purchased as established plants from any nurseryman who makes a speciality of such classes. The following may be named as especially good:—*Androsace sarmentosa*, *Anemone alpina* and var. *sulphurea*, *Anemone stellata fulgens*, *Antennaria tomentosa*, *Arnebia echioides*, *Campanula glomerata dahurica*, *C. pulla*, *C. turbinata*, *Centaurea montana*, *Delphinium nudicaule*, *Dodecatheon meadia*, *Gentiana acaulis*, *gelida*, and *verna*, *Iberis corifolia*, *Lithospermum prostratum*, *Eriogonum macrocarpa*, *Æ. taraxacifolia*, *Onosma taurica*, *Opuntia Rafinesquiniana*, *Polygonum alpinum*, *Primula rosea*, *Ramondia pyrenaica*, *Saxifraga longifolia*, *S. Wallacei*, *Sempervivum arachnoideum*, *Veronica gentianoides*, and *Vinca minor*.

Heaviest Bunch of Grapes (W. R. A.).—We have previously answered a similar question to yours, which is here reproduced. The heaviest bunch of Grapes we have seen, and so far as we know that has been officially recorded, was a bunch of the Calabrian Raisin, weighing 26 lbs. 4 ozs., grown by Mr. Curror, gardener to J. Douglas, Esq., Eskbank, Dalkeith, and exhibited in Edinburgh on September 15th, 1875. A bunch of Syrian grown by Mr. Dickson, gardener to J. Jardine, Esq., Arkleton, Langholm, weighed at the same show 25 lbs. 15 ozs. This appeared to be the larger bunch of the two, the berries having been more thinned than the former. Mr. Dickson has stated that the bunch when cut weighed 26 lbs. 8 ozs., so that either it must have lost weight before it reached the show or there was a difference in the scales employed in the two instances. This bunch is figured and Mr. Dickson's mode of culture described on page 297, No. 757, vol. xxix. of the Journal. Mr. Roberts, The Gardens, Charleville Forest, Tullamore, has grown a bunch of Gros Guillaume weighing 23 lbs. 5 ozs.

Propagating Eucharis (W. A.).—This is a very free-growing bulbous-rooted stove plant, and it increases at a very rapid rate. It is propagated by dividing the bulbs when they have increased too much for the size of the pot in which they are growing. Pot in turfy loam, a little leaf soil, and decayed manure, with sand added if the loam is of a clayey nature. The plants require considerable supplies of water when they are growing freely, and after blooming less water is required for about two months, when they may be started to grow again, and they will flower as freely as they did before their season of rest. The temperature best adapted to their wants is a minimum of 55° in winter and 65° during the summer months.

Tomato Disease (G. D., Southport).—Your plants are attacked by the fungus which causes the Potato disease, named *Peronospora infestans*, and for which there is no certain cure. Mr. Iggulden gives the following remarks upon the subject in his work on Tomatoes. "I have long been under the impression, and which was, and still is, shared by others, that the disease solely results from excessive moisture at the roots, with a corresponding absence of solar heat. The experience of this season, however, has taught me that the plants may be really dry at the roots and yet rapidly succumb to the disease. This was the case with a number of Tomatoes of sorts planted in a roughly constructed and uncovered pit, in soil in which Cauliflowers were previously grown. During August the Tomatoes were frequently watered, that last used at the end of the month being taken out of a large soft-water tank. This was in the evening, and, as it happened, was applied through a coarse rose, the tops of the plants being thoroughly wetted, without, as I found on examining the next day, soaking the bed. Before the next evening nearly the whole of the foliage was blackened, and in a short time much of the fruit remaining was as bad. On pulling up some of the plants the soil was found to be dust-dry. On two sides and within less than two yards were growing more plants, yet none of these were affected by disease, and remained almost free of it to the last. This seems to point to the necessity of keeping the foliage dry; and, for the future, if I can prevent it, those Tomatoes grown in frames or otherwise, where likely to be affected, will never be watered or syringed overhead when the crops are being matured." Some other particulars upon the same matter have also been published in this Journal.

Budding Manetti Stocks (X).—The stocks being in rows earthed up like Potatoes, take a hoe or spud and remove the earth from the stock, so as to insert the bud as low as possible. When this is done proceed to cut the bud just the same as you do for the Briars, and make an incision as low down as you possibly can; the lower down the better, as the fewer will be the suckers—indeed, you should almost bud on the roots, if possible. At any rate, strive to insert the buds as low as you can. Only insert one bud in each stock. Choose the same side of the stock all down the line, and also select a place as free from knobs or irregularities as you can find. Make the incision in the form of a T, and when the bud is safely in tie up well beyond each end of the bud with rough cotton or worsted. Ladies often use wool, and nurserymen bass or raffia or cotton. You must not replace the earth, but leave the bud showing, or rather the cotton, so that in the course of a week you can see whether the bud has taken or not. If it has not, bud the other side of the stock. Do not touch the Manetti shoots, but leave them to grow as luxuriantly as they will till the following spring; then remove the cotton and cut back the Manetti to the bud. The best time for budding the Manetti is after rain, and if you have no rain give the stocks a copious watering, and you will find the bark run. August is the best time for budding Manettis. All the kinds you have named do well on the Manetti; in fact, all Hybrid Perpetuals except *La France*, which, having some Tea blood, never does so well on this stock as on the Briar.

Names of Plants (J. W. A.).—1, *Inula glandulosa*; 2, *Chlorophytum orchidastrum*; 3, *Scrophularia aquatica variegata*; 4, *Veronica rupestris*; 5, *Sidalcea rosea*; 6, *Lychnis viscaria*. (*G. P., Hants*).—1, *Solanum jasminoides*; 2, *Torenia Fournieri*. (*Hortus*).—1, *Agrostemma coronaria*; 2 and 4, Too withered; 3, *Erigeron philadelphicum*; 5, *Alcea malvæflora*; 6, *Phytolacca decandra*. (*No Name*).—1, *Spiræa Aruncus*; 2, *Rhododendron hirsutum*; 3, Insufficient without flowers; 4, *Tradescantia virginica*. (*E. B. B.*)—The cut-leaved form is a variety of *Tilia europæa* named *laciniata*, and the broad-leaved form is simply a reversion to the ordinary type.

COVENT GARDEN MARKET.—JULY 11TH.

FRUIT still arrives in large quantities, and prices are low.

		s. d.		s. d.				s. d.		s. d.	
Apples	.. ..	1/2 sieve	2 0	to	7 0	Grapes	.. ..	.. lb.	1 3	to	3 6
"	.. ..	per barrel	20 0		40 0	Lemons	.. ..	.. case	10 0		20 0
Apricots	.. ..	box	2 0		2 6	Melons	.. ..	.. each	3 0		6 0
Cherries	.. ..	1/2 sieve	8 0		18 0	Nectarines	.. ..	.. dozen	6 0		10 0
Chestnuts	.. ..	bushel	0 0		0 0	Oranges	.. ..	.. 100	6 0		10 0
Currants, Black	.. ..	1/2 sieve	0 0		0 0	Peaches	.. ..	.. dozen	6 0		12 0
" Red	.. ..	1/2 sieve	0 0		0 0	Pears, kitchen	.. ..	.. dozen	0 0		0 0
Figs	.. ..	dozen	4 0		6 0	" dessert	.. ..	.. dozen	0 0		0 0
Filberts	.. ..	.. lb.	0 0		0 0	Pine Apples, English	.. ..	.. lb.	3 0		4 0
Cobs	.. ..	100 lb.	0 0		0 0	Raspberries	.. ..	.. lb.	0 0		0 0
Gooseberries	.. ..	1/2 sieve	3 6		4 6	Strawberries	.. ..	.. lb.	0 6		1 0

VEGETABLES.

		s. d.		s. d.				s. d.		s. d.	
Artichokes	.. ..	dozen	2 0	to	4 0	Mushrooms	.. ..	.. punnet	1 0	to	1 6
Asparagus, English	.. ..	bundle	3 0		6 0	Mustard and Cress	.. ..	.. punnet	0 2		0 3
Asparagus, French	.. ..	bundle	2 0		0 0	Onions	.. ..	.. bushel	2 6		3 6
Beans, Kidney	.. ..	100	0 0		0 0	Parsley	.. ..	.. dozen bunches	3 0		4 0
Beet, Red	.. ..	dozen	1 0		2 0	Parsnips	.. ..	.. dozen	1 0		2 0
Broccoli	.. ..	.. bundle	0 9		1 0	Peas	.. ..	.. .. quart	1 0		1 3
Cabbage	.. ..	dozen	0 6		1 0	Potatoes, New	.. ..	.. lb.	0 2		0 4
Capsicums	.. ..	100	1 6		2 0	Potatoes .. ..	.. ..	.. cwt.	6 0		10 0
Carrots	.. ..	.. bunch	0 4		0 0	" Kidney	.. ..	.. cwt.	6 0		10 0
Cauliflowers	.. ..	dozen	2 0		3 0	Radishes	.. ..	.. dozen bunches	1 0		0 0
Celery	.. ..	.. bundle	1 6		2 0	Rhubarb	.. ..	.. bundle	0 4		0 0
Coleworts	.. ..	.. doz. bunches	2 0		4 0	Salsafy	.. ..	.. .. bundle	1 0		0 0
Cucumbers	.. ..	.. each	0 4		0 6	Scorzonera	.. ..	.. bundle	1 6		0 0
Endive	.. ..	.. dozen	1 0		2 0	Seakale	.. ..	.. basket	0 0		0 0
Fennel	.. ..	.. bunch	0 3		0 0	Shallots	.. ..	.. .. lb.	0 3		0 0
Herbs	.. ..	.. bunch	0 2		0 0	Spinach	.. ..	.. bushel	2 6		3 0
Leeks	.. ..	.. bunch	0 3		0 4	Tomatoes	.. ..	.. .. lb.	0 9		0 0
Lettuce	.. ..	.. score	1 0		1 6	Turuips	.. ..	.. bunch	0 0		0 0



THE SUSSEX BREED OF CATTLE.

(Continued from page 20.)

AFTER a time the remarkable improvement in the Sussex cattle began to bear fruit in the best possible manner, for it was shown by the proposal to establish a Public Herd Book for Sussex cattle, the accomplishment of which dates from the year 1855. But for some years after its commencement various breeders although eminent in their calling, and possessing some of the choicest strains of the blood—like some of the Shorthorn and Hereford breeders in the early days of the Shorthorn and Hereford Herd Books respectively—could not appreciate the proper use and value of such important record, and failed to perceive that the publication of them promotes an extended interest in the several breeds. Even the Messrs. Stanford, we are informed, were at first among the lukewarm lookers-on, although they possessed and prided themselves upon the anti-

quity and purity of their herd; but eventually, as the results of their careful and judicious breeding and selection became more and better appreciated by breeders generally, and their great opportunities enabled them to furnish full particulars of pedigree, they decided to go with the stream, and for the past thirteen years their contributions to the Herd Book have been most marked and valuable, not only to themselves as breeders, but to all those who desired to possess the choicest animals of the Sussex stock, and whose history and pure breeding could be traced for the longest period in the traditions of the breed. We, however, cannot forget the Messrs. Heasman by their steady and persistent work in the establishment of the Sussex Herd Book, for which much credit is due to them, and also in consequence of their endeavours to improve the Sussex cattle separate prizes were given first at the Leeds meeting. Previously they had been classed with "other established breeds;" but at the Canterbury Show in 1860, where Messrs. Heasman took the first Royal prizes, it was seen that this breed was worthy of distinct classification, and since the Bedford meeting in 1874 it has always been granted.

This breed is found good for crossing with other breeds, generally improving them, especially when the Sussex male animal is used, as they are celebrated for imparting substance, compactness of form, and firmness of flesh; and through the influence of the male, as usual, the colour of the offspring is generally red, and of a very deep or dark shade. The Sussex stock are of themselves a very hardy race, and are noted for surpassing all other cattle in well doing on the poorest pastures of their native county. Their form has been levelled up to fair and comely proportion, so that the uninitiated observer may take them for Devons; and we do the latter no injustice by giving it as our opinion that they may be used for improving them, for the show Devons at present may be considered, when compared with other breeds, like the South Downs in the sheep classes are estimated by tenant farmers in general—as fancy stock, but which by crossing may be improved as rent-paying animals.

The Sussex cows are not, as a rule, good milkers, although producing sufficient to rear and fatten their own calves, but the worst milkers are often those with the heaviest calves. The most profitable way of breeding this stock is probably for them to calve in October and November, letting them suckle their own calves through the winter months, wean them in the spring, put another calf to the cow, and rear them for veal or stock as may be required. When managed on this plan each cow rears two calves, and the number of barren cows will, therefore, be greatly diminished, which is one of the greatest evils attending the fact of cows dropping their calves all the year round. It is, however, specially important in connection with the management of a herd of Sussex cattle, or any other breed prone to lay on fat internally and yield but little milk, which is quite peculiar to the Sussex stock. Some attempts have been made to use Sussex cattle for the dairy, but it has failed in their own native districts, and if dairying is attempted persons should use Shorthorn cows; and if good early beef-making steer calves are required use the Sussex bull, and these cross-bred stock will probably excel all others in raising baby beef.

In various other respects there is hope of further improvement in the Sussex cattle, for the attempt to raise them from good working animals on the land and make good butchers' bullocks afterwards, does not date back much more than twenty years. This circumstance leads us to expect that there are still latent capacities in the breed which will enable their advocates to raise them yet higher in the scale of excellence. Again, when we look to the fact that our other principal breeds are now past improvement—that is to say, the value and importance of the Shorthorns, the Herefords, the Scotch polled, and the Devons have not for a considerable period made any improvement as regards the leading herds of the kingdom. Indeed, it is a question if it be not possible to produce better animals, as a rule, than those which have graced the leading cattle shows during the past twenty years. Having been close observers we cannot see any improvement or advance in any direction except in numbers during that period, and we name one animal as an illustration of our meaning; for since the notorious bull Alaster Butterfly, bred by Colonel Townely, was exhibited at the Royal Agricultural Society's meeting at Chelmsford, if we recollect rightly, we have seen no such animal of the Shorthorned type, nor do we ever expect to see it matched in the future. In the other breeds we have named animals equally illustrative of our opinions may be selected. We, therefore, believe that the Sussex stock may be assumed as having in store for us in the future rare specimens, which

shall add further merit and importance to this already valuable breed.

We will notice for the information and guidance of intending breeders some of the most noted strains of blood introduced since the commencement of the Sussex Herd Book, taking first stock of the late Mr. Wm. Botting, at Westmeston Place, Hurstpierpoint, and Mr. Dennett's, of Woodmancote. We must also refer to the Messrs. Stanford's famous prize bull Dorchester (325), calved in 1871, by Volunteer (a home-bred bull of their father's old sort, of dark colour and iron constitution), introduced through his dam May Fern (1189). The strain of Mr. W. Martin of Ewhurst, in conjunction with that of Mr. Wm. Botting. Dorchester has an almost interminable prize list appended to his entry in the Herd Book. Besides several class prizes at the leading shows, including the "Royal," the Southern Counties, (Bath and West of England), and the Tunbridge Wells shows, he won the cup at the latter three years in succession; Messrs. Stanford's entries (a different animal each year from their splendid agricultural stud) winning also, three years in succession, the champion cup. These successes of Messrs. Stanford in the exhibition of their own bred animals should be remembered by all future breeders of cattle, and one of the great examples of the advantages of rearing cattle possessing an ancient pedigree which have by careful and judicious selection obtained for them a reputation which can be obtained in no other way or by any other means. Another noted bull, Tunbridge (374) by Dorchester, was bred at Eaton's in 1875, and in the following year Paris (357), who took some English prizes (including "Royal" honours), and the second prize and silver medal at the French International Show in 1878. In this bull the blood of Bedford is combined with that of Dorchester. Southampton (408), an own brother of Paris, won extensively at the leading shows 1878-9-80, and in 1881. Goldsmith (391) not previously exhibited, is the show bull of the herd; at Derby he took the first honours of the Royal A. S. E. He was bred by the late Mr. Geo. Smith, of Paddockhurst, and is the son of Young Hartley (444), the "Royal" prize bull at Kilburn, and second in the champion bull competition, but used afterwards by Mr. Alfred Agate. The dam of Goldsmith (391)—Young Golding by Lion—brings in a strain of blood which a veteran authority, who well remembers the cattle, describes as one of "the best that ever was in Sussex." The Sussex bulls, however, are not usually handsome. The oxen are grand and the cows stately; but the bulls, as a rule, look common or plain. But Messrs. Stanford's "Goldsmith" is an exception. His sirloin and steaks might make Devon breeders jealous, for as he appeared at the Reading meeting of the Royal, where he took first as a five-year-old bull, he was as good-looking as one could wish to see. Although he is this season one year older, we were present at the opening day of the Royal Counties Association's meeting at Winchester on the 26th June last, where "Goldsmith" was exhibited in all his grand outline, which we surveyed in detail as he appeared side by side with other magnificent animals during the time of the Judges' decision as they paraded in the cattle ring. And the judgment passed upon him was, that he not only obtained the first prize in the Sussex classes, but also the champion prize as the best bull of the show, in contest with the Shorthorns and the Devons then and there exhibited. This victory must have been highly satisfactory to the Messrs. Stanford, who certainly possess the stock which will enable them to maintain one of the foremost positions among the Sussex cattle breeders we may expect for years in the future. We have yet to notice the Sussex cattle belonging to other eminent breeders.

(To be continued).

WORK ON THE HOME FARM.

Horse Labour.—Horses are still employed in preparing the land for common Turnips, as the fallows in many cases were very foul with couch, in some instances owing to the land having been farmed on the four-course rotation of Wheat, roots, Lent Corn, and Clover. Now, as the Wheat in this rotation is sown out of lea, during the seasons for the past few years which have been unusually rainy and adverse to cleaning the land, it has been almost impossible to insure a clean fallow. Thus, especially in the hands of some tenants who neglect the various opportunities for forking out the couch, and attempt by horse labour alone to clean the land, they have been unsuccessful, for tillage by horse labour can only be accomplished with success in fine dry seasons. It is to this circumstance we wish to call the attention of the home farmer and others, but especially those who frequently say there is not couch enough to injure the next crop, and allow it to increase in the land, and then resort to the expensive process of a fallow carried out by costly horse labour. As compared with hand labour this is not economy in farming, for it must be remembered that forking out couch when there is but little is the cheapest method of keeping the land

clean, besides which it can be done at any time, in any weather except in frost, and when the corn is near harvest. Forking out we have always found not only the cheapest way of keeping the land clean, but also the most effective, for, in fact, it bids defiance to the weather, and enables the farmer to crop his land closer under the most profitable rotation. The attempt to clean land by horse labour before seeding for a crop is frequently abortive, not only in the object of cleaning the land, but is the forerunner of late seeding and failing crops; and in such seasons as we have had for some years past the attempt to carry out any system by horse labour alone has left a number of farms throughout the kingdom in a most deplorable and foul state.

Hand Labour is now of extreme importance, for hoeing and singling the roots must be done, ricks must be thatched, the straw drawn and piled in readiness, hedges must be trimmed, and border grass and weeds cut to prevent seeding, and to maintain the fences—especially of White-thorn—not only within bounds, but effective against live stock. The late cold meadows of certain districts will for some time yet require the hay to be made from them, which will employ all the hands which can be obtained; but in certain outlying and thinly populated districts the hand labour must be supplemented by machinery, such as the mowing machine, the tedding machine, and by no means forgetting the elevator, both in haying and harvest, which does by the use of the odd horse what was formerly the severest manual labour on the farm—pitching from the carts or waggons on to the stack.

Live Stock.—In some districts the dairy cows are almost frantic, being teased by the flies; in which case we like the animals to be taken to the stalls, receiving some green fodder in the racks, for in hot sunny weather the animals do not feed from about ten o'clock A.M. until four o'clock P.M., and will endeavour to obtain shelter under trees, where they are very uncomfortable and with nothing to eat, and also leave their droppings where it is entirely lost. Let the home farmer consider these points, and he will find it great economy in various ways, but especially in the gain of milk obtained from the cows. The time for the purchase of both ewes and lambs for stock is now arrived, and various fairs are being held in the different counties where the Down varieties and long-woolled breeds are sold. As the prospect for roots is good, stock will be dear, and not likely to pay for wintering on the arable vale farms, even if they get cake and hay in addition to the roots. But, we ask, why should a custom which yields no profit be followed in this blind way merely because it is customary, when green crops ploughed in will yield more profit, giving full crops at little cost? for it should be remembered that the only reason which can be given by the advocates of feeding roots on the land is that it enables the land to bear crops of corn. Granted; but the capital employed to carry out the system is great, and the cost of labour also connected with stock, to say nothing of risks and losses by disease, as well as the impediments at seed time, &c., arising from necessities attending the management of sheep.

A CHAT ABOUT MANURES.

If you think it worth while to allow the space I will try and estimate very roughly the relative positions of farmers and gardeners with respect to the all-important question of manures. Although it is desirable and necessary for farmers in most cases to use artificial manures more or less, particularly where cereal crops are intended to follow each other, such use should only be supplemental to the grand foundation of considerable applications of home-made manure from well-fed animals. Of the reasons why this is so we have, perhaps, a good deal to learn, notwithstanding M. Ville and other authorities to the contrary. One reason, I suppose, is that it supplies such a necessary and healthy strength in reserve owing to its so gradual absorption by the soil, and the way it enables the surface soil to retain moisture, so that we may apply the same manurial ingredients in almost any quantity in other forms to certain crops of the farm and the outdoor garden without obtaining such satisfactory results. A singular and suggestive example of this may be seen in the garden of Sir J. B. Lawes at Rothamsted, to whom, by the way, all who are in any way interested in agriculture owe a debt of gratitude, which I fear has not yet been adequately appreciated. On the lawn adjoining the mansion is a little and carefully guarded plot of common red Clover, luxuriant in growth and full in plant, yielding more than one cut per year, and it has so remained with no other attention than occasional partial resowings for, I think, thirty years or more. On adjoining soils of similar formation, although every possible treatment has been tried, red Clover will not grow for more than two years in succession in accordance with ordinary experience. The solution of the riddle is found in an old garden soil continually fertilised—perhaps for 300 years—with natural manure very largely in excess of the actual requirements of the growing crops. Well, then, the all-important foundation being laid and kept up, nothing is wanting but the artificial supplement. For the farmer, as compared with the gardener under glass, this is, as it seems to me, a comparatively simple matter, though of course one which even he can only satisfactorily cope with by much thought and care and experimental experience. At first sight it is delightfully simple, as he only requires three manurial ingredients in his artificial manures—namely, nitro-fen, phosphates, and lime, rarely more than the two former. Potash, important factor as it is (good soils differing from bad in nothing so much, perhaps, as in the presence or absence of potash), I do not mention amongst the necessary supplementals, because sufficient dressings of home-made manure will supply it in abundance. It is true that I have had remarkable results from its application in a specially soluble, and, I believe, rather unusual form

in exceptional cases, therefore I had had time to replenish exhausted soil in other ways. In such cases, and I am afraid there are some to be found, potash salts of the proper kind would, I feel sure, produce striking results, and I believe they are tried far too seldom.

The soil has a very strong power to retain potash near the surface when once applied in any form, so that one application will very perceptibly benefit two or more crops, hence the certain storage of this ingredient in sufficient quantities from liberal dressings of the manure from well-fed animals. Nitrate of soda, on the contrary, is here to-day and in the sub-soil to-morrow, and all dressings beyond the requirements of the present crop is at least wasted if it is so fortunate as to avoid absolute injury. In the first place, then, the farmer has only to buy his few ingredients separately or otherwise as cheaply, as pure, and as soluble as possible. So far there is no difficulty when the purchase is approached with a small but adequate knowledge of chemical properties, and the mind free from bias in favour of particular dealers and their ordinary or extraordinary compound formulas. Until both farmers and gardeners know much more of what they require, and exactly how they require it, in artificial manures, than the ordinary manure dealer can prescribe for them, they will be a long time obtaining the best results. Yet how often is the contrary principle acted upon. But I am trespassing too much on your space to say more on the purchase of manures, even if this were the place to say it, though there is much to be said. In short then, the farmer, given his few pure soluble chemical ingredients, has only to apply them economically, and that is, as I have said, a question only of comparatively simple experiment.

If I mistake not, however,—though here I am stepping into a much less familiar sphere—the gardener under glass must approach this subject in a much more guarded fashion. The intrinsic value per ton to him, greater or less bulk, are things of minor importance, except as guides for purchase. True, he also only wants the three ingredients named, with the addition of a fourth in potash, but that is only the veriest alphabet of his required knowledge. How he wants his ingredients is the difficult point for him to determine, rather than what he wants, and in the answer to this I cannot think that gardeners have more to learn even than farmers, because their lesson is so much more complicated, although, I believe, the extraordinary success many of them have achieved by patient intelligent attention to details in plant culture is a great lesson for farmers.

A discussion arose in this Journal some weeks since, in which the merits of night soil were discussed as a manure for Grapes. One of the correspondents endeavoured to prove an error in its use from the fact of its low intrinsic value—probably 30s. to 40s. per ton; whereas, if I am right in my premises, the mere intrinsic value, so long as the manure contained any fertilising properties, was no argument at all to the point. Manure in a form too concentrated and too soluble is, I imagine, for a gardener under glass, a thing of much danger and doubtful merit. It seems to me, then, that he has to determine first what he wants, secondly how much of it, and thirdly in what form, besides, perhaps, when to apply it, to produce the very best and safest results. On all these points theory to him, unfortunately, is of very little service, and practice everything; so that in the elucidation of these problems by patient experiment only he has indeed abundant scope for all his energies. How many gardeners, as well as farmers, use artificial manures of the composition of which they are ignorant? Whereas, surely the initial step for intelligent experimental comparison of each with the other, or either with other manures, is to know before the application of them, approximately at any rate, the composition of every manure with which experiments are made.

Your correspondent "Inspector" surprised me on page 533, last volume, by the prominent mention of my name, and he also appears to have been mistaken in thinking I expect a crop of seven quarters of Barley per acre. Although I hope I am of a somewhat modest temperament, that would not be a modest estimate for light land in an eccentric climate.—F. J. COOKE, *Flitcham Abbey, Lynn*.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 39° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
July.											
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	1	30.119	67.2	58.2	S.	62.1	78.5	52.0	123.8	47.2	—
Monday	2	30.094	72.0	61.7	E.	62.7	84.7	55.2	127.6	49.3	0.186
Tuesday	3	29.875	70.6	66.6	E.	64.8	80.7	62.2	119.4	58.4	0.087
Wednesday ..	4	29.832	59.1	57.4	N.E.	64.2	73.2	55.8	114.4	53.0	0.019
Thursday	5	29.904	62.3	57.2	S.E.	62.4	71.8	51.9	117.3	46.8	—
Friday	6	30.836	66.3	58.3	S.E.	62.5	74.8	51.6	118.4	46.0	—
Saturday	7	29.881	64.4	58.8	W.S.W.	62.8	74.5	57.5	124.0	50.4	—
		29.937	66.0	59.7		63.1	76.9	55.2	120.7	50.2	0.242

REMARKS.

- 1st.—Fine, bright, and warm. [till midnight.
2nd.—Very warm and fine during day; heavy rain at 10.30 P.M.; lightning from 11 P.M.
3rd.—Lightning till 3 A.M., and thunder from 4 to 5 A.M.; very oppressive morning, finer afterwards, cool evening, lightning after 10 P.M.
4th.—Much cooler; rain in morning; fine afternoon and evening.
5th.—Gusty wind in morning; dull at times during day; fine calm evening.
6th.—Overcast in morning; fine afternoon and evening.
7th.—Overcast at times, but generally fine and pleasant.
Another very fine summer week.—G. J. SYMONS.



COMING EVENTS

19	TH	Chiswick Evening Fête; St. Ives Show (Hunts).
20	F	
21	S	
22	SUN	9TH SUNDAY AFTER TRINITY.
23	M	
24	TU	Royal Horticultural Society; Fruit and Floral Committees at 11 A.M.; [Carnation and Picotee Show.
25	W	

STRAWBERRY CULTURE FOR AMATEURS.

THE Strawberry season of 1883 will long be remembered. I have never seen anything like the crops obtained in all directions, and the old men who have been employed in these gardens for thirty years assert they have not before seen such large quantities of fruit. The individual fruits, too, have been exceptionally fine, and the quality all that could have been wished for. All this is very encouraging to everybody, and those who have been most successful will continue their practice, while those who have partially succeeded will be stimulated to further exertions. Several amateurs especially, who will not object to be included in the latter category, were much impressed with the sight of our rows of fruit, and seemed to think it is impossible for them to be equally as successful. "Why not?" I asked. "Well, in the first place we could not afford so much space," is the answer. No other reason was forthcoming, nor could there be. My advice to all who have replied to me or may mentally reply to my written remarks is simply this—if they cannot give up more ground to the plants, then grow fewer plants. It is not a crop of leaves we should grow, but as many well-ripened fruits as can be secured, and this is best attained by allowing plenty of room to every plant. The foliage should be short and erect, and the fruit laying out in a circle all round the plant. Where the fruit is hidden with leaves it is proof positive of wasted vigour.

The mere fact of allowing the plants plenty of room, however, will not insure heavy crops of fruit. For instance, the ground may be too rich or too loose, the plants may be too old, the varieties not suitable to the soil, or the position may be too shaded. Amateurs need not be frightened into having the ground deeply trenched and freely manured for Strawberries, this expensive commencement from various causes seldom being attempted now-a-days. Autumn trenching—that is to say, just prior to planting—is a mistake, as in this case the ground is certain to be too loose. If trenching is resorted to let it be during the winter previous to planting in the autumn, the ground will then produce an extra good crop of early Potatoes, which may be cleared off, say, early in July. The ground being forked over as the Potatoes are lifted, all that is necessary is to clear off rubbish, level, make firm, and plant Strawberries. Our ground is not trenched for Strawberries or preceding crop, but they generally follow early Potatoes, and for these in this case solid manure is freely dug in, which is sufficient also for the Strawberries.

Our garden is situated near the bottom of a steep hill, and the upper part is utilised for early crops, the middle for successional, and the lower part for the latest crops. On the early ground the Strawberries invariably follow Potatoes, and between them are sown Tripoli Onions to stand the winter. The successional crops have hitherto followed Potatoes; but this season will be planted between spring-sown Onions, these being disposed in rows 10 inches asunder, and every third row is drawn early and followed by Strawberries. Those occupying the low heavy ground share the

site with late Lettuce, Turnips, and Spinach. Few amateurs are in a position to imitate this practice, but the digression may be of some service to a few young gardeners, and may also establish the fact that if we plant at apparently wide distances apart we may yet otherwise profitably employ the ground for the first season.

In some few instances old plants may still be remunerative; but as a rule three, or at the most four, crops only should be taken from one batch of plants. By planting well-rooted runners not later than the first week in August these will produce the earliest and finest fruit the first season. During the second season the most valuable crops ought to be had, while during the third and perhaps fourth seasons the heaviest crops, though of smaller fruits, are generally secured. Directly the last crop is gathered the plants should be cut off with a spade, and these and other rubbish be burnt, the mulching, however, being undisturbed. Between the old rows of Strawberries, and without digging the ground, strong plants of late Broccolis should be either planted with a trowel or crowbar according to the state of the ground, and these will grow to a good size and be much more hardy than any that have grown more luxuriantly on looser ground.

At one time we thought it necessary to layer the runners into 3-inch pots, planting out soon after separating them from the old plants. Now, we prefer to carefully lift with a trowel the strongest runners that have rooted into the mulching and soil, and find these are soonest established, especially in a dry season. If plants that have been root-bound in pots once become dry in the ground they are not easily moistened again, and consequently experience a check from which they do not quickly recover; whereas those lifted with a rough ball of soil about the roots and planted firmly seldom need but one watering, and soon become established. The plants are in rows 30 inches apart and 18 inches asunder in the rows; but if we did not crop between double the number of plants would go in each row, every alternate one being cut out after perfecting one crop. As before stated, the ground must be firm, and on good ground receive manure only as mulching, with rough fresh manure either late in the autumn or early in the spring. From the time the plants are put out till cleared off the ground is never dug nor deeply stirred, the object being to preserve the fibrous surface roots, which are so conducive to fruitfulness rather than leafage. Every season it is advisable to destroy a certain number of old beds and to plant as many fresh ones, and in this manner secure regularity in the supply. If open spaces cannot be devoted to them the next best place is on the borders in one or more lines near the paths, but they ought not to be heavily shaded.

In some districts where the Strawberries are liable to be killed by frosts late autumn mulching is advisable, especially in the case of such delicate varieties as Sir C. Napier and with us La Grosse Sucrée. In our case early mulching does not prove particularly serviceable, but frequently practise it, because it best suits our arrangements. The material we use is obtained from the farmyard, and consequently requires to be surfaced towards fruiting time with cleaner material, than which nothing is better than long grass cut from out-of-the-way banks and slightly hayed. Where the plants are mulched with fresh stable manure this is generally washed sufficiently clean. During dry seasons grass from the mowing machines may be employed for mulching or rather covering the manure, which Strawberries in full bearing especially require to be top-dressed or mulched with. Directly after the crops are secured, and sufficient runners are taken off, the plants to be preserved should have all remaining runners and old outer leaves trimmed off, and these with the weeds and roughest of the mulching burnt. To clean rake off the mulching, however, is a mistake, as this if left on materially benefits the surface roots. Many growers dig in a quantity of manure through the centre of the spaces between the rows. This may answer very well in

some cases, but is ruinous in others, simply because it encourages gross deep-running roots.

Amateurs, professional gardeners, or market growers ought not to cultivate many varieties. Their aim should be to discover which sorts are to their taste, and which also succeed in their particular garden. Black Prince is very early and prolific, but much too small to please most people. Vicomtesse Hericart du Thury on strong soils, as in our case, forms too much foliage, and though heavy cropping is comparatively late and small. On light soils it is profitable. The old Keen's Seedling is yet one of the best, and the flavour is very distinct and good. Sir Harry with us is a much heavier cropper, very early, bright and richly coloured, but rather sour. Sir Joseph Paxton grows luxuriantly, though not to such an extent as to militate against the production of very heavy crops of handsome firm fruits. President is in every respect an excellent main-crop variety, and where the delicate Sir C. Napier can be grown it is invaluable. La Grosse Sucrée is much liked by some as a second early variety, but we do not want it. For the later crops Dr. Hogg is unequalled, and probably has found more admirers during 1883 than ever before. It is sturdy in habit, wonderfully prolific, and the quality of the extra large fruit is superior to any with the exception of British Queen. The latter is very fickle, and is now but little grown. Eleanor or Oxonian is late and heavy-cropping, but the quality is seldom first-class. In another paper I may discuss which are the best varieties for pots, also the best travellers, and offer a few other seasonable notes upon Strawberry culture.—W. IGGULDEN.

FEATURES OF A PLAIN GARDEN.

AMONG readers of the Journal owners of plain gardens are undoubtedly numerous, so numerous as to merit the giving of especial attention to their peculiar wants, which are apt to be overlooked by those of us in enjoyment of the convenience of a well-appointed garden. To cater for their wants one must certainly run some risk of being accused by professional gardeners, of "writing about things everybody understands." Let me, therefore, bespeak the forbearance of my brother blue-aprons in this matter, or rather let me claim their assistance in so good a cause, by asking them to read what I shall now write, to note any omission which it is in their power to make good, and to do so quickly in the pages of the Journal, which are always open to every useful hint for gardens great and small.

"Plain gardens" is a suggestive as well as an elastic term, bound by no rules or recognised law, and which may be, and doubtless is, applied frequently as individual taste or fancy may prompt. But here it is intended to denote a small garden having a lawn, shrub groups, trees, a carriage drive, and paths with such adjuncts as may be added without requiring the subsequent supervision of a thorough gardener—precisely such a garden as is frequently to be met with at a country rectory, managed perchance by the church clerk, whose training "came by Nature," but who nevertheless is generally a painstaking trustworthy individual, taking much pride in his charge, which is a picture of neatness, and keeping his master's table well supplied with all such fruits and vegetables as come in the way of a plain man. Many such a garden have I seen, and many a lesson have they taught me. Did not "Old Wickings," gardener, coachman, and excellent manager of the rectory glebe, always astonish the natives at the little village show with such gigantic heads of Celery as seldom come within the ken of ordinary mortals? And shall I ever forget the chuckle of delight with which, as a special act of favour, I was shown a concealed gutter along which sewage trickled constantly to the roots of the special row of Celery? The worthy old fellow has long gone to his rest, but the finest garden of the land boasts of no Roses finer than those which used to hang in such rich profusion upon his huge Cloth of Gold, or can show better Grapes than were to be found every summer upon the one Vine in his solitary glass house. Nor will better crops of Apricots ever be had than those upon the old tree, which he used to boast grew nothing but wood till he root-pruned it and rammed a mass of hard stones beneath the soil in which it grew.

I recently saw one of these gardens surrounding the house hard by the village church, and with a public road passing its boundaries. A short drive led from the entrance gate to the door, in two curves like an elongated S, by means of which and

some judicious grouping of shrubs the house was hid to view from the road. A lofty Ash heavily clothed with its beautiful foliage overhung the gate; and near the house a fine Beech, the pride and glory of the garden, stood out upon the lawn, so as to show the full beauty of its graceful proportions, its lower branches sweeping the turf and its upper ones towering aloft above the housetop. A few other deciduous trees interspersed with Conifers, all bearing unmistakable evidence of careful selection and great care, were not untastefully dispersed about the garden. Circular flower beds of a size admirably in keeping with the position assigned them were arranged in parallel rows alongside a central walk; a more ambitious group of beds of a geometrical design filled a sunken panel, and another sunken panel was devoted to lawn games. Advantage had been taken of a raised bank, made to shut out some outbuildings, to make a fernery, the face of the bank being covered with pieces of rock with plenty of pockets among them for the Ferns. Parallel to this bank, but far enough from it to afford space for a path, another lower bank gave considerable scope for tasteful treatment; and this had been well turned to account by making many nooks and corners, all of which had become the home of one or more Ferns, of which a numerous collection had been gradually accumulated and named with much care. On the lawn side the inner bank followed no formal line, but advanced boldly into promontories at various points in graceful flowing curves, all much shaded by trees, but all agreeably clothed with greenery in the attractive guise of fine specimens of *Lastrea Filix-mas* and other familiar common Ferns.

It will thus be seen that this particular garden is undoubtedly a plain one, which, apart from trim keeping, might be almost left untended, and, perhaps, some will say uncared for. But its worthy owner really cares for it, and wishes for improvement, not of the too common kind which aims at instant transformation, but rather of a gradual nature, feature by feature, so that while the garden grows yearly in beauty it may not be regarded as a finished work to or from which nothing can be added or taken without spoiling the whole. So far his attention has been given to good purpose to the fernery and the trees, in both of which he has been so successful that it is reasonable to suppose other things taken in hand with caution and treated with care will answer equally well.

The first step towards improvement which appears to me most desirable is the introduction of dwarf flowering shrubs and choice perennials into the beds of the sunken panel garden, not necessarily to the entire exclusion of spring and summer bedding plants, but rather as a partial rich permanent clothing for the beds to render them attractive throughout the year, instead of only a month or two in autumn, as it is inevitably the case where small bedding plants scattered thinly over the surface take months to grow into beauty. Of shrubs which occur to me for such a purpose the *Spiræas* take a leading place, *Thunbergi*, *callosa alba*, *Billiardi*, *Douglasi*, *californica*, *ariæfolia*, and *Nobleana* being among the best. Then there are *Hydrangea paniculata*, *H. hortensis*, *Deutzia crenata flore-pleno*, *D. gracilis*, *Berberis Wallichii*, *B. dulcis*, *Gum Cistus*, the *Pernettyas*, *Escallonia macrantha*, *Mahonia aquifolia*, *Erica eodonoides*, *E. mediterranea*, *E. Alportii*, *E. vagans alba*, and the bright pink early-flowering *E. carnea*. The Japanese Rose, too, is admirably adapted for such a place. Of perennials all common kinds should be excluded, and only such treasures, rich and rare, allowed a place as *Hypericum patulum*, *Aquilegia chrysantha*, *Funkia Sieboldiana*, *Papaver orientalis*, *Anemone japonica alba*, *Spiræa palmata*, *S. japonica*, select kinds of *Pæonia*, *Phlox*, *Pentstemon*, *Pyrethrum*, *Potentilla*, and *Campanula*, to which subsequent additions might be made.

Flowering shrubs of all kinds ought to enter largely into the composition of such a garden, and for real interest and intrinsic beauty rock beds with alpine plants are an unfailing source of attraction and amusement; but such beds require much attention, and must, therefore, be limited well within the means of keeping them in order.—EDWARD LUCKHURST.

DO FLOWERS EXHAUST PLANTS ?

IN Mr. Stephen Castle's interesting account of Cucumber-growing at page 530, last volume, I observe one little mistake. It may be only a slip of the pen. He says that in the non-ventilating system his fruits would not set. If it is meant that fertilisation would not take place, then I must say that fertilisation is unnecessary in growing Cucumbers for the table, and that both plants and fruits are very much better without it. For this reason many growers, while the plants are not over-strong, pick off all the male blooms before they expand, and by

so doing their plants are enabled to carry double the amount of crop without suffering from exhaustion.

This subject is in some measure related to the important one Mr. Bardney writes on in the same number of the Journal—viz., "Do flowers exhaust plants?" and while I cannot say that they do not bring a certain amount of exhaustion, yet there is ample proof that the act of fertilisation is that which exhausts the most. Plants of a given species which do not produce seed freely will go on flowering for a much longer time with impunity than those which are productive of seed, and in nothing is this more observable than in the ordinary bedding Pelargonium, the free seeders not being worth growing for bedding purposes. We must allow, I suppose, that there is a certain amount of exhaustion with such flowers as Chrysanthemums, Roses, and Carnations, because we have proof every year that by disbudding freely we double the size and substance of our flowers. Azaleas, I think, being such free seeders are hardly to be taken into account as evidence when considering the question whether mere flowers are exhaustive. With Orchids, my experience has been so very small compared with that of Mr. Bardney, that I am not qualified to argue the point with him as regards this important class of plants. But when we consider how very little besides water an Orchid has to live on, we may be tempted to think that the exhaustion is probably owing principally to a deficiency in the supplies; and I well remember how some Stanhopeas I once had charge of thrived, and what strong flowers they produced from being treated during the growing season to some rather strong doses of liquid manure.

Plants of the great Amaryllis family show by the diminishing size of their bulbs that an abundance of blooms takes something out of them; but allow one of them to perfect seeds, and the bulb almost disappears for a time. This may, no doubt, be prevented to some extent by giving at that time an abundance of a particular kind of food, and points to a lesson with which we are not by any means perfect—viz., that the same plant at different stages of its growth requires the constituents of its food in different proportions. If there is abundance of all the elements in the soil at all times that may suffice, but as I have pointed out Orchids have very little besides water to depend on. I think these, as well as many other plants, might often be benefited and their flowering capabilities be increased by the judicious application of a little something else in solution.

To return to the subject of Cucumber-growing, I must say what a pleasure it is to be able to go on without the disease. I have never seen a trace of it since the time it was stamped out as described in this Journal. While for three years I could barely maintain a supply of inferior fruit for pantry use from two houses, I can now with one small house produce more than an abundance both for that purpose and also to use as a second-course vegetable. And what a delicious vegetable it is when simply cut into lengths and cooked Vegetable Marrow fashion! Indeed, I do not know who would trouble about Vegetable Marrows when he can get plenty of good flavoured Cucumbers. But apart from the comparison, we can have Cucumbers all through the winter, and Vegetable Marrows are not easy to produce during that season.—WM. TAYLOR.

AMERICAN BLACKBERRIES.

It was with regret that I read Mr. Muir's sweeping condemnation of American Blackberries on page 5, and I am quite sure that he will eventually find that his decision against "having anything further to do with them," was ill advised and hasty, for under good cultivation the Parsley-leaved variety has proved to be so excellent both in the size and abundance of its berries as to have a prominent position assigned it among our most useful fruits.

The common Bramble grows so luxuriantly and in such abundance here that when I received some plants of the Parsley-leaved American Bramble from Brocklesby Park in Lincolnshire, where I am told it is so flourishing as to attract the notice and admiration of visitors, they were planted in ordinary soil under the erroneous supposition that no special care was necessary to induce them to grow freely and bear fine fruit. The puny growth of the first season proved that I was mistaken, and in the following autumn a trench 18 inches deep and 3 feet wide was excavated and refilled with two-thirds of spent hotbed manure mixed with a third of garden soil, and the Brambles transplanted into it. Nothing could be more satisfactory than the result, for the growth that followed was so rampant that it was obvious an ordinary trellis would be useless, and a neat one 6 feet high of diamond pattern was made of stout poles thrust into the ground and crossing each other diagonally. This was

soon covered, and for some three or four years we have had an ample supply of fruit far surpassing anything ever seen on an English Bramble. No account has been kept of the actual quantity of fruit picked in a single season, but I know that from 6 to 8 gallons has been picked at one time, and this may be done repeatedly for several weeks from a row 60 feet long and 7 feet high. This season the crop promises to be even more abundant, for the row is just now one mass of blossom from bottom to top, borne in huge clusters upon stout lateral growths about 2 feet long, so that the row is in reality a thick hedge quite 4 feet through, and is probably at its best. Nor is there any fear of a cessation of vigour, for new main shoots have come freely from the bottom of the old ones, and are already from 6 to 8 feet long, and nearly an inch in diameter. The fruit is used chiefly for making jelly, which is so highly prized by connoisseurs that it must command a profitable and ready sale. Surely fruit-growers for market would do well to bestow some attention upon a fruit that is so hardy, so prolific, and so easily cultivated, and which, so far as my experience goes, is unaffected by blight or disease of any kind.—E. L. O.

BORONIA POLYGALIFOLIA.

COMPARATIVELY little known, but one of the most useful of the genus, is that of which a spray is shown in the woodcut (fig. 11). In



Fig. 11.—*Boronia polygalifolia*.

few gardens is it largely grown, but wherever it has been fairly tried the highest opinion is held of its merits as a greenhouse or conservatory plant. Perhaps the best examples of its utility can be seen at Kew in the greenhouse, where during the spring and early summer months plants with quite masses of flowers are very noticeable upon the side shelves. These are borne on corymbose heads, are of a bright rosy-lilac hue, and last a considerable time either upon the plant or when cut. The growth being very free, the plant will endure hard cutting, a valuable quality in these days when flowers are so largely in demand; and though the colour is not so brilliant or startling as that of some plants, it is a shade that can be readily associated with many others without producing any unpleasant discord. It requires similar treatment to other species of the genus.

ROSES—M^{lle}. EUGÉNIE VERDIER.—Judging from the general tenor of the reports, everything considered, I think we have better Roses in Ireland this year than you seem to have in England. Going through the Rose garden attached to the residence of George Gough, Esq., Birdhill, near this town, I had an opportunity of admiring some glorious blooms, and select the above to draw your attention to. If it can be grown generally, or even casually, as I saw it to-day, the wonder is that every exhibition stand. It is light silvery peach-coloured, with a rich

of warm crimson, with much in common, similar to La France, Duchess of Edinburgh, and Capitaine Christy; but with a deep satin hue, as the soft rain drops, sparkled on it to-day, far superior to any of them, not only in colour but in shape. The form seemed as perfect as A. K. Williams, which I have had very fine.—W. J. M., *Clonmel*.

WINTER LETTUCES GROWN ON RIDGES.

It is many years since we recommended the system of growing Lettuces on ridges about 4 feet high and 6 feet wide at the base, running north and south. They are planted thickly on both sides during September and October, and when they do well, as we have always experienced, they may be thinned out in March, the surface of ridge neatly broken over, and the thinnings planted on a rich well-prepared border for a succession crop. Last autumn we planted about 2000, and those which stood best were Hardy Hammersmith, Hicks' Hardy, and Bath Brown Cos. The latter kind is rarely found true, but when it can be procured it is of great value for winter, and blanches white and solid, and the flavour is nutty and pleasant. It has lasted long in use with us this season, and has not readily gone to seed. A succession of various kinds of Lettuces raised in a frame, and when well hardened were planted out in deeply drawn drills, in which was placed previous to planting a quantity of leaf soil. The plants took quickly to the soil and grew with great rapidity. They received shelter in the drills, and are now of the best quality. Rich free soil and plenty of moisture are essential requisites to finely blanched summer Lettuces.—M. T.

FANCY PANSIES.—No. 1.

THOSE of your readers who have not yet learned to look with favour upon the Fancy Pansy would scarcely have felt at home at the Scottish Pansy Society's thirty-ninth Show, held at Edinburgh on the 22nd ult., while those who have lost the prejudice would have found ample cause for confirming them in their new faith. Thousands of beautiful flowers of every conceivable hue were staged in about ninety classes, of which nearly sixty were confined wholly or in part to Fancies. Some of the combinations of colour were exceedingly harmonious, while in quality and form there was nothing to be desired. Size, too, although last in the Scottish standard of properties, was also there, some of the blooms measuring over 3 inches in diameter, and quite dwarfing their orthodox relatives the Show varieties.

When their endless variety, robust habit, continuous flowering, and hardiness are considered, it is no wonder that they are popular with gardeners, nurserymen, and amateurs. This increased favour is reflected in the catalogues, where the list of Show kinds is being rapidly cut down, while the Fancies are being cultivated in largely increasing numbers. I took pains to get to know from some of the leading florists at the Exhibition in what proportion the Show varieties are sold now compared with the Fancies, and the result is, that where one of the former is ordered three of the latter will be sold. This result has been obtained by steady improvement in the flowers themselves, which may be taken as the most reliable basis of favour. Some of the best kinds have undoubtedly come from promiscuous hybridisation, but systematic crossing is now being largely practised, and astonishing results may be confidently expected. Certain it is that by the latter course the proportion of rubbish is minimised, and the chance of obtaining what is wished increased.

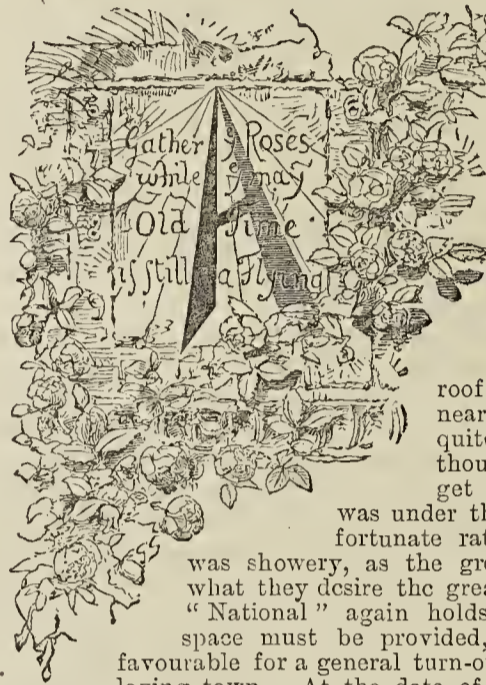
I had the pleasure of a long conversation with Mr. John Downie, whose name is inseparably connected with Fancy Pansies, and he was good enough to give me some details of their introduction to Scotland and London. Above thirty years ago he obtained from France the first Fancy Pansy he ever saw, and he called it Dandie Dinmont. From this he raised one which he named Frapeola, and ultimately succeeded in getting six distinct varieties, inclusive of old Magpie, which latter, I have heard on reliable authority, was found by the late Mr. Fox, of Wetley Rocks, Staffordshire, growing in a hedge-bottom near his nurseries. Of these he took great care, but so much was he laughed at for his pains that he was compelled to hide them away to escape the ridicule of his friends, some of whom hesitated not to say that he was mad. Undeterred, however, he took his unique flowers to London, and exhibited them about 1852 at the Botanical Gardens. The judges, wedded, doubtless, to the old sorts, vouchsafed them no notice whatever. Not so the ladies, who crowded about the little strangers all day. The next morning Mr. Downie found himself complimented by the *Times* on his extraordinary exhibits, and other criticisms on the first band of Fancy Pansies ever shown in London were also favourable. Encouraged by the press comments and the favour his flowers received from the visitors, Mr. Downie persevered, and laid the foundation of a bright future for one of the most popular flowers we have either for exhibition or bedding purposes.

Even after this the Scotchmen would not have them, good florists like Mr. George Ross of Laurencekirk fighting shy for many years. The above-named gentleman, however, has so far changed his views that he is now one of the most successful raisers and exhibitors of his whilom *bête noir*. Messrs. Dickson and Co. of Edinburgh soon recognised the worth of the new flower, and have since done a great work in its improvement. Others soon followed suit, and now there is a race every year by raisers in Edinburgh, Paisley, Aberdeen, and elsewhere, who shall send out the best new varieties.

Next week, with your permission, I will try to enumerate and describe a few of the best varieties I saw in the winning stands.—M. H. MILLER, *Leek*.

THE NATIONAL ROSE SOCIETY'S NORTHERN SHOW.

SHEFFIELD.—JULY 12TH.



NOTHER fine Show we have to report. It was held in the Botanic Gardens, and there was a remarkable unanimity of expression relative to its merits, rosarians, both amateurs and professionals, regarding it as certainly one of the freshest and best exhibitions of the year. It was held in a capacious building ordinarily used as a tea and refreshment room, with a low-glazed ridge-and-furrow roof; and although the space was nearly large enough for the Roses it was quite inadequate to accommodate the thousands of visitors who struggled to get even a glance at the blooms. It

was under these circumstances perhaps a little fortunate rather than otherwise that the day was showery, as the greater the number who cannot see what they desire the greater is the disappointment. If the "National" again holds a show at Sheffield much more space must be provided, in case the weather should be favourable for a general turn-out of the inhabitants of this flower-loving town. At the date of this Exhibition cutback Roses in the south were going out of flower, while those in the north were coming into good bloom. This was shown by the amateur champion of the year (Mr. Slaughter) having, after carrying all before him at all the principal shows in the southern counties, to be content with third honours in the leading amateur class. So fine a collection of bouquets of Roses has seldom been seen, over 150 being exhibited for competition in the four classes open to them. District-grown Roses numerous and good, but as a rule their setting-up did not do them justice. Her Majesty again created quite a sensation, and will doubtless prove a great acquisition amongst the light Roses. The Show was well managed by Mr. Barron; and Canon Hole, the President, and the two Honorary Secretaries of the N.R.S. were present at the Exhibition.

NURSERYMEN'S CLASSES.

Class 1, seventy-two Roses, distinct.—To the first prize of £5 in this class was added a silver cup value ten guineas, presented by the Mayor of Sheffield, Michael Hunter, Esq., jun. This coveted prize was won by Messrs. Paul and Son, Cheshunt, with, as might be expected, a fine collection when the other competitors were Messrs. B. R. Cant and Cranston, who were placed in the order named. There was no very marked difference in the merits of the three collections. Mr. Cant's blooms were very fresh, but so also were those from Cheshunt, while they were also generally larger, and size appears more and more to gain favour at Rose shows. Some of the King's Acre blooms were a little injured by the weather, but the majority of them were worthy of the place and the man. In the cup stands the most prominent blooms were A. K. Williams, Maurice Bernardin, J. S. Mill, Reynolds Hole, Pride of Waltham, Senateur Vaisse, Dr. Andry, Madame G. Luizet, Duke of Teck, Niphotos, Charles Lefebvre, E. Y. Teas, Beauty of Waltham, Marie Raby, and Horace Vernet, all in superb condition. In the second-prize stand Gloire de Bourg-la-Reine was glowing, but a trifle coarse; Dr. Sewell, very rich; Dr. Andry, Maréchal Niel, the finest in the Show; Innocente Pirola, also fine; A. K. Williams, Reynolds Hole, very fine indeed; Star of Waltham, Niphotos, grand; Madame Margottin, Duchesse de Morny, and Xavier Olibo, were the leading varieties. The majority of them were also admirably represented in Mr. Cranston's collection, in which, however, the finest blooms were Madame G. Luizet and Duc de Montpensier, both splendid.

Class 2, thirty-six trebles.—Messrs. Paul & Son again secured the place of honour, staging in splendid condition among others Maurice Bernardin, Countess of Rosebery, Comte Raimbaud, Comtesse d'Oxford, Eugénie Verdier, Prince Arthur, Reynolds Hole, and Madame Lacharme. Mr. Cant, who followed closely, had A. K. Williams, magnificent, as also were Duke of Edinburgh, Reynolds Hole, Duke of Teck, and Duchesse de Morny. In the next class, twenty-four trebles, Mr. Cant was first and Mr. Prince, Oxford, second, the former repeating as the best blooms those enumerated in his other stands; the latter having very prominent Jean Ducher, Alba Rosea, Alfred Colomb, Princess Mary of Cambridge, Madame Isaac Perriere, Baronne de Rothschild, and A. K. Williams remarkably fine.

Class 4, eighteen Teas and Noisettes.—Mr. Prince was first with a grand collection, including Catherine Mermet, Madame Welch, Anna Ollivier, Comtesse de Naidailac, Alba Rosea, Madame Willermoz, Jean Ducher, Souvenir de Madame Pernet, Rubens, Souvenir de Paul Neyron,

Perle des Jardins, Innocente Pirola, Souvenir d'un Ami, Souvenir d'Elise Vardon, Amazone, Elise Sauvage, and Marie Van Houtte—a stand of almost faultless blooms. Messrs. Paul and Cant followed in the order named, Madame Cusin in Mr. Paul's stand, and Madame Lambard in both collections, being very rich and telling.

Class 5, Division A, thirty-six Roses, distinct.—Mr. House, Peterborough, was first with good, even, well-coloured blooms; A. K. Williams, J. S. Mill, Sir Garnet Wolseley, Duke of Connaught, Horace Vernet, and Catherine Mermet being admirably represented. Mr. Frettingham, Beeston, Notts, was second; Lord Macaulay, J. S. Mill, Mrs. Laxton, and Etienne Levat being conspicuous by their excellence. Messrs. Jefferies & Son, Cirencester, were a very close third, staging admirably Paul Jamain, Maurice Bernardin, Comtesse de Choiseuil, and Mrs. Jowitt. Mr. J. Mattoek, Oxford, had the remaining prize, Dupuy Jamain being very fine. Five collections were staged. In the next class for eighteen trebles the first three exhibitors were placed in the order named.

In Class 7, eighteen Teas and Noisettes, Messrs. Jefferys secured the first position with a very charming stand, in which Madame Lambard was in extraordinary colour, and Perle des Jardins very rich. Mr. Mattoek and Messrs. Cooling & Son, Bath, followed closely in the order named.

AMATEURS' CLASSES.

Class 8, thirty-six Roses, distinct.—To the first prize of £5 in this class was added a silver cup value ten guineas, presented by the Master Cutler of Sheffield, A. A. Jowitt, Esq. This was won by the great and good Darlington rosarian, E. R. Whitwell, Esq., with bright, fresh, full, symmetrical blooms. Madame Hippolyte Jamain was magnificent, while François Michelin, Avocat Duvivier, Marie Baumann, Prince Arthur, and Belle Lyonnaise were splendid. The Rev. Canon Hole was second, staging grandly Marie Rady, Charles Lefebvre, Thomas Mills, Madame Victor Verdier, and Mons. Boncenne. T. B. Hall, Esq., Larchwood, Roek Ferry, was a close third, staging splendidly A. K. Williams and Le Havre; Mr. A. Slaughter, Steyning, being a good fourth in this fine class. In the following class for twelve trebles the prizes were won respectively by Mr. Whitwell and Canon Hole, both with stands of great merit.

Class 10, twelve Tea and Noisette Roses.—Mr. Slaughter was here in the premier place with charming examples of Souvenir de Paul Neyron, Catherine Mermet, Belle Lyonnaise, Souvenir d'un Ami, Amazone, Madame Willemoz, Rêve d'Or (extra fine), Marie Van Houtte, Homère, Madame Margottin, and the new Tea Francisca Kruger. Canon Hole was an extremely close second; Innocente Pirola, Marie Van Houtte, Souvenir d'un Ami, Madame Lambard (pale), and Rubens surpassing any in the first-prize box, but some others had been injured by the weather. Mr. Whitwell was third, his finest blooms—aud fine they were—being Comtesse de Nadaillac and Anna Ollivier.

Class 11, twenty-four Roses, distinct.—The piece of plate presented by Messrs. Walker & Hall, Sheffield, was awarded in a close contest of thirteen boxes to Rev. J. H. Pemberton, Havering, Essex, with undoubtedly a remarkably fine stand, in which were prominent Duchess of Bedford, A. K. Williams, Madame C. Crapelet, Duchesse de Morny, Horace Vernet, Devienne Lamy, La France, and Beauty of Waltham. Mr. C. Davies, Aynhoe, Banbury, was placed second. We should not give a faithful report of the proceedings if we failed to state that this award did not meet with anything like general approval. It must be remembered, however, that the criticism occurred an hour after the judging, and then Mr. Davies' stand was almost beyond question the best, and was not excelled by any box in the Show. In colour, especially, Marie Rady, Comtesse d'Oxford, Sultan of Zanzibar, Fisher Holmes, Duc de Rohan, Alfred Colomb, Hippolyte Jamain, Madame G. Luizet, Le Havre, and Louis Van Houtte have probably never been surpassed. Rev. E. N. Pochin was placed third with good blooms; and Mr. M. J. Radford, Nottingham, fourth. In the next class—eighteen Roses, distinct—Mr. Davies was unquestionably first, staging magnificently Louis Van Houtte (which won the silver medal as the premier bloom in the amateurs' classes), Harrison Weir, rich; E. Y. Teas, Camille Bernardin, Devienne Lamy, and La France. Mr. Burrell of Darlington was second with truly admirable blooms, and Mr. Pochin third, eleven stands being in competition.

Class 13, nine Tea and Noisette Roses. Miss Watson Taylor, Headington, Oxford, was placed first with a beautiful stand, which contained the premier Tea bloom in the Show—a magnificent Catherine Mermet, to which the silver medal was awarded. Niphotos, Marie Van Houtte, Souvenir d'Elise Vardon, Alba Rosea, Homère, Climbing Devonensis, and Perle des Jardins were also in admirable condition. Mr. C. Davies was an excellent second, Madame Lambard being very rich; and Mr. Julius Sladden a close third, with amongst others superb examples of Innocente Pirola, Perle des Jardins, and Amazon. There were seven competitors.

Class 14, twelve Roses, distinct. The first prize was awarded to Mr. John Howe, Nottingham, who staged large yet fresh blooms; the second to Rev. J. A. Williams, Stratford-on-Avon, light varieties predominating; third to Mr. C. Hutchings, Crapenhall, Warrington; and fourth to Mr. Ismay Fisher, Scawby, Brigg, with blooms six hours too young, but beautifully staged. Mr. F. Burnside, Farningham, Kent, was first; Mr. Mawley, Croydon, second; and Mr. Brown, Heaton Mersey, third, all with fresh and good examples. In the class for six Tea or Noisette Roses Rev. J. A. Williams was first with charming blooms of Souvenir de Paul Neyron, Marie Van Houtte, Maréchal Niel, Souvenir d'Elise Vardon, and Comtesse de Nadaillac, from plants, we believe, that were not inserted until March of the present year. Rev. Alan Cheales was second, Triomphe de Rennes and Madame Lambard being good, the others somewhat despoiled by the weather. We failed to obtain the name of the winner of the third prize in this class. In the extra class for twenty-four Tea or Noisette Roses in eighteen varieties, Mr. Davis, Aynhoe, won the piece of plate provided by Mr. Prince with an even and splendid stand, almost every bloom a model. Rev. J. H. Pemberton was second with blooms altogether good; and Mr. Slaughter third with an excellent stand, five lots being staged. Another extra class was provided for six new Roses not in commerce previously to 1880. The first prize was won by Mr. T. B. Hall with Madame Montel, Madame Isaac Perrière, Duke of Teck, Rosieriste Jacobs, Comtesse de Camond, and Julius Finger; Rev. J. H. Pemberton being second, and the Rev. Alan Cheales third.

OPEN CLASSES.

In Class 19, for twelve new Roses not in commerce previous to 1880. Messrs. Paul & Son were first, the most attractive blooms being Duke of Albany, deep crimson; George Moreau, George Baker, Rosieriste Jacobs, Pride of Waltham, Ulrich Brunner, and Madame Isaac Perrière. Messrs. Cranston & Co. were second, the best blooms being Souvenir de Madame Berthier, reddish crimson, good; Guillaume Guillemot, shell-like, fiery crimson; and Ernest Prince. Third, Messrs. Jefferies & Son, Comte de Flandre, dark, tinged with violet, and Duke of Albany being the most noticeable.

In the class for any yellow Rose Mr. Prince won first honours with beautiful examples of Perle des Jardins, Messrs. Cranston and Cant following respectively with Maréchal Niel. The last-named exhibitor was first in the Any white Rose class with massive and spotless examples of Niphotos, Mr. Prince following with Alba Rosea, third honours going to Messrs. Paul for Niphotos. The class for any crimson Rose brought out nine collections. Messrs. Cranston & Co. securing the first position with grand examples of Marie Baumann, but somewhat faded in colour; Messrs. Paul followed with fresh and brilliant specimens of A. K. Williams, Messrs. Jefferies being third with larger but less bright blooms of this fine Rose. The next may be termed the conquering class, being for twelve blooms of any variety. Mr. Bennett now has the satisfaction of knowing that his new Rose, Her Majesty, is, like the free and bearded Barley among cereals, the monarch of them all—the real queen of Roses, as his stand of this variety won the coveted prize, some of the blooms being quite 6 inches in diameter. Messrs. Paul & Son followed with La Duchesse de Morny, fine and beautifully fresh, Mr. Cant being third with Marie Baumann. For the prize offered for any new seedling Rose, to be known as the Rose of Sheffield, there was no claimant.

DISTRICT-GROWN ROSES.

In both the open classes of thirty-six and twenty-four blooms grown within twenty-one miles of the Sheffield Town Hall, Messrs. Fisher, Son and Sibray won the premier honours with really good, fresh, and bright blooms from their great nursery at Handsworth, the first prize in the larger class being a silver cup, value ten guineas, presented by Edward Tozer, Esq., President of the Gardens in which the Show was held. In the class for twenty-four Mr. Hiram Shaw secured the second prize with a creditable stand. The prizewinners in the remaining twenty-one-mile-radius class were Messrs. Mallender, Worksop; Bevers, Rotherham; W. G. Jackson, Mansfield; and W. Jackson, Heeley, all exhibiting well.

In the six-mile-radius class for six blooms a very serious question arose when it was pointed out that the first-prize blooms were almost exactly similar to those staged by the exhibitor Mr. Barratt, Eccleshall, in the preceding class, in both cases securing first honours; the boxes, too, were of the same pattern, the names of the Roses written by the same hand and with the same mistakes in spelling in both stands. When all these peculiarities were found in a prize stand in another class, set up by another exhibitor hailing from another town, the whole matter was undergoing a searching investigation when we left the Show. We learn that subsequently both the stands were disqualified, Messrs. H. R. Beardshaw (Norton Woodseats) and H. Urton being placed first in the two classes.

HAND BOUQUETS.

Although this was probably the finest display of the kind yet seen, there is yet room for improvement in selecting and grouping Roses tastefully for the purpose in question. As before mentioned 150 bouquets were staged, Mr. Mattoek, Oxford, winning the first prize with twelve in the open class, followed by Messrs. Paul, Cheshunt, and Cooling, Bath. The Oxford examples were mostly Teas, a little packed, and not enough foliage, yet they were the best. In the Cheshunt arrangements dark Roses predominated, and there was too much foliage, while in the Bath bouquets several of the blooms were too large and globular. If about half the foliage had been taken from the second-prize bouquets and added to the first both lots of bouquets would have been much improved. In the class for six bouquets Miss Watson Taylor was undoubtedly first, and with twelve bouquets of district-grown Roses Messrs. Fisher, Son & Sibray; Mr. Proctor, Chesterfield; and Mr. Cooke, Handsworth, were awarded the prizes in the order named, most of the examples being too flat and formal. In the local amateurs' class for six bouquets the laced collars surrounding the flowers were much too large, incongruous, and obtrusive.

MISCELLANEOUS.

Mr. Julius Sladden's stand of old English Roses was much admired, as were Mr. Prince's fine extra contribution of Teas and curious Roses, including the Green Rose, Japanese Roses, &c. Messrs. Fisher, Son and Sibray arranged on the lawn an attractive group of Roses in pots, very fresh and dwarf, and a particularly noteworthy background of pyramidal purple Beeches, Fisher's plicated variety, and Golden Yews. We were scarcely prepared to see such large deciduous trees as these dug up at midsummer, planted in baskets, and stood in the full sun with scarcely a leaf flagging, yet we did see this, and the result must be pronounced a triumph in the preparation of trees for removal.

Mr. W. H. Beeson, Carbrook Bone Mills, Sheffield, had on view samples of his Rose manure, of which Mr. Fisher speaks in terms of marked approval. Messrs. Crowley exhibited their celebrated lawn mowers, and Messrs. Primrose & Co., Sheffield, had examples of their Eclipse system of glazing—a simple method of affixing glass without putty—portable, light, and durable. A house glazed on this plan in the Handsworth Nurseries gives great satisfaction, and anything must be good there to do that.

THE BOTANIC GARDENS.

A word of praise as emphatic as possible must be recorded on the attractiveness and excellent condition of this undulated enclosure—the almost overpoweringly gay mixed beds of hardy plants, the magnificent beds of Imperial Blue Pansy, the ehaste and cheerful carpet and Succulent beds, the order under glass and outside, all testifying to the skilful supervision and excellent practice of Mr. Ewing, who has been the Curator for a quarter of a century. The gardens are pleasantly situated in one of the best parts of Sheffield at a considerable elevation, an admirable site

for a flower show, and when the weather is favourable visitors usually assemble in great numbers.

CULTURE OF CALCEOLARIAS.

THAT the Calceolaria is an effective and most useful greenhouse flowering plant, everyone having a knowledge of it will readily admit. It makes a good succession to the Cineraria, its time of flowering being April, May, and June; and, if necessary, the flowering period may be extended by sowing a pinch of seed at intervals of a week or ten days from the middle of July to the middle of August, and also by retarding the flowering of the plants raised from the last sowing. Although the Calceolaria is of easy culture it not unfrequently happens that amateurs, and gardeners too, experience difficulty in the matter of raising a sufficient number of young plants from seed to satisfy the demands. Therefore, as I have hitherto been successful in raising and growing the Calceolaria, and with a view to render assistance to those of your readers who may have been less fortunate, I will briefly detail the particulars of the treatment.

Obtain a packet of seed from a good strain, and sow part of it now and the remainder a week or two hence in a pan, having a couple of inches of crocks in the bottom, and over them a little dry moss to render the drainage perfect, and filled to the rim with light fine soil, the same being rammed firmly together and watered through a fine rose about twenty minutes before the seed is sown, which should be covered with a dust of silver sand, over which place a piece of glass and damp moss, and then stand the pan on coal ashes in a frame occupying a north aspect. As soon as the seedlings appear through the soil, which, if all goes well, will be in a fortnight or three weeks from the time of sowing, remove the moss gradually until they are inured to the light. Water, not having been applied in the meantime, should be given sparingly through a fine rose as soon as the soil in the pan becomes a little dry; and when the seedlings are large enough to handle they should be pricked out in pans and returned to the frame, watered, shaded from bright sunshine until their roots have taken to the soil, and protected against the attacks of slugs by encircling the pans with a mixture of new soot and lime, repeating the application as a precautionary measure twice a week, and dew the plants overhead with the syringe in the afternoon, closing the frame at the same time.

Potting.—Before the seedlings become crowded in the pans into which they have been transplanted they should be taken up carefully with as much soil as possible adhering to their roots, and placed singly in small 60-pots in a compost consisting of three parts light loam and one of leaf soil, with a good dash of sharp silver sand, which should be pressed moderately firm, keeping the stems of the plants the same height out of the soil as they were before; and this is a point that should be rigidly observed every time the plants are potted. The plants when potted should be stood on sifted coal ashes in a frame near the glass, watered through a fine rose to settle the soil among the roots, shaded for four or five hours on bright days, and damped with the syringe when the shading is removed; thus, in addition to immediately refreshing the plants, producing a moist and cool atmosphere for the night—conditions under which the Calceolaria flourishes in every stage of its growth, excepting, perhaps, its flowering period, when a cool and somewhat dry atmosphere would be more congenial. As soon as the plants have partly filled the 3-inch pots with roots they should be shifted into 5-inch pots, ramming the soil between the sides of the pot and the ball of the plant with a flat stick, and when the plants have partly filled these pots with roots they will require to be shifted into 7-inch pots, and again, if larger specimens are required, into 9-inch pots, using coarser and richer soil in potting, and take care that the drainage is both ample and perfect, as the welfare of the plants in a great measure depends upon the manner in which this is performed. Therefore a large piece of potsherd should be placed over the hole in the bottom of the pot, then several pieces of smaller ones, and finish off by filling in the clinks with pieces which have been through a small sieve, altogether a little less than one-third the depth of the pots, and over all place a handful of sphagnum moss, thus securing a perfect drainage.

Supplying Water.—The plants having been thoroughly watered a few hours before being shifted into larger pots will require very little water at the roots for some time afterwards—not until they have pushed well into the new soil; but they should be damped with the syringe late in the afternoons of bright days, so that the foliage may remain covered with moisture the night through. As the plants fill their largest pots with roots they

should be watered alternately with diluted liquid manure, which will greatly assist the plants in the formation and development of sturdy flower-spikes. According to the judgment exercised in the application of water to the plants so also will be the floriferous result thereof. Bearing this in mind there should be no indiscriminate waterings; but when the pot produces a hollow sound in response to a sharp knock water should be given two or three times, then allow the soil to become moderately dry before watering again.

Ventilation and Situation.—The Calceolaria, like the Cineraria, may in every stage of its growth be termed a fresh-air-loving plant, but, like them, does not like it when admitted in currents. Pits from which frost and excessive damp can be excluded are suitable. A minimum temperature ranging from 35° to 50° during the winter and spring months will be congenial to the plants, which, if subjected to a high temperature and close atmosphere, especially during their flowering period, become infested with aphides, to destroy which the plants should be fumigated with tobacco paper two nights in succession. Ventilate freely the following days, weather permitting. When the plants are in flower the flower-spikes should be supported with sticks and matting. The Calceolaria is not a good plant to cut from, as the flowers do not keep well; but as a decorative plant which comes within the reach of everyone possessing garden frames and a greenhouse it has few equals.—H. W. WARD, Longford Castle, Salisbury.

HULL FLOWER SHOW.

THERE are probably few places in the kingdom more suitable for an exhibition of garden produce than the Botanic Gardens are at Kingston-upon-Hull, and the district surrounding being fertile, with good gardens scattered everywhere, owned by wealthy proprietors and managed by competent gardeners, there should be little difficulty in providing annual gatherings of the kind under notice which would rank amongst the best in the provinces. The present Exhibition was the first that has been held in the new gardens, and as regards the products was most encouraging. The opening day was unfortunately showery, yet as two others followed it is hoped the attendance of visitors would result in a financial success. The Show was inaugurated by the skilled and energetic Curator of the gardens, Mr. P. McMahon, who, in conjunction with his co-Secretaries, Messrs. James Dixon, E. T. Sharp, and the members of the Committee, laboured indefatigably in the commendable work which they voluntarily undertook to accomplish.

The schedule, without being extravagant, was sufficiently liberal to induce Mr. Cypher of Cheltenham to put forth his strength, and consequently some of the finest examples of plant culture to be found in any country were placed in competition. This great exhibitor, though he achieved a splendid success, did not quite carry everything before him, a fact which shows conclusively that there are first-rate local cultivators—such, for instance, as Mr. Lawton, gardener to Col. Broadley, M.P., Welton House, Brough; Mr. Cartwright, gardener to A. Wilson, Esq., Iranby Croft, Hull; and Mr. Jarvis, gardener to B. Whittaker, Esq., who were the most successful exhibitors in the plant classes.

In the class for sixteen plants, ten to be in flower, Mr. Cypher won chief honours with a noble group, including *Erica Parmentieri rosea*, 6 feet in diameter, magnificent; *E. obbata*, *E. Dennisoniana*, *E. ventricosa tricolor*, *Allamandas*, *Ixoras*, with a *Dracocephalum*, *Anthurium*, and *Clerodendron*. The foliage plants were also fine. Mr. Lawton was a most creditable second, his noteworthy plants being a splendid *Stephanotis*, the good old *Pleroma elegans*, and *Erica Paxtoni*. Mr. Cypher was also first with ten fine-foliaged plants, very remarkable being *Lomatia filicifolia*, *Crotons Sunset* and *Victoria*, *Cycas circinalis*, and *C. revoluta*. Arthur Wilson, Esq., was an excellent second, staging among others a grand *Latania*, and capital examples of *Kentia australis* and *Cordyline indivisa*. Mr. J. C. Padman, Boston Spa, Tadcaster, secured the third prize, his most striking plant being a fresh and vigorous *Stevensonia grandifolia*. In the class for ten plants, six at least to be in bloom, Mr. Cypher was in his accustomed position, staging amongst others a *Stephanotis* densely covered with waxy flowers, excellent *Ericas Bothwelliana* and *Aitoniana*, with a beautiful but not large plant of *Croton Warreni*. B. Whittachew, Esq. (Mr. Jarvis, gardener), Cliffe House, Hessle, was worthily awarded the second prize for large well-grown specimens. In the class for four plants in bloom Mr. Cypher was first with not large but superbly finished examples of *Ixora Williamsii*, *Erica Parmentieriana rosea*, *Aphelexes macrantha rosea*, and *Anthurium Andreanum* with twenty fine spathes. Mr. Jarvis was again second with *Clerodendron Balfourianum*, very fine indeed; *Statice Holfordi*, *Anthurium Schertzerianum*, and a *Hydrangea* about 5 feet in diameter. In the single-specimen class Mr. Cypher sustained his first defeat, being second with a very fine plant of *Erica Shannoni* 4 feet in diameter, Mr. Lawton winning the first place with a wonderfully fine, fresh, and free example of *Phenocoma prolifera* Barnesii 5 to 6 feet in diameter.

In the class for four Palms the competition was extremely good and close, Mr. Lawton securing the first position with *Verschaffeltia melanochætes*, *Cocos Weddelliana*, *Pritchardia filamentosa*, and a splendid specimen of *Kentia Balmoreana*. Mr. Cartwright was second with a grand *Latania borbonica*, *Thrinax elegans*, *Pritchardia pacifica*, and a *Kentia*. Mr. Cypher had the third prize. Ferns were of striking excellence, Mr. Lawton securing the first position in the class for six with *Gleichenia speluncæ*, 5 feet in diameter; *G. rupestris glaucescens*, 6 feet; *Pteris scaberula*, 5 feet; *P. Tyermani*, 3 feet; and *Leucostegia immersa*, 5 feet, all splendid. Mr. Cartwright, who followed, had *Davallia Mooreana* and *Adiantum cardiochlæna*, each 8 feet across. In the class for three ornamental-foliaged plants Mr. Lawton, who was the chief exhibitor, staged a fine example of

Croton Kingianus, with enormous leaves; Mr. Simpson, Selby, having the second prize. The last-named exhibitor was decidedly first in the arrangement of a group occupying 200 square feet. It was square in form, with a very broad flat margin, broken thinly with tall Palms, &c., the centre being a free, bright, and informal cone. Mr. Cartwright was second also with a cheerful and well-arranged group. We failed to obtain the winner's name of the third prize, also the exhibitors in the smaller groups, which groups, however, were not invested with marked artistic merit.

Orchids were not numerous, but they were good and greatly admired. Mr. Cypher was first for six with *Cattleya Gaskelliana*, with three grand flowers; *Dendrobium Dariai*, with twenty flowers; *Odontoglossum citrosimum roseum*; *Aerides Lobbi*, a grand spike; *Disa grandiflora*, with ten flowers; and *Dendrochilum filiforme*, very fresh and fine. Special certificates were also granted to the first two plants named. Mr. Cartwright was an excellent second, his most noteworthy plant being *Saccolabium Biumei majus* with three fine racemes.

Mr. E. P. Dixon contributed a large miscellaneous collection of choice plants and Conifers, which materially added to the interest of the tent in which they were arranged.

A considerable number of Roses were staged in the three classes devoted to them, by far the best blooms coming from Mr. Pennell, nurseryman, Lincoln. Lady Du Cane, who was second for twelve, was far ahead of other competitors in the class for thirty-six blooms, Niphotos, Duchess of Bedford, and La France being in superb condition. Mr. Ridsdale, gardener to the Marquis of Ripon, and Mr. W. T. White, Hedon, had the remaining prizes in the class, Mr. J. Wade, Woodside, being highly commended. In one of the boxes a dispute arose over two yellow blooms, opinions being about equally divided as to whether they were both *Maréchal Niels* or one of them *Perle des Jardins*. There are flowers of these varieties that it is almost impossible to distinguish one from the other, but the stems of the latter and the leafstalks are of a reddish tint, those of the former being green. In the Rose tent were table decorations and bouquets, those from Mr. Cypher showing the greatest taste in arrangement.

Some stands of cut flowers of Tuberous Begonias were sent by Messrs. Laing & Co., Forest Hill, London, and were greatly admired by visitors to the Show.

Fruit was not largely exhibited, but was as a rule good. Mr. Lawton secured first prize for white Grapes with medium-sized bunches, good, even, and beautifully finished berries of Buckland Sweetwater; Mr. J. Allsop, gardener to Lord Hotham, Dalton Hall, being second with the same variety, the berries being wonderfully fine but not quite ripe. William New, Esq., Walkhouse, Barrow-on-Humber, was third with grand examples of Foster's Seedling, but not perfectly ripe. In the class for black Grapes the first prize, so far as we could learn, went to admirable examples of Black Hamburgs from the Marquis of Ripon's gardens; Henry Briggs, Esq. (Mr. Stanley, gardener), Cottingham Hall, following very closely with the same variety; Mr. Allsop being third with Black Prince, the berries being unusually large but not quite ripe. The prizes for Peaches went to Mr. D. Melville, Grantham, and Mr. Cartwright for very good dishes. No prizes were offered for Nectarines and Strawberries, but splendid dishes of the latter were exhibited by Rev. C. J. Wall, Sproatley (Mr. Culling, gardener), and an extra prize was awarded. Mr. E. V. Dixon exhibited a quantity of the new Baumforth Seedling Raspberry, fine bright, very bright in colour; and Mr. Browshaw, Beverley, exhibited a peck or more of his seedling Strawberry Ne Plus Ultra, very fine fruit, somewhat resembling President in shape but much darker in colour. Fruit in the minor classes was of average quality, but we cannot particularise the exhibits, as there was some confusion in the attachment of the cards.

Vegetables, like fruit, were comparatively few, but generally very good. The most striking exhibits were the collections, the first prize going to Mr. Cartwright, who staged nearly everything in season of excellent quality; Mr. Cook, gardener to Lord Auckland, Edenthorpe, Doncaster, being a close second, the Mushrooms being the finest we have seen at this season of the year. Mr. Ridsdale won the remaining prize with excellent produce. Good vegetables were also staged in the minor classes, but it is too soon to offer prizes for Parsnips and Savoys.

Sufficient has been said to show the character of the Exhibition, and it is certain that if adequate support is afforded, Mr. McMahon and his supporters will be able to provide future shows worthy of the important town and district that has, in the matter of exhibitions of this kind, been too long neglected.

It should be added that G. Bohn, Esq., C.E., was so satisfied with the Show that he empowered the Judges to award a special prize—a silver cup—for the most meritorious contribution to the Exhibition, and there was no difficulty in determining this point in favour of Mr. Cypher.

The Botanic Gardens are in excellent condition, the borders being strikingly attractive with Foxgloves, Canterbury Bells, Sweet Williams, Pansies, &c., and the grounds of 35 acres are particularly enjoyable.

MIGNONETTE IN POTS.

MIGNONETTE is a great favourite with most people, and it is generally most appreciated during the spring months, though it is often found in anything but a satisfactory condition. Seed may be sown now for early blooming during the winter, but for early spring September is the best time for sowing. There are several good strains, but I think the preference is given to Miles' Hybrid Spiral. The most useful size pots are 48's. They should be well drained and have some well-decayed cow manure pressed firmly into the bottom; then fill up with two parts fibry loam and one of leaf soil, with a little silver sand to keep the soil open. Press the soil very firmly into the pot, sow the seed thinly on a smooth surface, and cover lightly with fine soil. Plunge them in a cold frame until the seed germinates, thin the plants out to about six or eight, place them close to the glass, giving little water, and ventilate well. The best place to winter them is on shelves in a cool airy house. From the commencement of November to the middle of February scarcely any water should be applied, which will prevent the plants becoming weakly and

drawn. Water should then be carefully applied. About the middle of March they succeed best plunged in an elevated cold frame. As the plants advance in growth and show their bloom spikes they will be greatly benefited by applications of liquid manure made of cow manure and soot, and should be shaded from bright sun.—A. Young.

ZEPHYRANTHES TREATIÆ.

THE Atamasco Lily, *Zephyranthes Atamasco*, has been long known in gardens, being one of the earliest North American plants introduced to this country, and has now been an inhabitant of these islands for about 250 years. That shown in fig. 12 is, however, a comparative stranger, having only been cultivated in this country a few years, though it will soon become a favourite when better known. It is suitable for culture in pots, and in northern or exposed positions this is the best method of growing it, as out of doors it is very likely to prove unsatisfactory, except in warm sheltered positions, where it might be safely



Fig. 12.—*Zephyranthes Treatiæ*.

tried in borders. Its beauty is certainly seen to better advantage when it is grown in a pot, any ordinary light soil and a cool house suiting it. It is named in honour of the discoverer, Mrs. Treat, who found it flourishing in damp positions in Florida, a fact which will give a good hint as to the treatment required. The blooms are long funnel-shaped, frequently with the lobes more reflexed than is shown in the figure; they are white or tinted with pink, which becomes deeper as they grow older.

FARNINGHAM ROSE SHOW.

It is not an easy matter, when one is judging day after day and rushing about to catch trains, to write reports of the exhibitions one is present at.

After all the anxiety and labour of the National at South Kensington, I had to start for Cardiff on the express, get there at night, judge the next day, and get back to London again. It is, therefore, from no lack of interest in the success of the Farningham Show that I was unable to give any account of it in last week's Journal; for I have not more thoroughly enjoyed any Rose show this year. The day was very fine, and, as everyone who has been to Farningham knows, the surroundings of the Show are very charming—the grounds so well kept, the river flowing briskly past, the grand foliage of the trees—never more beautiful than this season, the bright appearance of the Show ground, the excellence of the flowers, and the courtesy and kindness of all connected with the Exhibition made it a real enjoyment; and so restful did I feel it after the hurry-scurry of the previous day that I lingered so long, sitting under the trees and chatting with Rose friends, as to find myself so late in reaching my kind friend Mr. Ernest Williams at Sutton as to make me quite ashamed of myself—and, I may add, of the railways, for it took me as long getting from Farningham to Sutton as it did from London to Cardiff (four hours)!

The Exhibition at Farningham is not by any means confined to Roses, although they form the *pièce de resistance*. Plants, fruits, vegetables, and honey are all shown well; indeed, of the latter there was the best exhibition by cottagers—Messrs. Skinner—that I have seen this season. The stove and greenhouse plants exhibited by Mr. Burnaby Atkins were really fine specimens of cultural skill, and what shall I say to Mrs. Seal's very beautiful table decorations? Anything more chaste and elegant can hardly be conceived, and done with comparatively few flowers, and these by no means rare or expensive; but the arrangement was so tasteful and suitable for its purpose that it would be well nigh impossible to excel it. The chief centre of attraction, however, both to the larger number of visitors and to myself—and, perhaps I may add, to the readers of the Journal—was the Rose tent; and it was well worthy of attention, for it was filled with a fine and most excellent collection of, in most cases, first-class blooms: and here, again, I may notice how very great is the improvement in the local exhibitors. They have evidently learned much from previous exhibitions, show better and more correctly, and are more particular as to names and mode of setting up, and many stands that two or three years ago would have stood a good chance this year were nowhere. The nurserymen's classes were well filled by Mr. B. R. Cant of Maidstone, Messrs. Bunyard & Son, Maidstone, and Mr. Jefferies of Westerham. Mr. Cant's stand contained excellent blooms of Marie Cointet, Adam (Tea), Horace Vernet, La France, Annie Laxton, Duchesse de Morny, Etienne Levet, Maréchal Niel, Victor Verdier, Penelope Mayo, Mdlle. Eugénie Verdier, Innocente Pirola (Tea), Madame Welch (Tea), Madame Ducher, Marie Van Houtte, Baronne de Rothschild, Marie Baumann, and Louis Van Houtte. He was also first in Teas with a very fine box containing Devoniensis, Souvenir d'Elise, Souvenir d'un Ami, Caroline Kuster, Madame Jules Margottin, Comtesse de Nadaillac (a very fine bloom), Madame Bravy, Jean Ducher, Niphotos, Moiré, Madame Angèle Jacquin. Two stands of Teas were disqualified for having Reine Marie Henriette included amongst them.

The classes for amateurs were exceedingly well filled, and some excellent blooms were staged. In the class for twenty-four varieties Mr. Gray, gardener to Earl Stanhope, was first. His box contained Capitaine Christy, Marie Baumann, La France, Charles Lefebvre, Etienne Levet, Marie Rady, Baronne de Rothschild, Alfred Colomb, Countess of Rosebery, Horace Vernet, Gabriel Luizet, Duke of Teck, François Michelin, Duke of Edinburgh, Marquise de Castellane, A. K. Williams, Star of Waltham, Marguerite de St. Amand, Madame Victor Verdier, Jean Liabaud, Louis Van Houtte, Marie Cointet, Dr. Andry, and Baron Bonstettin. Mr. Burnaby Atkins was a good second. Dr. Ardent of Farningham was first in twelves with good blooms of Star of Waltham, La France, Bessie Johnson, Baronne de Rothschild, François Michelin, La Rosière, Beauty of Waltham, Capitaine Christy, J. S. Mill, and Gabriel Luizet. In the class for nines Mr. Frank Burnside was first with a grand box containing Louis Van Houtte, La France, Marie Baumann, Marguerite de St. Amand, Catherine Mermet, and Innocente Pirola. In the class for six the first prize was awarded to Mr. J. Dalton for Alfred Colomb, La France, Pierre Notting, Louis Levêque, Princess Beatrice, and Marie Rady. These classes were restricted to the neighbourhood of Farningham. In the open class Mr. G. Chert of Buckhurstledge, Westerham, was first with Thérèse Levet, Charles Lefebvre, Marquise de Castellane, Madame Prosper Langier, Mons. Noman, Jean Soupert (an extra good bloom), Marie Rady, Marguerite de St. Amand, Emily Laxton, La France, Maurice Bernardin, Marie Finger, A. K. Williams, Duchesse de Vallombrosa, Alfred Colomb, Marie Baumann, Madame Willermoz, Horace Vernet, Dupuy Jamain, E. Y. Teas, Capitaine Christy, and Louis Van Houtte. In the class for twelves Mr. W. H. Wakley was first with Mons. Noman, one of the grandest blooms of it I have ever seen; Thomas Mills, Marie Baumann, Capitaine Christy, Princess Mary of Cambridge, Marie Rady, Maréchal Niel, Henry Ledechaux, Gabriel Luizet, John Bright, Alfred Colomb, and Fisher Holmes. In the class for nine Teas Mr. G. Mount of Harbledown, Canterbury, was first with Anna Ollivier, Jean Ducher, Catherine Mermet, Alba Rosea, Innocente Pirola, Maréchal Niel, Souvenir d'un Ami, Souvenir d'Elise, and Caroline Kuster. In the class for six of one variety the Rev. E. H. Pemberton was first with six of the finest blooms of Horace Vernet I ever saw. Mr. W. H. Wakley was second with a fine stand of Capitaine Christy, and Mr. J. Wakley third with Alfred Colomb. Dr. Tucker exhibited a fine stand of Baronne de Rothschild. The silver cup for the best box amongst amateurs was awarded to Mr. Frank Burnside for his beautifully finished box of nine. I find I have no note as to whom the medals of the National Rose Society were awarded.

In this, as in most of the shows I have as yet attended, the excellent character of the lighter-coloured flowers has been very apparent. Such blooms of Mons. Noman, Capitaine Christy, and others have not been seen for years. I suppose the dryness of the atmosphere was congenial to them.

This well-supported Society has, I hope, a long lease of prosperous times before it, and all lovers of the Rose must wish it well.—D., Deal.

A STRAWBERRY ENEMY.

At page 24 a correspondent rightly guesses at mice being to blame for cutting off his Strawberry fruits. Last year we had quantities of

fruit destroyed in the same way, and found great difficulty in destroying any of the mice. Feeding as they did on the seed pips of the fruit, they had small inducement to accept the bait offered. Poisoning is dangerous. President seemed to be the favourite with our mice. Thus far we have not seen them the present season, but in the adjoining park voles are swarming, and these promise to be mischievous. Various methods of trapping have been tried, but they become too knowing to enter. Poisoned food they also reject, and the only way we can get the better of them is to turn a eat occasionally into a vinery.—B.

I HAVE no doubt the conclusion arrived at by your correspondent, Mr. Murray A. Mathew, that field mice are the destroyers of his Strawberries in the strange manner described by him on page 24, is quite correct. I happened to meet with a case recently which, if not quite in point, will illustrate another of the habits of these little animals. A neighbour near here had six bunches of good Muscat Grapes quite spoiled by these little animals in one night. In some cases the berries were bitten off the bunch, dropped, and left, in others carried off. Two or three bunches had every berry cut away, leaving stem and shoulder stalks, as neatly as though done by the most expert of Grape-thinners.—ROBERT GRINDROD.

YOUR correspondent anent the above subject is perfectly right in his conjecture that mice are the cause of his Strawberries being nibbled off. We had a similar case here in a late vinery containing a quantity of Sir Joseph Paxton on the upper shelves; these troublesome vermin most effectually thinned out all the smallest of the fruit, leaving fortunately the largest untouched, for this reason—that they could not reach down to where the best fruit were hanging. We found from twelve to twenty fruits collected in many of the pots, but none of them seemed to have been eaten. It is a variety of field mouse, very difficult to trap; it is in the habit of making a strange sound, like that of a young bird, in fact some call them the singing mice. We saw the mice run up and down the sash lines, so there is no mistake about the depredators.—W. CHISHOLM, Oxon Heath.

IN reference to what your correspondent (page 24), says concerning a Strawberry enemy, there is no doubt but that mice are the depredators. They have done the same for me at times in a less degree. As a rule it is the unripe fruit they eat off, sometimes making a heap under the foliage of the plants. Some fine fruits of Sir Charles Napier have this season been shaved over, as it were, when ripe by the mice, to all appearance for the sake of getting the seeds, which are rather prominent on this variety. I have also had the stems of Pelargoniums gnawed in the manner described.

If your correspondent has any Melons in frames I would advise him to be on the look-out, or the mice will find them also, and soon begin operations on the fruits when ripening.—JAS. HARDING.

DURING last April (latter end), when I had a batch of Sir Charles Napier and another sort just commencing to change colour, I missed some of the fruit. My first thought was that it was birds, as I had frequently seen robins in the house, but during the night I heard a rustling amongst the plants which caused me to set some traps for mice. I managed to clear them out in two nights. I afterwards found a lot of fruit hidden and all the seeds picked out of the fruit. They only took Sir Charles Napier, which has its seeds set very prominently on the surface of the fruit. The other sort (of which I do not know the name) has its seeds sunk in the fruit. Did Mr. Mathew notice if the seeds were taken off the fruit in his case?—J. GORE.



THE severe THUNDERSTORMS of Saturday and Sunday last have severely injured trees, plants, and crops generally in many parts of the country. Trees appear to have suffered very much in many parks. At Hampton Court and Windsor especially we are informed that much damage has resulted. Flower beds, too, were severely cut about, the large hailstones that fell on Saturday cutting the flowers off and beating the plants to the ground in numerous cases. Carpet beds seem to have also suffered considerably.

— THE Show of the CARNATION AND PICOTEE SOCIETY at South Kensington on Tuesday next promises to be a very successful one. Fine groups of Begonias are also expected. The Show will be held in the tent, and the Committees will meet in the picture gallery adjoining.

— MR. WILLIAM TAYLOR is retiring from the management of the gardens of the Marquis of Bath at Longleat, and has entered into an

engagement with Mr. Alderman James Chaffin, J.P., ex-Mayor of Bath. The last named gentleman is an enthusiastic horticulturist, who frequently takes the first place at the local competitions. He has invented and patented a simple and excellent system of glazing, which he is anxious to put to a much larger and more thoroughly practical test than he has hitherto done, and for this purpose will immediately build some large new houses. Mr. W. Pratt, who has been for seven years gardener to Lord Hill at Hawkstone, succeeds Mr. Taylor at Longleat, and as he is an excellent gardener we have every reason to hope that Longleat will not suffer by the change of management. Singularly enough, though personally unknown to each other, this is the second time Mr. Pratt has succeeded Mr. Taylor, they having both at different times acted as foremen in the gardens of Lord Derby at Knowsley. We believe Mr. Pratt is succeeded at Hawkstone by his foreman.

— MR. ISAAC BUNTING of Yokohama, Japan, in forwarding his list of JAPANESE LILIES AND ORCHIDS, states that "News has just come to hand that freight will not exceed one halfpenny per pound from Yokohama to London, and perhaps less on large shipments."

— MR. JOHN BOYD, Balbriggan, Dublin, sends us a handsome truss of the DOUBLE ZONAL PELARGONIUM MARIE TALLANDIER, which contained over fifty very full flowers. He remarks:—"The above variety is worthy of a notice in the Journal, as it bears a remarkably compact truss and of great size. In a situation near the glass the foliage comes of a light green colour. It is of spreading habit."

— WE rarely remember seeing anything more striking in the way of hardy flowering shrubs than that presented by arborescent specimens of ABUTILON VITIFOLIUM in full flower in the shrubbery at Old Conna Hill, Ireland, the residence of Mr. Riall, D.L. A background of lofty trees and thick foliage served to bring out into more pronounced relief the soft, pale, Vine-like leaves and the marvellous clusters of almost pure white bells which hung from every branchlet, as many as two dozen of these elegant bells being numbered in a single cluster. Except the faintest tinge of azure, the bells mimicked those of the favourite Abutilon Boule de Neige, and might be mistaken for them. The flowers of the latter are borne singly, while, as will be perceived from what is said above, its hardy relative bears them in clusters.—(*Irish Farmers' Gazette.*)

— GARDENING APPOINTMENT.—Mr. George Benning, late foreman in the gardens of the Dowager Countess of Ellesmere, Burwood House, Cobham, Surrey, has been appointed head gardener to Captain Parker, R.N., Ware Park.

— THE handsome collection of HARDY FLOWERS staged by Mr. T. S. Ware at South Kensington last week, was, we learn, subsequently awarded a silver medal, which was well merited. The Liliums were exceedingly fine, and a large number of species was represented, the charming bloom certificated, *L. Bloomerianum ocellatum*, being especially notable. The collections that have been recently staged by Mr. Ware are undoubtedly the best of the kind ever exhibited, and have done much good in attracting attention to the most beautiful hardy plants.

— MR. G. THOMPSON, The Gardens, Croxby House, Hounslow, referring to the AMERICAN BLACKBERRY mentioned by Mr. J. Muir, observes—"We have here a variety named Lawton; it is planted in the kitchen garden in the same way as Raspberry, but not cut back. The fruit come very large like Mulberries, come in directly after Raspberries are over; it proves very useful; it is very handsome when it is in bloom with its large white flowers, but it does not produce suckers very freely."

— IN reference to a recent query concerning the HEAVIEST BUNCH OF GRAPES, the following quotation from Mr. A. F. Barron's work may be interesting:—"1. Trebbiano: the largest bunch on record was that grown by Mr. Currer of Eskbank on a Vine of this variety; its weight was 26 lbs. 4 ozs. 2. White Nice: bunches reputedly of this sort have been shown from Arkleton weighing 25 lbs. 15 ozs. and 19 lbs. 5 ozs.; and from Castle Kennedy weighing 17 lbs. 2 ozs. 3. Gros Guillaume: Mr. Roberts, Charleville Forest, Ireland, has grown the largest bunches of this variety, one of which weighed 23 lbs. 5 ozs. 4. Syrian: Speechly's famous bunch of this variety, grown at Welbeck, weighed 19 lbs. 5. Black Hamburg: Mr. Hunter of Lambton exhibited one bunch of this weighing 21 lbs. 2 ozs., and another weighing 13 lbs. 2 ozs."

— PART 84 of the ENGLISH BOTANY, by Dr. T. J. Boswell, is now issued by the publishers, Messrs. G. Bell & Son, York Street, Covent

Garden, and commences with the flowerless plants, giving the Marsileaceæ, Isoetaceæ, Selaginaceæ, Lycopodiaceæ, and Ophioglossaceæ. Each species is represented by a most faithfully executed coloured plate, the descriptive matter being very full and correct. This series will conclude a most beautiful work on English Botany, and will no doubt be welcomed by many interested in the subject.

— MR. GILBERT MCDUGALL recently read before the Stirling Horticultural Society a long and interesting paper on the RARE NATIVE PLANTS of the district. He referred at length to a large number of plants, mentioning their chief peculiarities and the situations in which they are principally found.

— A CORRESPONDENT writes:—"THUNBERGIA ALATA IN MIXED COLOURS forms an appropriate edging to a stage full of Gloxinias. Large vases in conservatories are also very effective when filled with Gloxinias and edged with Thunbergias, the pendent growths of the latter bearing a profusion of their striking flowers produce a very pleasing effect."

— VISITORS to the National Rose Society's Exhibition, South Kensington, recently greatly admired Mr. H. Bennett's handsome NEW ROSE HER MAJESTY, which obtained the high, but well-deserved, honour of the Society's gold medal. Amongst light varieties this is likely to obtain a most prominent position, rivalling that of La France, and growers will eagerly look forward to its being sent out. As far as we could ascertain there was only one opinion respecting it—namely, that it was a most charming Rose, and further experience of its merits appears likely to strengthen this favourable impression. As will be seen from the report of the Sheffield Rose Show on another page, still further success was there achieved by this variety.

— MR. G. ALLIS states that the AMATEUR STRAWBERRY has proved a very superior variety for forcing; it is a free bearer and of a good colour (a very important point); the fruits are of good size, many of those forced this season weighed over an ounce each, and another point in favour is it bears carriage well.

— THE nineteenth annual Exhibition of the EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY was held on the 11th inst. in the garden of the Royal India Asylum, Elm Grove, Ealing, and as usual proved a great success. There were over 1000 entries in the numerous classes provided; and though the prizes were not large, the competition was very keen in the majority, plants, flowers, fruit, and vegetables being alike well shown. The cottagers' produce was uncommonly good, some of the exhibits being most creditable—quite as good as is seen in open classes at many shows. The two chief features were the handsome specimen plants staged by Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton, which secured for him the leading prizes, the magnificent *Gleichenia flabellata* and *Alocasia metallica* being without doubt two of the finest examples in cultivation. The other most notable exhibits being in the fruit classes—namely, the superb bunches of Duke of Buccleuch and Buckland Sweetwater Grapes from Mr. Baird, which were previously shown at Chiswick, and the grandly finished bunches of Madresfield Court Grapes from Mr. Hudson. The general management of the Show was most satisfactory and creditable to the Honorary Secretary, Mr. R. Dean, who has worked most energetically on the behalf of the Society.

DOUBLE-FLOWERING PELARGONIUMS.

NOT many years ago double-flowering Pelargoniums were considered by me as the most worthless of all our show flowering Pelargoniums, but now I regard them as the most valuable. In past times, within the recollection of most of your readers, the double-flowering varieties commonly cultivated were more noted for producing a dense mass of foliage than a profusion of blooms; but this character has been completely changed, as many of the recently introduced sorts grow and bloom with as much freedom as any Zonal. The finest doubles I have ever seen were at Chiswick twelve months ago, and there the plants were so fine, the flower heads so abundant, and the colours so rich and varied, that I decided at once to grow some. From cuttings last autumn they have become good-sized bushes in 8-inch pots, and the blooms we cut from them in one week would pay for twelve months' cultural attention; and much as they are valued for home decoration, they are doubly valuable for sending away for short or long distances. For some time we have given up

the practice of packing single Zonals, as, no matter how fresh and well packed they might be here, they exhibited a shaken and blemished aspect after travelling a hundred miles, but in the case of the doubles all this is reversed, and they might be packed in a box and sent across the English Channel without losing a petal. This is a character which should secure for them the most extended cultivation, and I would advise all who are interested in packing and sending away flowers to make a note of this.

In cultural requirements they do not differ from the old or best known single-flowering sorts. When the large heads of bloom are much exposed to wet they will soon decay in the centre, but this is nothing more against them than others, as all Pelargoniums are the same. If bedded-out this would no doubt be a charge soon brought against them, but it is not as bedders I value them or recommend them. It is for pot culture and greenhouse and conservatory decoration at all times they are most suited, and for this kind of furnishing I feel sure a few of them have only to be tried to insure the introduction of a general collection. Cuttings rooted at once would bloom throughout the winter, and plants which are now in 6-inch pots will do the same if shifted into 8-inch or 9-inch pots in August, and grown on in a warm rather dry atmosphere. The stock for next year may be rooted in August, and these need only be treated like any ordinary bedding variety to insure success. It will hardly be necessary to tell those in possession of a limited number of the best kinds to increase their quantity at once, as this they will no doubt do fast enough, but to those who are yet without the best new double varieties I would urge their being procured at the earliest opportunity. The following are all fine varieties:—

Purple.—Charles Darwin, Souvenir de Carpeux, Magenta King, Colonel Flatters, and Aglaia.

Orange.—J. C. Rodbard, Lord Cecil, and Richard Brett.

Salmon.—Carillon, M. A. Dupins, Ministre Constans, and General Farre.

White.—Madame Léon Dalloy, Nymphé, and Heroine.

Crimson.—Circe, Cæsar Borgia, and M. Pasteur.

Scarlet.—W. E. Gladstone, H. Cannell, and F. V. Raspail.

Rose.—Attraction, Loveliness, and Sensation.

Pink.—The Lord Mayor, Mrs. Arthur Lattey, and Sylvia.—
J. MUIR.

AUTUMN-SOWN ONIONS.

ABOUT the 24th of the month will be a good time to make the first sowing of Onions to come in for use in April and May next, and again about the middle or 20th of the next month for use in June and July. In order to obtain the best possible results, a piece of ground occupying a dry rather than a damp situation, and well exposed to the influence of the weather, should be selected for the crop. The ground should be liberally manured and deeply trenched, and then trodden all over, roughly raked, and after receiving a surface-dusting of soot, it should be again raked, this time evenly and with a finer rake, and the drills drawn 12 or 15 inches apart and 1 inch deep. The seed should be sown somewhat thickly, and be covered and finished off in the same manner as spring-sown Onions are, the after treatment being the same as with that given to the latter. The young plants can be thinned out when necessary, as required for salading in the autumn, leaving them, however, sufficiently thick in the rows to make allowance for mishaps during the winter months, as also for transplanting in spring if necessary.

The Queen and Early White Naples are two of the earliest and cleanest skinned Onions in cultivation, and also of mild flavour. They are the best varieties for this sowing, as they come into use in the order in which their names appear; and if we had to recommend a third variety it would be the Red Flat Tripoli, as being a large well-formed Onion. The result of this sowing will, in addition to forming an indispensable and prominent dish in collections of vegetables on the exhibition tables during the summer shows, fill the blank that would otherwise most probably occur between the bulbs of the preceding and current year's growth, through that of the former becoming flabby, and consequently of little value for culinary purposes, from the bulbs starting into growth in May and June.

Early in March the plants should be thinned to 6 inches in the rows, subsequently drawing every alternate one for use; and should the demand for the bulbs during the summer be such as to necessitate an extension of the crop, transplant in rows the same distance apart as stated above, and 1 foot from plant to plant in the rows, in ground prepared the same way as recommended for the reception of the seed. While preferring rather light and somewhat dry ground for sowing the seed in, we should give preference to ground the reverse of this for the growth of transplanted bulbs, as they attain a greater size in soil of this description; although if the seeds were sown in

stiff soil a greater percentage of the young plants would be more likely to perish during the winter months than would be the case in lighter soil.—H. W. W.

HOLLYHOCKS.

FEW outside flowering plants are more attractive than the towering spikes of Hollyhocks when in full bloom. It is to be regretted that they have very nearly gone out of cultivation in the majority of gardens, and this through the disease which has played such sad havoc amongst them during recent years. I am acquainted with many who were compelled on that account to give up their culture, and others refrained from trying them for fear the care and attention devoted to them would be in vain.

I do not in these notes intend to advise intending cultivators to purchase a stock of plants to commence with, because they might be affected with the disease; but on the contrary, to raise them from seed, which is decidedly the most reliable way of obtaining a stock of clean plants, and seedlings are quite as good for the embellishment of beds and borders as named varieties are. Some persons would, no doubt, sooner battle with the disease than grow unnamed varieties, but this is not the case with the majority, who admire them for their effective beauty in the garden, and are anxious to have healthy plants.

Some of the finest Hollyhocks I have ever seen were raised from purchased seed two years ago, and the plants have continued clean up to the present time. Last year I raised a number of plants, and they are perfectly vigorous and promising well.

In order to have strong healthy plants to flower next year seed should be sown at once in boxes or pans or under handlights outside. We practise the former method. After the seed is sown the pans or boxes should be placed in a cold frame until the seed has germinated and the young plants are ready for planting outside or potting. Although these plants are hardy and will pass ordinary winters safely they may perish if the weather proves very severe. They should have 3 or 4-inch pots when ready for taking out of the seed pans or boxes, and can then be stood outside until the approach of frost.

The majority of our plants last year grew vigorously, and were before autumn placed in 5 and 6-inch pots, in which they remained in a cold frame during the winter until they were planted out in spring. In the future we intend to winter the plants in 5-inch pots, and as soon as they commence growth in spring to place them in pots 2 inches larger, and then finally plant them out from these. By this treatment they can be kept a little longer under frame treatment without becoming root-bound, and will make greater progress afterwards than if planted out earlier or become checked by want of root room.—SCIENTIA.

PETRÆA VOLUBILIS.

TROPICAL climbing plants comprise many species of great beauty, such as the Allamandas, Dipladenias, and Bignonias, but none can be considered to surpass the lovely *Petræa volubilis* in delicacy of colouring and elegance of habit. Large specimens trained up the roofs of such houses as the stove at the Regent's Park Botanic Gardens, or the Palm house at Kew—both of which establishments contain fine examples—have a grand effect, their lilac and rich blue flowers being produced in such profusion that the plants appear to be perfect clouds of bloom. The colour, too, is very distinct from that of most other stove climbers. Yellows, scarlets, and crimsons we have in abundance, but blue and lilac or lavender shades are comparatively scarce, and in this we have a peculiar combination of the two that renders the plant even more striking and interesting. As shown in the engraving (fig. 13) the flowers are borne in long pendulous racemes, frequently nearly a foot long on vigorous plants. The corolla is five-lobed; the lobes roundish, expanded, and rich deep blue; the calyx also has five lobes, but these are considerably larger than those of the corolla, being frequently half an inch or more in length, and oblong in form. These also spread out parallel to the petals, or at right angles to the axis of the flower; moreover, they increase in size, remaining attached for a short time after the corolla falls. The colour is lavender or lilac, much darker in some plants; indeed, it appears probable that there are two varieties, one with a light or nearly white calyx, and the other with the same portion of the flower almost as dark as the corolla. Both are, however, charming plants, though the one presenting the contrast of shades, which is that shown in the woodcut, has general preference.

The history of *Petræa volubilis* is brief, but interesting in some degree. It was first discovered by Houston at Vera Cruz, but has also been found at Martinique and elsewhere. On the authority of Aiton's "Hortus Kewensis" it seems that seeds were first sent to the

Chelsea Botanic Garden before 1733, but from these Miller states only two plants were raised, flowers not being produced until 1802, when a specimen bloomed in Mr. Woodford's collection at Vauxhall. From this a coloured plate was prepared for the "Botanical Magazine" (plate 628), but the variety there shown is distinct from that we give, the corolla lobes being larger, the calyx lobes more narrow, and the colour a uniform purplish-lilac. Houston named the plant in honour of Lord Robert James Petre, who, it has been said, was "the worthiest of men, whose death was the greatest loss that botany or gardening ever felt in this island." A very large collection of plants was formed by this nobleman, large stoves and conservatories being erected for the tropical species, while the outdoor collection was also extremely large, the total number of individuals being said to be about 219,925.

The culture of the plant is easy. Given an ordinary stove tem-

perature, a good compost of turfy loam and peat, with a small proportion of well-decayed manure, and little difficulty will be experienced in both growing and flowering the plant, providing it be kept clear of insects, mealy bug being its especial enemy. Supply water liberally when growth is advancing, syringing freely to keep the foliage fresh and clean. It can be increased by layers, but the best way is to graft young shoots upon pieces of the root in April or May, when if treated like other root cuttings, placed in heat and shaded, young vigorous plants can usually be readily obtained. When first introduced, and for some years afterwards, it was thought that the plant could only be increased by imported seeds, and because seeds were not produced or perfected in England

it was thought the plant was either monœcious or dioecious. Miller, indeed, attributes the fact of only two plants having been raised from the seed sent by Houston, to the supposed circumstance that "the seeds were either gathered at a distance from the male tree, or from such parts of the tree as were remote from the male flowers." There does not appear to be any substantial grounds for this opinion, for many tropical plants fail to perfect seeds in England, even though they grow vigorously and flower most freely.—L. CASTLE.

WARMINSTER ROSE SOCIETY.

JULY 11TH.

THE above Society doubtless has been frequently eclipsed this season with regard to the extent of exhibitions by kindred societies, but in point of



FIG. 13.—PETREA VOLUBILIS.

perature, a good compost of turfy loam and peat, with a small proportion of well-decayed manure, and little difficulty will be experienced in both growing and flowering the plant, providing it be kept clear of insects, mealy bug being its especial enemy. Supply water liberally when growth is advancing, syringing freely to keep the foliage fresh and clean. It can be increased by layers, but the best way is to graft young shoots upon pieces of the root in April or May, when if treated like other root cuttings, placed in heat and shaded, young vigorous plants can usually be readily obtained. When first introduced, and for some years afterwards, it was thought that the plant could only be increased by imported seeds, and because seeds were not produced or perfected in England

enthusiasm and real love of the Rose they are pre-eminent. Better shows, owing to the lateness of the fixture this season, have been held at Warminster; yet, considering the difficulties with which the growers have to contend, and the comparatively small value of prizes offered, the competition must be considered highly creditable. No exhibitor is allowed to take more than one prize, although he may be adjudged a prizewinner in several classes, the value of the prize going to the next on the list. As a consequence every subscribing exhibitor is encouraged to persevere instead of being disheartened at the prospect of some highly successful growers annually carrying all before him, and the Society remains flourishing when others more ambitious collapse. Mr. John Scott, Warminster, well known in the west of England as a very successful Rose-grower, as may be imagined, is very seldom beaten by his neighbours; and another enthusiastic gentleman well known to the readers of the *Journal of Horticulture* in connection with the annual Rose elections—viz., Mr. J. Hinton, also exhibits well and successfully. The principal class was for twelve triplets, distinct, and here Mr. Scott

took the lead with a beautifully arranged stand, which included fine blooms of Alfred Colomb, Devoniensis, Duke of Connaught, Fisher Holmes, Catherine Mermet, Marie Baumann, and Marquise de Castellane. Mr. James Smith was a very good second, his best blooms being Marie Baumann, La France, Alfred Colomb, and Maréchal Niel. Mr. C. A. Bleech took the third prize. Mr. Scott was also first with twelve single trusses, distinct, among these being good examples of Duke of Edinburgh, A. K. Williams, Charles Lefebvre, Captain Christy, Louis Van Houtte, and Devoniensis. In the second-prize stand, exhibited by Mr. P. Gruff, were fine blooms of Marie Baumann, Maréchal Niel, and Louis Van Houtte. Captain Helme occupied third place, but his blooms were too forward. In the class for six trusses, distinct, Mr. J. Hinton staged good blooms of Captain Christy, Maréchal Niel, Triomphe de Rennes, Duke of Connaught, Marie Baumann, and Baronne de Rothschild, and was awarded the first prize. Mrs. Tarrance followed with a creditable stand, which included good examples of François Michelin and Marie Baumann. The best six Teas were staged by Mr. Hinton, these consisting of beautiful blooms of Madame Bravy, Triomphe de Rennes, Marie Van Houtte, Jean Ducher, and Niphotos. Mr. J. Scott was a close second, his best blooms being Catherine Mermet, Maréchal Niel, and Souvenir d'un Ami. Captain Helme won the first place for twelve single blooms, any one variety, with large fresh blooms of Edward Morren, and in the corresponding class for six blooms Mr. P. Grubb was first with Marie Baumann in good condition.

Messrs. Keynes & Co., Salisbury, exhibited, not for competition, several excellent stands of Roses, of which the most noteworthy were Beauty of Waltham, A. Colomb, Marie Baumann, Auguste Rigotard, Marie Van Houtte, La France, Reynolds Hole, Penelope Mayo, Star of Waltham, Dr. Andry, François Michelin, and Duchesse de Vallombrosa. Mr. Wheeler, Warminster, also staged stands of fairly good Roses, and Dr. Hitchcock some excellent Carnation blooms also, not for competition. Strawberries, both for size and quality, were extensively shown. The weather proved favourable, and the attendance of visitors good.

GARDEN CHEMISTRY—PHOSPHATES.

(Continued from page 23.)

GARDEN crops, almost without exception, make large demands upon the phosphates in the soil, but garden manures (those that come from the stables or are made out of collected leaves) are anything but rich in these. Owing to this very much larger quantities of manure have to be used than would be necessary were phosphates applied. Nearly always they are the weak link in the chain, and were this link alone made stronger much less ordinary manure would give results equal, if not superior, to what many gardens now produce. When a Vine or Peach border, or the mixing of potting soils are in question, phosphates are generally given; but in the case of vegetable quarters or flower beds this is seldom the case. The reason for this is, that bones—for it is in this form phosphates are generally employed—are lasting manures, and the good they do is attributed, not to the chemical virtues, but to the fact that they last. That they are not more generally employed otherwise is because for other purposes less lasting manures are supposed sufficient. It is not because ordinary manures are not lasting enough, but because they are wanting in what they should be rich, and rich in what is not so much wanted, that so much is required.

Combined with readily available nitrogenous matter phosphates alone have a wonderful effect on the members of the Brassica tribe. Cabbages, Cauliflowers, Turnips on any ordinary soil thrive wonderfully on such applications alone. Even without the nitrogen the Turnips do well; if they do not make such a rapid growth they make firmer bulbs of a finer quality, which keep better than if "forced" by too much nitrogen. While the leaves of the Cabbage family contain from 10 to 15 per cent. of phosphoric anhydride, the heart of the Cauliflower has as much as 25. This will partly explain the wonderful effect of phosphates in the production of fine Cauliflowers. Grapes (the ash of) contain from 17 to 23 per cent., and the finest Grapes invariably show the higher per-centage; the ash of the wood contains 15 to 19, the ash of Grape stone as much as 27, which fact may throw some light on the setting of Grapes. But experience proves that the application of phosphates to these and other garden crops has an effect quite beyond what such figures indicate, very probably because of their being scarce in the soil. When this happens the addition of phosphates alone may be quite equal to a heavy manuring of ordinary manure.

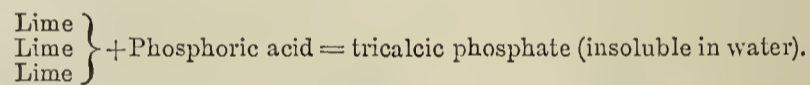
As chemistry demonstrates what materials best act on given crops, so she points out when best to find the materials. Among ordinary manures night soil ranks first in being rich in phosphates. Fowl dung, that from doves or from rookeries, is also rich, not only in phosphates but in nitrogen. For this reason the ammonia they contain when only partly fermented and the nitric acid afterwards formed often prove destructive where these manures are employed undiluted or in too large quantities; but if dry loam or clay be liberally used in deodorising and drying them, there will be no difficulty in distributing them evenly and profitably. One hundred parts of the ash of human excreta contain 37 of phosphoric acid. This is fully equal to phosphates from which phosphatic manures are made, and only second to the ash of bones themselves. But while these are considered worth quarrying and carrying from distant lands, and there-

after ground by powerful and expensive machinery, and, finally, dissolved by sulphuric acid, that nearest our hand, although it contains other valuable fertilising properties and requires neither carrying nor manufacturing, nor to yield profits on the way to numerous classes, is generally got rid of as if useless. Nay, more; we pollute our waters with it, and leave the plants that are in want of just such to starve still; and so we are punished by half crops, half rewarded labour, half return for capital, in addition to having a polluted land.

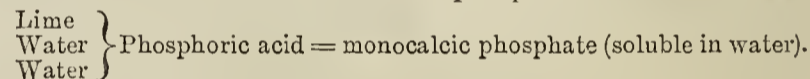
When bones were first used they were found to produce a wonderful effect on land from which the phosphorus had been carried away in the bones of generations of sheep and cattle and in the milk of the cows. Just so they acted when applied to land from whence the phosphorus had been carried in the grains and dissipated, ultimately in the sea, and just so they act in vegetable crops, and for the same reason.

At first they were applied crushed, but it was soon found that when ground to meal the effect was more rapid, and, in one sense, economical. A great advance was made when, over forty years ago, the late illustrious Baron Liebig discovered that by treating them with sulphuric anhydride (vitriol) they could be rendered soluble, and so to act with still greater rapidity. Very shortly after Mr. (now Sir) J. B. Lawes made a more important discovery still, when in 1842 he showed that "superphosphate" made from mineral phosphates was identical and of equal value with that from bones. Later still Mr. Jamieson has shown that very finely ground phosphates are, under certain circumstances, equal to dissolved phosphates and considerably cheaper.

Phosphates exist in bones, bone ash, coprolites, and in apatite in the form of tricalcic diphosphate ($2\text{PO}_4\text{Ca}_3$). In this form it is only very sparingly soluble in water. The manufacturers render it soluble by treating it with sulphuric anhydride, whereby it becomes "dissolved bones." This term is, however, incorrect. Perhaps the following table will render what takes place intelligible. But first let us premise that the terms tribasic phosphate and monobasic phosphate so commonly used are wrong. All phosphates are tribasic. But soluble phosphate is monocalcic, while ordinary phosphate is tricalcic—in other words, three-limed. Phosphates in a raw state consist of—



In the case of monocalcic—or soluble phosphate—it is as follows:—



The change has been brought about by bringing the phosphate into contact with the vitriol. This strong acid has taken the part of the lime from the phosphoric acid, which has had to content itself with water instead. The vitriol now in combination with lime has become calcic sulphate (gypsum or plaster of Paris—"plaster" of the Americans).

The soluble phosphate, although soluble and fit for ready absorption, is a very acid salt, and when applied to soil is either precipitated by the alkalis present, such as lime or potash, or oftener ferric peroxide, and thus becomes at once insoluble, or proves by its very acidity to be hurtful to vegetation. The present manner of valuing phosphates causes manufacturers to strive to have as much of this soluble acid salt as possible, for it is allowed a very much greater value by chemists than what is insoluble. Yet precipitated phosphate is more valuable, being equally fit for use by the plants and less hurtful. Indeed, as we have said, the soluble phosphate is at once precipitated or remains hurtful.

Precipitated phosphate differs from either monocalcic or tricalcic phosphate. Monocalcic phosphate has one part of lime and two of water for its base. Precipitated or bicalcic phosphate has two of lime and one of water. When "superphosphate" lies for some time much of the monocalcic salt changes into the bicalcic; but a better way of bringing about this result is to add bone dust to the superphosphate. This gives up one part of its lime to the monocalcic salt, and both become bicalcic. Bicalcic phosphate, though not very soluble in water, is readily attacked by plants.

There is another way whereby tricalcic phosphates are made readily available by being converted into bicalcic phosphates. When to ordinary soils bone dust or ground phosphates are applied the carbonic acid attacks the phosphate, and though unable to displace two molecules of the lime, it is capable of stealing one. With this it forms carbonate of lime (calcic carbonate), and the remnant of the phosphate becomes ready for use. This will give more satisfactory results than the more soluble salt.

Fermenting bones causes them to assume the form of bicalcic phosphate; and gardeners who study economy and have bones at command will find this way of preparing them well suited to their purpose. If the bones are crushed or broken with a hammer and

mixed with horse droppings—if the heap be large the droppings will not be necessary—and an equal weight of loam or clay to absorb the resulting ammonia, and the whole moistened with urine, the heat will soon rise, and the bones become softened and made readily available as plant food. Those who have bones and wish to prepare them more rapidly for use than Nature would do will find this a cheaper plan, and ultimately as effective as preparing them by means of vitriol. Doubtless finely ground mineral phosphates would be rendered more available for the current crop if they were sprinkled among ordinary manure when put up to ferment. While carbonic acid renders phosphates more readily soluble, solutions of salts have the same effect. Common salt acts in this way, so does ammonia sulphate. But the roots of plants have the power of dissolving mineral substances, and have been found to corrode even dolomite. Strong-growing plants have this power in an enhanced degree, and very probably whatever adds to the vigour of a plant aids it indirectly in dissolving not only phosphates but other minerals as well.

It is impossible to meet the demand for phosphates by the supply of bones; but, luckily, there exist in various quarters of the globe apparently inexhaustible supplies of mineral phosphates, from which superphosphates of the first quality may be manufactured. At home coprolites have been dug up and largely used for this purpose. The less of matter other than tri-calcic phosphate the more valuable they are. The more foreign matter, such as calcic carbonate, ferric oxide, or alumina, the greater the quantity of sulphuric acid uselessly expended, for the acid combines with these and the product is of little value.

Cambridge coprolite was for long considered the best native phosphate, but it is now hardly so rich as it once was, containing as it does less phosphate and more other matters. Buckinghamshire coprolite is also much valued; it contains as much as 64 to 66 per cent. of phosphate. Those found in Bedford and Suffolk contain much iron, which makes them less valuable than the above; the best samples yield about 56 per cent. of phosphate, the red and black Wicken from 40 to 50. Among the best of foreign phosphates are those from Bordeaux, but they seem to be getting scarce. The best samples contain as much as 76 per cent. of phosphate, but others no more than 50, much clay and iron being present.

South Carolina phosphate is largely used, and as it contains little iron or lime it does not "waste" so much acid in its reduction. Although containing about 55 to 60 per cent. only of phosphates, the bulk of the other matter is sand, which does not combine with the vitriol as does lime or iron. Curaçoa phosphate is the purest phosphate imported with the exception of bone ash. It contains as much as 88 per cent. of pure phosphate. Many other phosphates are imported, but these are the principle ones in the market. Lately, however, phosphates containing alumina and iron in place of lime have been used, and although prejudice was against them, they have been found nearly, if not quite, equal to calcic phosphate. The chief kinds are Alta Vela and Rhedonda. In 1881 a mixture of 2 cwts. of the former mixed with an equal quantity of kainit produce 15 tons of Potatoes to the acre on Munster farm, as against considerably less produced in some instances by more favoured phosphates. In some other instances better results were produced by Curaçoa and American phosphates, but not in all. The phosphates naturally present in soils are generally phosphates of iron and alumina, and soluble phosphates artificially applied very often assume these forms. Although less soluble than calcic phosphate, the plants seem to be able to use them. As Alta Vela phosphates are often considerably lower in price than Curaçoa phosphates, it may sometimes be real economy to use such.

In South America, where cattle are killed for the hides, horns, and fat, the bones and dried flesh are used for fuel. The ash from the fires is imported under the name of bone ash, and is a source of superior superphosphates, for though not often containing more than 60 per cent. of tri-calcic diphosphate, the matter with which it is mixed does not contain anything worth mentioning possessing the power of neutralising the acid.—SINGLE-HANDED.

(To be continued.)

WIRRAL ROSE SHOW.

JULY 10TH.

THE above Society held their fifth annual Exhibition in St. George's Hall, Liverpool, instead of in the Archery Ground, Birkenhead, as in previous years. The Exhibition, as far as the quality and quantity of the exhibits were concerned, was a great success, but we fear this was not the case financially, as the thin attendance of visitors must have been anything but gratifying to the Committee of the Society. This is to be regretted, for never before were such a large and beautiful display of Roses brought together in the city. The blooms were very numerous, and on the whole much superior to what the most sanguine anticipated after the recent heavy rains. The dark varieties were in the best condition, while the lights displayed unmistakably the effects of the weather. Tea varieties were more numerous than at any other of the Society's previous exhibitions; they were also larger and of superior quality.

In the nurserymen's class for seventy-two blooms Messrs. Cranston

and Co., Hereford, took the lead, followed closely by Mr. B. R. Cant, Colchester, and Messrs. Paul & Sons, Old Nurseries, Cheshunt. In the premier collection some handsome blooms were staged of Mrs. Baker, large and full; Beauty of Waltham, very fine; Mdlle. Eugénie Verdier, Victor Verdier, Dingee Conard, in splendid form; Tea Niphotos, large; Horace Vernet, Pride of Waltham, superb; George Moreau, Princess Beatrice, Madame Montel, large and beautiful; Jules Finger, and Madame Vidot, amongst many others. Mr. Cant's boxes contained grand blooms of Abel Carrière, Tea Catherine Mermet, Devienne Lamy, Mrs. Baker, Countess of Rosebery, Madame Ducher, Etienne Levet, Boildeau, Gloire de Vitry, and Reynolds Hole. In the third collection R. N. G. Baker, William Koelle, May Quennell, Mons. E. Y. Teas, and Duke of Teck were grand. For thirty-six blooms Mr. G. Prince, Oxford, took the lead with a grand lot. Mr. J. House, Peterborough, was a good second; and Messrs. James Dickson & Sons, Newton Nurseries, Chester, were third with good, even, fresh flowers. Those shown in this class by Mr. Frettingham, Beeston, Notts, Messrs. Perkins & Sons, Coventry, and G. Davison & Co., Hereford, are also worthy of mention, as these collections contained some remarkable flowers. In the class for thirty-six triplets Messrs. Paul & Son, Cheshunt, were deservedly placed first, followed by Mr. B. R. Cant and Messrs. Cranston & Co. In the class for eighteen triplets four competitors staged some remarkably fine blooms. The awards were accorded to Mr. G. Prince, Messrs. James Dickson & Sons, and Messrs. Perkins & Sons, Coventry.

For twelve new Roses there were three competitors, and the first and second prizes were awarded to Messrs. Paul & Sons and B. R. Cant in the order as named, both exhibitors staging really first-rate blooms; the former having good Ulrich Brunner, George Moreau, Mrs. Harry Turner very bright and full; Guillaume Guillemot, Mrs. Jowitt, Merveille de Lyon, Souvenir de Madame Alfred Vy, and Madame Isaac Perrière. The latter staged Tea Etoile de Lyon, bright yellow; Violette Bowyer, a beautiful white bloom; Madame Montel, Helen Paul, Masterpiece, and others similar to those staged in the first collection.

Tea varieties were of superior quality, and the competition was keen. Mr. B. R. Cant was deservedly awarded the place of honour, followed very closely by Mr. G. Prince; Messrs. Paul & Sons being third. Messrs. F. & A. Dickson & Sons, Chester, amongst others, also staged a remarkably fine collection. The first collection contained large well-formed blooms of Paul Neyron, Madame H. Jamain, Devoniensis, Bougère, Niphotos, very large; Adam, superb; Souvenir d'Elise, grand; Caroline Kuster, Rubens, large; Madame Lambert, good; Madame Welche, Comtesse de Nadaillac, Souvenir d'un Ami, La Boule d'Or, and Moiré. Mr. Prince had remarkably fine blooms of Jean Ducher, Innocente Pirola, Alba Rosea, Perle des Jardins, Rubens, and Niphotos. In the third collection Madame Casin, Perle de Lyon, Madame Angèle Jaquier, and Belle Lyonnaise were the best. Six competitors staged blooms in this class.

In the class for any new seedling Rose not in commerce Mr. Frettingham, Beeston, Notts, was awarded the Society's gold medal for blooms of Lord Frederick Cavendish, which is bright in colour, full, and much after Duke of Edinburgh and Prince de Porcia in the wood. It has the appearance of being a robust grower, judging from the grand plants exhibited.

There were eleven classes open to all amateurs, and the whole of the classes were filled, some grand blooms being shown. In the class for thirty-six varieties E. R. Whitwell, Esq., Barton Hall, Darlington, was well ahead, showing bright well-formed flowers of Lord Macaulay, Mons. Boncenne, Alfred Colomb, Général Jacqueminot, Madame Lacharme, Avocat Duvivier, Xavier Olibo, E. Y. Teas, Louis Van Houtte, Madame Prosper Langier, La France, Abel Grand, Mdlle. Eugénie Verdier, and Duchesse de Vallombrosa. C. J. Day, Esq., Rowton, Chester, was a good second; and Mr. T. B. Hall, Larchwood, Rock Ferry, third with fresh but smaller blooms. For twenty-four blooms the Rev. L. Garnett, Christleton, Chester, was first, followed by Miss Massey, Chester, and R. Tanner, Esq., Onibury, Salop, in the order named. Mr. Garnett staged good blooms of John Bright, Abel Carrière, A. K. Williams, Charles Lefebvre, Madame Clemence Joigneaux, and President Willermoz. For twelve blooms Mr. C. Hutchings, Warrington, was first, having good Duke of Wellington, Charles Lefebvre, Mdlle. Marie Rady, and Madame Victor Verdier; Mr. T. Griffiths, Oxtou, second with smaller blooms; and Mrs. Watts third. In the class for twelve triplets E. R. Whitwell, Esq., took the lead; Mr. T. B. Hall second, having some splendid light flowers in his collection. For twelve Tea varieties C. J. Day, Esq., was first with creditable blooms. Mr. T. B. Hall was second with very neat flowers, and R. Tanner, Esq., third. For six blooms Messrs. Hall and A. Tate were the successful exhibitors.

For twelve blooms of any pink Rose Mr. Garnett was first with a very fine box of La France; Mr. T. B. Hall second with Mdlle. Marie Finger; and Mr. T. Griffiths third with Eugénie Verdier. For twelve crimson blooms of any one Rose the last-named exhibitor was the only competitor, and was awarded the first prize for bright flowers of Charles Lefebvre. For six new Roses Mr. T. B. Hall was first. In the remaining class for six Tea and six H.P. Roses the prizetakers were Messrs. Day, Hall, and Tanner.

The next section provided two classes, which were open only to local amateurs, for twenty-four varieties. Mr. T. B. Hall was deservedly awarded the gold medal, and Mr. Griffiths was placed second. For eighteen varieties the same exhibitors were again successful, and were awarded the prizes in the same order; Mr. Griffiths being awarded the prize for the premier bloom in this section, which was accorded for a perfect bloom of Duke of Wellington. The next section of the schedule was also devoted to amateurs, from which exhibitors in the above classes were excluded. For eighteen blooms Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyncote, Allerton, was well first with very fine blooms for this locality, and for which the silver medal was awarded. Mr. G. Churton, Parkgate, was placed second; and Mr. Barker, gardener to J. T. Raynes, Esq., Rock Ferry, third; and Mr. Waterman, gardener to A. Tate, Esq., Woolton, fourth. For twelve blooms the first-named exhibitor was again first, Mr. Waterman second, Mr. Barker third, all staging flowers very creditable to the growers.

In competition for the bronze medal, and from which the previous exhibitors were excluded, some good flowers were staged, and the competition in most instances was keen. For twelve blooms Mr. H. G. Tippett, Rock Ferry; Mr. C. K. Hall, Oxtou; Messrs. W. Gaman, Rock Ferry, and

D. McIver, Mr. P. Bromborough, were the prizetakers in the order named. For six blooms Joseph Armstrong, jun., Esq., Lower Bibbington, was the principal prizewinner. For twelve varieties of Teas Mr. T. B. Hall was the only exhibitor, and was awarded the first award for a grand collection of blooms. Mr. E. Claxton, Allerton, and Mr. A. Tate were the prizetakers in the class for nine blooms, the former staging fine blooms of Marie Sisley, Adam, Alba Rosea, Belle Lyonnaise, and Comtesse de Nadaillac; the latter good Devoniensis and Madame Willermoz. Messrs. G. Tippett, W. E. Hall, and J. G. Churton were the prizetakers in the class for six blooms.

The remaining classes were devoted to cottagers, and very creditable blooms were staged. Messrs. H. Mercer, J. Hazelby, and A. Molyneaux were the principal exhibitors. The classes devoted to bouquets need no comment.

Miscellaneous Exhibits.—Messrs. W. Paul & Son, Waltham Cross, Herts, contributed very largely to the beauty of the Exhibition, some thousands of blooms being staged from these nurseries, entirely filling the side, one table extending the whole length of the hall. The way in which this mass of Roses was grouped was striking and attractive. In the front, boxes were arranged the entire length, each box in many instances being filled with blooms of one variety, and in others the whole of the varieties were distinct. At the back of these, round hampers or baskets about 18 inches over were slightly elevated and filled alternately with Tea and Hybrid Perpetual Roses. Some of the most striking baskets of Teas were Devoniensis, Safrano, Madame Falcot, Jean Pernet, Homère, Perle des Jardins, Souvenir d'un Ami, Souvenir d'Elise, and Niphotos. American Banner was also in good character and striking. Amongst Hybrid Perpetuals Queen of Queens was well shown, Madame Alfred Rougemont, Baronne de Rothschild, Alfred Colomb, Star of Waltham, Rosieriste Jacobs, Charles Lefebvre, E. Y. Teas, Crown Prince, Duchess of Bedford, and many others. Another striking Hybrid Tea seedling, cherry-red in colour—said to be a good climber—was also noticeable. Mr. J. House, Peterborough, exhibited a box of William Allen Richardson, which was much admired, also a seedling light in colour named Alpha; Messrs. F. & A. Dickson & Sons several boxes of Roses in excellent condition; Messrs. James Dickson & Sons a small collection of Japanese Maples; The Horticultural Company (Mr. John Cowan), Garston, a collection of Roses in pots, Begonias, Caladiums, and a general assortment of flowering and foliage decorative plants. T. Griffiths, Esq., Oxtou, sent boxes of Capitane Christy and Paul Neyron Roses in capital condition.

The arrangements of the Show were good, and the Committee and gentlemen who assisted them deserve the warmest congratulation.

PANSIES AND VIOLAS FOR BEDDING.

HAVING had these for a number of years all that I could desire, both in warm southern districts and in cool northern localities, I find it is more a matter of cultivation than mere latitude or climate. It is often a mistake to insert the cuttings too early in the autumn, and coddle them too much during the winter. When they are thus induced to flower early they do not stand the summer well. We do not remember having them do much better than the present season. The cuttings (about 5000) were inserted towards the end of October last. The ground was a piece where Cabbages were cleared off, well broken, mixed with sand and light soil on surface. The cuttings were inserted a few inches apart, and frames were placed over them, the lights tilted up at all times except when frosty. The surfaces were frequently stirred, and in April the plants were strong and vigorous and planted out in full flower. The ground for blooming them on was turned up deeply and heavily manured from the cowyard. Though till lately little rain fell since the plants were put in the ground, they have grown well, have been a mass of flower all the time, and we expect them to continue to the end of the season.—M. T.

THE VALUE OF DEEP CULTIVATION.

THE full value of trenching is only seen in summer, and the hotter and drier it is the more apparent are the advantages of deeply worked soil. A great saving in summer labour results from deep cultivation in winter. Here all ground bare in winter is trenched. The result is that in hot weather I find other people either applying water continuously or, where there is a deficient water supply, have withering crops. In our case we have not given a gallon of water to any crop during the late dry weather save Celery, which was watered when planted out, yet the crops flourished as I never saw them. The reason is not difficult to find. Instead of a depth of 9 or 10 inches of soil, into which most of their roots are crammed, we have a depth of 2½ to 3 feet for the roots to travel in, and these deeper roots keep crops going in a season of drought. I have had subsoils, too, to deal with, but these can be, and are, made into deep feeding ground by liberal admixture of decayed vegetable refuse. Then stable manure is used in as fresh a state as possible. Every particle of these is penetrated by the roots and appropriated, while manure that has lain in heaps decaying is little better than the soil it is surrounded by.

Gardeners employing artificial manures will in dry weather find them of no use whatever. Were we in a position to irrigate certain crops thoroughly, we should do so occasionally in order to bring these manures into action; but there is no use in watering unless we can saturate the ground at a rate equal to, say, 3 inches of rainfall.

The Potato crop shows, perhaps in as striking a manner as any other, the great importance of thoroughly working and pulverising the soil to a good depth. In well-worked soils greened Potatoes will be rare, for the simple reason that the tubers can work downwards.

Without earthing up our Potato crops we find very few greened tubers. In soils which are worked to an insufficient depth, and consequently hard below, the tubers, despite earthing up, will be forced through the surface and greened.

In planting out crops such as Lettuces and Brassicas we invariably do so when the plants are young. When they are lifted the roots are drawn through a mixture of soil and water of the consistency of paint. A broad drill is drawn with a hoe where the plants are to be set out—this in order to clear the dried surface soil back. Then a man goes quickly along each row, saturating it with water through a coarse rose. Another man follows and puts in the plants. A run over with the Dutch hoe completes the work. In special cases small pots are placed one over each plant for a week. We do this in preference to watering, but it is only in cases of badly rooted plants we find protection necessary.—B.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

JULY 11TH.

THIS was the first summer Exhibition held by the above Society since 1880. It was held in the Waverley Market, Edinburgh, and was a one-day Exhibition, the competition not being so keen as is usual at Edinburgh. This applies more particularly to plants in pots, which were rather limited as to number and deficient in size. In fruit, however, the competition was fairly good, much of it being of superior quality, which was more especially noticeable in the case of black Grapes, Peaches, Melons, Strawberries, and Cherries. Roses were a good feature of the Exhibition. In the gardeners' and nurserymen's sections alike the competition was good and the blooms generally fresh and fine.

AMATEURS' CLASSES.

For a table 20 feet by 5 feet arranged for effect the best prizes were offered. Only two competitors staged, that of Mr. R. Grossart, gardener to P. Buchanan, Esq., Oswald Road, being easily first, while to the other, from Mr. Paul, Gilmore Place, the second prize was awarded. Rare and fine Orchids were freely employed in both arrangements. Mr. Paterson, Millbank, was the only exhibitor of six stove and greenhouse plants in flower, and was awarded the first prize for these. Very few Orchids were shown. Mr. Paul staged the only four distinct sorts, and was awarded first prize, Mr. Curran being in the same position for two sorts. To Mr. Paterson the first prize for one Orchid was awarded for *Disa grandiflora*. Ferns were in general small though fresh. In the first-prize lot of six sorts exotic Ferns Mr. Paul staged a good pair of *Leucostegia immersa* and a couple of *Todeas*. Mr. Paul was the only exhibitor of *Gleichenias*, and received the first prize. *Adiantums* were poor. British Ferns were well shown, Mr. Leyden, Whitehill, being first for six, and Mr. Anderson, Pilrig Model Buildings, taking the same position for six small-growing varieties. Plants for table decoration were numerous, and effectively placed down the centre of one of the fruit tables, Mr. Grossart being awarded the first prize for six sorts. Well-bloomed large Fuchsias were staged, the best being from Mr. Kerr, Fountain-hall Road. Zonal Pelargoniums were not very large nor overtied-in, and were fresh and well bloomed. For these Mr. Johnston, Woolmet, Dalkeith, took the premier position. Some very fine *Gloxinias* attracted notice, those from Mr. Bowman, Pittendreich, being the finest.

Fruit.—Two collections only were in competition for the prizes offered for eight kinds. Mr. Johnstone, Glamis Castle, was easily first. The sorts were Black Hamburg Grapes, extra fine, and Alicantes; a Pine Apple and Melon, a dish of good Brown Turkey Figs, Hunt's Tawny and Elruge Nectarines, and a dish of Peaches. Mr. Boyd, Callander, was second with a good collection. Mr. Murray, Culzean Castle, Ayrshire, had the best Pine Apple. Numerous examples of Black Hamburg Grapes were staged, all of which were of fine quality. The first prize was won by Mr. Johnstone, the berries being large, black, and with the densest bloom. Any other kind of black brought a couple of good bunches of Madresfield Court from Mr. Boyd, which gained him first, and good specimens of Muscat Hamburg from Mr. Dow, Newbyth, to whom the second prize was awarded. Mr. Dow also had first for Muscat of Alexandria in the white Grapes, and Mr. Wilson, King's Meadows, Galashiels, second with Buckland Sweetwater. For the following fruits the undernoted took the first prizes:—For six Figs, Mr. McIntyre, The Glen; for six Peaches, Mr. McKinnon, Melville Castle, with fine fruit; six Nectarines, Mr. Young, Taymouth Castle, with extra fine Elruge, also for Melon with Breadalbane, a fine 7 lb. fruit of the Victory of Bath type; for Cherries, Mr. Methven, Blytheswood; for four dishes of Strawberries, Mr. Dow; and for a basket of Strawberries, Mr. Brotherston, Tynninghame, with large fruits of President.

Vegetables.—Mr. Potter, Seacliffe, North Berwick, had the best collection of eight sorts. Good Cucumbers and Tomatoes were also staged among a quantity of commoner vegetables.

NURSERYMEN'S CLASSES.

Messrs. Ireland & Thomson had the premier position for a table of plants—a rich arrangement of fine-foliage and flowering plants, such as *Dipladenias*, *Ixoras*, and various Orchids. Messrs. R. P. Laird & Sons took the second prize with a bold and conspicuous group, and Messrs. Dickson & Co. were third. Messrs. Ireland & Thomson had in addition to above first prizes for four Palms and for six *Dracenas*, and second prizes for twelve table plants and two Tree Ferns. Messrs. R. P. Laird & Sons had first for six table plants and six *Dracenas*; Messrs. Dickson & Co. first for two Tree Ferns; The Lawson Company first for twelve Coniferae; Mr. Sutherland, Lenzie, first for twelve table plants; Mr. Wilson, Kendal, receiving a first prize for two pot Roses, and a second for six table plants; and Mr. Bryson, Helensburgh, first for four pot Roses; while Mr. Robertson Munro, Portobello, was the only exhibitor of alpine and herbaceous plants, and received the prizes for these.

Roses.—Taking the nurserymen first, for forty-eight distinct kinds Mr. Hugh Dickson, Belfast, was first, Mr. C. Turner, Slough, being a remarkably

close second, and Mr. Bunyard, Maidstone, third. Dickson's Roses were in a slightly more advanced stage than the others, consequently were not quite so fresh as the half-opened buds of the others. For twenty-four blooms Mr. Bunyard was first, Mr. Turner again second, and Mr. Dickson third. In the twelves the competition was slight, Mr. Dickson being easily first, and Messrs. D. & W. Croll, Dundee, second. In the gardeners' section the chief prize was for thirty-six blooms. Mr. R. Fergusson, Clermiston, was awarded first prize for these with a very good lot, though several of the blooms were *passée*. Mr. W. Parlane, second, with a fresh and well-coloured lot of buds; and Mr. McIntosh, Paxton, Berwick, third. For twenty-four blooms, excluding Teas, Mr. Kirk Allon was first and Mr. Fergusson second; and for twelve blooms Mr. Sheack, Lauriston Castle, was first and Mr. J. Bowman second. For twelve Tea Roses Mr. Parlane was first and Mr. McIntosh second; Mr. Bowman being first for six Teas; these were small.

In addition to competition produce an assortment of hardy shrubs was noted from Messrs. Ireland & Thomson; also a table of decorative plants from Messrs. T. Methven & Sons; another from the Lawson Company, who also staged a collection of cut branches of a hundred deciduous trees and shrubs, and many spikes of cut herbaceous plants. From the Royal Botanic Gardens an interesting collection of insectivorous plants was contributed. Mr. Turner sent a collection of blooms of Picotees and Carnations, which attracted much attention, while a large number of excellent cut Roses were set up by Messrs. Ireland & Thomson, and a smaller lot from Messrs. J. Cocker & Sons, Aberdeen. In a box of seedling Pinks exhibited by Messrs. Dickson & Co. were blooms of a lovely white variety, like a Gardenia, named Mrs. W. Welsh.

THE ROSE ELECTION.

WITH the consent of the powers that be, I propose that the election this year shall consist of the newer varieties. I propose to ask for the best six, second best six, and next best twelve exhibition Roses introduced since 1877, including that year. Then as some of our gardening friends contend that we are always talking of Roses as "exhibition" flowers, and exhibitions are nothing to them, I propose to ask for "garden" Roses in the same way—best six, second best six, and next twelve. I shall tabulate results after August 31st.—JOSEPH HINTON, *Warminster*.

STOKE BISHOP HORTICULTURAL SOCIETY.

JULY 12TH.

A HIGHLY creditable Show held under the auspices of the above Society was arranged in the grounds adjoining the residence of E. P. Wills, Esq., Hazlewood, Sneyd Park. The district comprising one of the most fashionable suburbs of Bristol, no difficulty is experienced as regards securing an abundant display of all kinds of fruits, flowers, and vegetables; but unfortunately on each occasion, including that under notice, the weather proved wet and unfavourable. Roses were well shown, more especially by Mr. Cole, gardener to W. Pethick, Esq.; H. Derham, Esq.; Mr. G. Howe, gardener to Lewis Fry, Esq.; Mr. T. Hobbs; Mr. H. K. Ward, gardener to W. H. Budgett, Esq.; Mr. W. E. George; Mr. F. Edwards, gardener to J. Lysaght, Esq.; and Mr. G. Davis, gardener to H. Fedden, Esq., all of whom secured one or more first prizes in the various classes provided. The best collection of thirty-five Ferns was arranged by Mr. H. K. Ward, who was closely followed by Mr. W. Bye, gardener to J. Derham, Esq., the third prize going to Mr. Cole. Gloxinias were well shown by Mr. F. Edwards; pot Roses by Mr. Cole; ornamental-foliaged plants for dinner-table decoration by Messrs. Prideaux, E. G. Cole, and H. K. Ward; plants in bloom, suitable for drawing-room decoration, by Messrs. E. G. Cole, W. Rye, and H. K. Ward; and twelve bunches of cut flowers by Messrs. W. Rye, E. G. Cole, and H. G. Cole, the prizes being awarded in the order named in each instance.

Mr. Cole staged the best black Grapes, and was followed by Mr. W. Rye, while Mr. H. K. Ward had the best white Grapes, and was followed by Messrs. Rye and Cole; the exhibits in each instance being of great merit. The best three dishes of Strawberries were shown by Mr. W. Rye; and Messrs. F. Edwards, Cole, T. Pease, and W. F. George were also successful exhibitors of Strawberries. Mr. W. F. George had the only Melon, and was adjudged the first prize. Peaches were well shown by Mr. E. P. Mills and H. K. Ward. Mr. Rye took the lead with six dishes of hardy fruits; Mr. C. Thomas and Mr. J. Harris taking the remaining prizes. Mr. Cole was first with a collection of vegetables, Messrs. Ward and Rye following. Messrs. Parker & Sons contributed several stands of Roses, Ferns, and other plants, and Messrs. Garaway, Clifton, sent a considerable number of cut Roses, also not for competition, which were much admired. The arrangements were most satisfactory and reflect great credit on the Secretaries—H. Fedden, Esq., and Mr. H. K. Ward.

CÆLOGYNE CRISTATA.

As a last word on my part on this subject, allow me to assure Mr. Young I do not consider the cutting-out from specimen plants of useless crowded pseudo-bulbs altogether wrong. What I do maintain is that if the said pseudo-bulbs are alive they are not useless, or spent, to use Mr. Young's word. Now to meet his feasible or possible plan your correspondent brings up an imaginary plant, for to such, I contend, his description applies. In my experience I have met with plants 5 to 6 feet across crowded with leafless pseudo-bulbs in centre and a very few stray weak growths, but never one in which any part was crowded with spent bulbs, and also in the same part covered with healthy growth requiring room for development. To the plant I have described I would take out from the middle in three different places sufficient leafless pseudo-bulbs to the extent I considered requisite for room; pot them up for growing on, and cut the root-stems of the remaining parts, when I should expect the plant to refill the pit. Most gardeners know that the habit of this plant is to grow away from the centre as I have described, leaving it almost

barc of leaves, not to mention healthy growth. To prevent this either the plan as above is requisite, or more careful potting than Mr. Young described. I am sorry if I have in any way appeared to Mr. Young not to wish to understand him, and must leave the matter to your readers. I consider his second note was necessary to make plain the full meaning of his first; and the third serves to draw my attention to a printer's error, as in my copy I quote him to say "possible," and not "impossible," as I am printed. I do assure him my conclusions are not the result of hurried reading.—ROBERT GRINDROD.

THE HERBACEOUS PLANT BORDER.

Continued from page 5.

ANCHUSA ITALICA.—Free in growth and flowering the whole of the summer, forming a pyramid 3 or 4 feet high, somewhat branching. Flowers deep sky blue with white eye. Fine for back rows.

POTENTILLA FORMOSA.—Height about 2 feet. Flowers bright cherry red, very pleasing, produced in great profusion and for a long time. The foliage is very pretty, and the whole plant taking. It likes a sunny situation.

SILENE MARITIMA FL.-PL.—This is a beautiful rock plant, where it shows to great advantage from its prostrate habit. It forms spreading tufts scarcely a couple of inches in height, having glaucous foliage, very free-flowering; flowers large, double, and white. It is of free growth, doing well in the herbaceous border; but it does not show well in such a position from its prostrate habit, but in rockwork is very telling.

HEMEROCALLISES.—These are just now very beautiful, alike from their bold, handsome, long, and broad leaves, and clusters of yellow flowers—Lily-like, which are delightfully fragrant and fine for cutting. They do best in deep moist soil, but will succeed almost anywhere, and ought to be grown in quantity where cut flowers are in request. The best is perhaps *H. disticha* fl.-pl. with double flowers of a deep bronzy yellow. *H. japonica* is pale yellow and dwarf. *H. Thunbergi*, clear yellow and somewhat less in growth than *H. fulva*, which it much resembles; indeed all the *Hemero-callises* are similar. *H. fulva* has dull orange flowers, and the strongest-growing of the lot, *H. Kwanso* fl.-pl., has large double flowers, bronzy orange, and shy. The variegated form of the last—viz., *H. Kwanso* fl.-pl. fol. var. is very beautiful in foliage, and is not nearly so hardy as the species. *H. flava* is the old bright gold Day Lily and very fragrant.

SPIRÆA ARUNCUS.—A noble border plant, doing well in most any position, but best in a deep damp soil. Its ample foliage and long feathery panicles of innumerable small white flowers are particularly striking and very graceful. It grows to a height of 3 to 4 feet.

SYMPHYTUM OFFICINALE VARIEGATUM.—In the spring and early summer months this is very striking from its long large leaves, which are beautifully variegated with yellow. It is a tall-growing plant, 3 feet or more, and is just now in flower; but the flowers are not so beautiful as those of Prickly Comfrey, which for the wild garden and shrubbery border is well worth place. The plant is more remarkable for its foliage than its flowers. It is one of the most striking of hardy variegated plants.

FUNKIA SPECIOSA.—The flowers of this are pure white, freely produced, and are very useful for cutting, being borne in long graceful spikes. It does best in moist soil and increases rapidly. The foliage is bold and handsome.

FERULA COMMUNIS.—Probably the finest hardy-foliage plant in cultivation, its finely cut leaves gracefully arching, bright deep green in colour, and its gigantic proportions render it particularly striking in the wild garden or shrubbery: indeed where there is room it is one of those plants that are certain to make an impression. Moist, rich, deep soil is essential. Its foliage for large vases is very valuable.

GERANIUM ARMENUM.—The purple-crimson flowers of this are very effective, the plant being of neat growth, about 2 feet high, and flowers very freely. It does well in any soil, best in light, and requires sun.

GERANIUM ENDRESSI.—Flowers bright rose, very freely produced, having a very bright cheerful aspect. It likes light soil, flowers a very long time, and forms a compact bush 12 to 18 inches high.

GERANIUM IBERICUM.—Rather strong-growing, 2 to 2½ feet high; large flower heads of a purplish blue, the flowers the size of a penny piece. This is one of the best of the strong-growing sorts.

GALEGA OFFICINALIS ALBA.—Grows 3 or 4 feet high, and produces a vast profusion of flowers successively, pure white, pea-shaped, in cymes. It is not only fine as a decorative plant, but affords flowers for cutting in abundance.

EULALIA JAPONICA.—A beautiful Grass with long narrow leaves of considerable length, bearing long heads of inflorescence 9 inches or more in length, with long "horns" of a bright purple shade, very

beautiful; height 3 feet. Does best in light soil and not too moist, as it is not very hardy in wet positions.—G. ABBEY, *Paxton Park, Hunts.*

CARNATIONS AND PICOTEES AT CHELSEA.

PERIODICAL displays of certain classes of plants, together with the never-failing standing attractions, maintain a constant interest for visitors to Messrs. J. Veitch & Sons, Chelsea Nursery. Amaryllises, Orchids, Gloxinias, and many others, each in their turn provide a special feature, the Carnations and Picotees, of which such a large collection is grown, being at the present time the prevailing attraction. A number of beds near the Brompton Road entrance to the nursery are devoted to these plants, which are now fast approaching their best condition, as, although the weather has been unfavourable to them, they have suffered very little, and some varieties are quite uninjured, the flowers clean and the colours bright. Several beds of self Carnations are exceedingly beautiful, proving the value of such varieties for massing where a bold effect is desired. The flaked varieties are also beautiful, the bizarres requiring rather closer inspection to duly appreciate their beauty; while of the Picotees the heavy-edged varieties are far bolder and striking bedded out than the light-edged forms, though the exquisitely delicate beauty of the latter must always render them favourites. So many of the best varieties in each class being seen together visitors have an excellent opportunity of comparing their respective merits and selecting those most suited to their taste or requirements; and during the present and following week will be the best time to inspect them.

The following is a selection of the most noteworthy, though necessarily in so large a collection many fine forms are omitted:—

CARNATIONS.

Selfs.—Virgo (new), a charming variety, pure white, very even and neat in form, one of the best. Milner is another grand white, exceedingly free and pure. The Bride, a well-known variety, also white and useful. Gloire de Nancy, a pure white, is distinguished by the great size and substance of the flowers.

Yellows are now represented by several beautiful varieties, very clear in tint and admirable in the form of the flowers. Florence is a floriferous yellow self, certificated last year; Stanstead Beauty, Chromatella, Canary Yellow, and Sulphur King being also charming varieties, differing slightly in depth of tint. All are good, but the first two are especially so. Niphetos and Lady Rosebery are also clear shades of yellow.

Scarlets are abundant, many extremely rich and bright varieties being included in the collection. Robert Burns (new), dwarf and useful for marginal rows in large beds, rich deep scarlet, and exceedingly free; forty to fifty buds on a plant. Magnum Bonum is a very free and beautiful variety, the bloom of good size and substance. Amethyst (new), dark crimson-scarlet, almost maroon, handsome, bold, and striking. Coroner is a fine true scarlet; Sir Archibald Grant of a crimson-scarlet hue, being similarly good. Heaton Bank Scarlet is one of the best of its class. James Wilkins (new), of a very bright light shade, most effective. Other fine scarlet selfs are Duke of Wellington, Fireman, Fire-eater, and Dan Godfrey.

Purple and rose selfs possess considerable attractions, the richness of the former and the delicacy of the latter being highly pleasing. One of the best of the purples is Royal Purple, a grand variety of excellent habit, very free, and the blooms warm crimson-purple; a most valuable variety for bedding. Auctioneer is another superb variety of the same class, very free, and of a rich crimson-purple hue. Walter Ware is a deep blue purple, quite distinct from the preceding, but equally good, the blooms being of exquisite form. Perhaps the best of the rose selfs is Mary Morris, which was certificated last year, and has been repeatedly mentioned in these columns; its large clear rose-coloured blooms are produced in great profusion. Lothair is a pale delicate pink, but pretty. Gertrude Teigner has small pink flowers, but freely produced. Mrs. Teigner, very similar in colour, but larger. The Governor is a charming blush self, the bloom of great size and substance. Blush Clove, a charmingly tinted variety of the old Clove, possessing all its fragrance, is also notable in this class.

Bizarres.—The best of these are as follows:—*Crimson.*—Albion's Pride, Gracilis, Lord Milton, Rifleman, Sir John Falstaff, Thomas Moore, and Young Milton. *Pink and Purple.*—James Taylor, Princess Beatrice, and Sarah Payne. *Scarlet.*—Admiral Curzon, Arthur Medhurst, Ben Simonite, Duke of Grafton, George, and Mars' Son.

Rose Flakes.—Mrs. Laxton, Rosa Ann, Sybil, Mary Ann, John Keats, and James Merryweather. *Purple Flakes.*—Squire Trow, Mayor of Nottingham, James Douglas, and Doctor Foster. *Scarlet Flakes.*—Miss Bateman, Lord Lyon, Jupiter, Thomas Tomes, John Bull, and Dan Godfrey.

PICOTEES.

Though these are not so numerously represented a careful selection of the best varieties in cultivation are grown, and so well have they been chosen that nearly all the varieties possess merits of equal value. The following are the most notable for their good habit and floriferousness. *Crimson heavy edge.*—J. B. Bryant, Picturata, Lothair, Hilda, and Ensign. *Medium edge.*—Queen of Summers and Lord Valentia. *Light edge.*—Rev. F. D. Horner, Mrs. Keynes, Grosteen, and Emily. *Purple heavy edge.*—Rev. J. B. M. Camm, Medina, and Mrs. H. Chancellor. *Medium edge.*—Princess Dagmar, Rival Purple, and Mrs. May. *Light*

edge.—Clara Benson, Baroness Burdett Coutts, Her Majesty, and Mrs. Langtry. *Rose heavy edge.*—Miss Gibbs, Royal Visit, and Mrs. Rayner. *Medium edge.*—Mrs. Summervale and Louisa. *Light edge.*—Beauty of Plumstead, Lucy, Lady Boston, and Mrs. Fordham.

All the above, both Carnations and Picotees, have been selected chiefly with regard to their effectiveness as border plants, the most floriferous the brightest or clearest colour, and those of best habit being only named. The whole collection is in fine condition, and very creditable to Messrs. J. Veitch & Sons' trusted manager of this department, Mr. Swift.

WEST OF ENGLAND ROSE SHOW.

THE seventeenth annual Exhibition of this Society was held as usual in the Shire Hall, Hereford, on Tuesday, July 10th, and in spite of the counter attractions of two highly popular Rose shows, which kept away some of the leading professional exhibitors, must be pronounced as quite up to the average of recent years. Your correspondent had not the happiness of being present this year at the National Rose Society's Exhibition at South Kensington, but he cannot here refrain from adding his mite of testimony to the truth of his friend "Wyld Savage's" remark, "that Roses this year are shown as a rule deficient in quality." Some few blooms, doubtless, are unusually large, but the majority are decidedly undersized. Colour, likewise, though occasionally brilliant, mostly is dull and lustreless; while a general coarseness and lack of smoothness runs through most of the best collections. But surely these results are only what might have been expected from unseasonable cold weather, especially at night, retarding the development of early blooms, and more recently in the trying ordeal vegetation has experienced in fitfully passing through an almost tropical atmospheric humidity, to be suddenly varied with cold boisterous currents of wind. It is a fact, however strange, that Tea Roses have undoubtedly thrived the best, and are making such strong wood that a grand autumn bloom may be confidently expected.

Messrs. Cranston & Co., whose maiden blooms are later even than usual this year, exhibited grandly at home quarters, and, as might be expected with so late a fixture, carried all before them, winning six first prizes, and only losing the first prize in the open Tea and Noisette class (not a very meritorious class), which an amateur, Mr. Grant, won. Mr. G. Davison took second prize with noticeable blooms of Abel Carrière (grand colour), Xavier Olibo, Duke of Wellington, Alfred K. Williams, &c. For thirty-six varieties, three trusses, Messrs. Cranston & Co. were first, Messrs. Keynes & Co. second, and Messrs. Cooling & Son third. For twenty-four varieties Cranston & Co. were first, Messrs. Keynes & Co. second, and Mr. W. Grove third. For eighteen varieties, three trusses, Mr. C. Whiting was first, Messrs. Cooling & Son second, and Mr. W. Grove third. For twenty-four varieties Mr. T. Griffiths was first, Mr. C. Whiting second, and Messrs. Cooling & Son third. In this class Mr. Griffiths, Tillington Nurseries, exhibited a bloom of H.P. Constantin Tretiakoff of unusual size and perfect symmetry, smoothness and colour, quite unique, and the premier bloom in the exhibition hall.

In Class D, collection of new Roses sent out by English nurserymen, and not in commerce previous to 1880, the most promising blooms appeared to be in the three competing hands ranged in the order given, Messrs. Cranston & Co., Messrs. Curtis, Sanford & Co., and Mr. G. Davison. H.P. Ulrich Brunner fils., already alluded to as useful and most promising; Pride of Waltham, a veritable duplicate of Marie Finger; Lady Sheffield, of good size and bright colour; Comte de Flandre, useful colour, and Helene Paul, a variety with which Messrs. Cranston & Co. took first prize for twelve trusses of any new Rose. Messrs. Curtis, Sanford & Co. second prize with Eridc of Waltham. Not competed for third prize. For twenty-four trusses of any Rose, first Messrs. Cranston & Co. with glorious blooms of Alfred Colomb, second prize Mr. G. Davison with small but symmetrical blooms of Mons. E. Y. Teas, and third Mr. Grant with bold but small blooms of Alfred Colomb.

In Class B, thirty-six varieties, open to the United Kingdom, Miss Bulmer, Broadlands, Hereford, won the first prize, which carries with it the distinction of the National Rose Society's silver medal. Miss Bulmer also won the first prize given by J. G. Woodhouse, Esq., for the best amateur single bloom, H.P. Marie Rady. In this collection, which was admirably staged, and of good size and substance, the choicest blooms were Ulrich Brunner fils., Marie Rady, Mdle. Eugénie Verdier, Edouard Morren (smooth and splendid), Comtesse d'Oxford, Duke of Edinburgh, and Mdle. Gabriel Luizet. Mr. Grant, Ledbury, was second with fresh and compact blooms, and Mr. J. H. Arkwright, Hampton Court, Leominster, third. For twenty-four varieties, Mr. Grant, first; Mr. J. H. Arkwright, second; Miss Bulmer, third. For twelve varieties, three trusses, Mr. J. H. Arkwright, first; Mr. Grant, second; Miss Bulmer, third.

Class C, restricted to Herefordshire, was well filled, and the collections both in staging and in the freshness and general quality of the blooms, show a marked improvement.

It is not usual, neither is it courteous, to criticise special prizes. The public, as well as competitors, do well to receive the good things offered them in silent gratitude; but a special offered two years running which fails to secure a single entry, to say the least of it is a puzzle, and an unattractive puzzle. Such, however, is the special prize offered by Cranston Company to the West of England Rose Society, which runs thus: "Collection of twenty-four English-raised Roses, not in commerce previous to 1879." Now it may be seen by the "Amateur Rose Exhibitor's Text Book" issued this year by the National Rose Society, enumerating considerably over one hundred exhibition varieties, only five can be included as introduced into commerce since 1879. Could not Mr. Cranston prevail on the Company he so ably represents to give a cup, as individually he generously did, to the winner of the chief amateur prize in the schedule? and there would be no lack of entries then. The competition in the floral decoration division was very keen, but hardly up to the mark of last year. The first prize for the drawing-room decoration, given by the Marquis of Bute, was artistically won by Miss Rachael Clowes, Burton Court; and second prize by Miss Alice Watkins, Willcroft. Miss Cypher, Cheltenham, obtained first prizes for both bridal and opera bouquets. The Judges were (over professional

division) the Rev. C. H. Bulmer, Credenhill Rectory, Hereford, and Mr. W. J. Grant, Hope End, Ledbury. Amateurs, Messrs. Sandford and Burch. Floral decorations, Mrs. Arbutnot and Mr. Henry Leslie, with Mr. J. H. Arkwright.—HEREFORDSHIRE INCUMBENT.

LEE, BLACKHEATH, AND LEWISHAM SHOW.

JULY 11TH AND 12TH.

THE above Society held their sixteenth annual Exhibition of plants, fruits, and vegetables in a field adjoining the charming residence and grounds of Mrs. Penn, The Cedars, Lee, by whom the field was kindly lent for the occasion. The weather on the first day was most propitious; the afternoon of the second day, however, proved less fortunate, rain falling. Notwithstanding this, however, the Show was a fairly successful one, the general arrangement being satisfactorily. The plants exhibited, too, were above the average, being remarkably well grown and healthy examples. Some very effective and artistically arranged groups of plants were contributed, not for competition, by Messrs. Laing & Co., Forest Hill; B. Maller and Sons; W. North & Son, Lee; Jones & North, Lewisham; W. J. Todman, Eltham Nurseries, and others.

In the competition classes, open to members—Class 1, eight stove or greenhouse plants in flower, Mr. S. Reece, gardener to J. Whyte, Esq., Old Road, Lee, was first with well-grown and trained plants of *Echites bolivensis*, *Dipladenia Brearleyana*, *Ixora Williamsi*, *Erica Cavendishi*, with a beautifully trained and flowered *Plumbago capensis*. Mr. H. James, Castle Nursery, Lower Norwood, was a close second with good plants of *Erica depressa*, *Paxtoni*, *Anthurium Schertzerianum* and *Andreanum*, &c. The third prize went to Mr. J. Wakeham, gardener to H. B. Barrett, Esq., N. Dulwich. In this exhibitor's collection were large well-grown plants of the old but effective *Vinca rosea* and *oculata*. For six plants of ornamental foliage Mr. S. Reece again secured first honours with fine plants of *Phyllotænum Lindeni*, *Croton undulatus*, *Pandanus Veitchii*, &c. Mr. J. Lambert, gardener to H. W. Segelcke, Esq., Herne Hill, was second, and Mr. H. James, Castle Nursery, third. For six exotic Ferns, distinct, stems not to exceed 2 feet in height, Mr. S. Reece was again first with capital plants of *Davallia Mooreana*, *Cibotium regale*, and *Microlepia hirta cristata*. Mr. R. Sholdice, gardener to R. P. Barron, Esq., Blackheath Park, second with well-grown plants, especially *Alsophila excelsa*; Mr. J. Wakeham being third, and Mr. W. Jeffery, gardener to J. Young, Esq., Blackheath, fourth. For four *Lycopodiums* Mr. J. Wakeham was first with well-grown plants of *Selaginella apoda*, *stolonifera*, *cæsia*, and *Willdenovi*. Mr. H. Martin was first with six *Caladiums*, large plants of *Meyerbeer*, *Lepeschkinea*, *Leplay*, and Dr. Lindley being notable; Mr. S. Reece following with good specimens, including a well grown example of *argyrites*. Tuberos-rooted *Begonias* were well shown by Mr. S. Reece, Mr. R. Sholdice, and Mr. W. Jeffery. Mr. S. Reece was first with six Cape Heaths, good plants of *Erica ventricosa*, *Bothwelliana*, *gemmifera*, *elegans*, &c. *Fuchsias* were chiefly shown by Messrs. J. Sharpe, W. Jeffery, W. Steward, gardener to H. Paine, Esq., Blackheath, E. Smith, gardener to the Rev. E. E. Jenkins, and Mr. W. Steward.

In the gardeners' and amateurs' classes the competition was generally keen, the majority of the exhibits being distinguished by their good quality. The principal prizetakers were Messrs. R. Fullerton; P. Wright, gardener to F. Knott, Esq.; J. Mullins, gardener to J. Strong, Esq.; Holden, gardener to J. White, Esq., and many others.

In the divisions devoted to cut flowers were some excellent exhibits. In the class for Roses (open) there were not many competitors, probably owing to the heavy storms recently having spoiled so many blooms. For forty-eight single blooms there was only one competitor, Mr. J. W. Todman, Eltham Nursery, who was placed first. Some very fine blooms were shown in this collection, especially Alfred Colomb and Baroness Rothschild. A collection of twenty-four single blooms was shown, not for competition, by Mr. J. W. Todman, also a stand of twelve by Mr. James. For twelve single blooms Mr. Boatwrite, gardener to Mrs. Black; Messrs. J. Sharpe, and S. Reece were the prizetakers. Table decorations were well represented, Miss F. Dent winning first (special) prize for epergne of cut flowers for table.

The fruit division was meagrely represented. We, however, note a few of the leading exhibits. Mr. W. Jeffery was first with a collection of fruit, six dishes, including Grapes, Melons, &c. In the class for three bunches white and three black of Grapes Mr. W. Jeffery was again first. Very poor examples of Grapes were shown in the classes assigned exclusively to them. A few Strawberries, single dishes, were staged, Mr. R. Fullerton being first and Mr. Stockwell second. In the class for Strawberries in pots Mr. W. Davies was first with six well-fruited plants, and Mr. R. Fullerton second. Mr. G. Cole was first with a good brace of Cucumbers.

There were but few exhibitors in the vegetable division for gardeners. Mr. Jeffery was first for collection of vegetables, and Mr. H. Cole second. Mr. E. Smith was first for two dishes of Potatoes, distinct, and Mr. Ball first for two dishes of Peas. Mr. W. Jeffery also won the special prize offered for collection of vegetables and salad.

Mr. S. Reece is the winner of the silver memorial cup, which is offered annually to those exhibitors who win the largest amount of money.

the Potato rows has been practised, the stems will be disposed to overgrow the greens; but they must not be allowed to do this. We have just gone over all our rows and drawn the stems close in, and where they had exceeded all bounds they have been twisted together and placed on the top of the ridge. This, we have proved, does not really injure the tubers.

Winter Turnips.—More of these should be sown as soon as possible; in fact, the main winter crop should be got in without delay, as it is an advantage when the bulbs have gained fair proportions before November. As Peas, Potatoes, early Turnips, and many crops are now being cleared off the land, there is plenty of vacant ground where the Turnips may be sown. The drills should be 18 inches apart, and sow thin. As this sowing will give a supply from October until next April, a large quantity should be sown where the demands for winter and spring Turnips are great. Those sown a fortnight ago are now in the rough leaf, and they should be thinned out to 6 inches apart, and 12 or 15 inches from plant to plant ultimately, and before they are so crowded as to injure each other. After each thinning run the Dutch hoe between the rows to prevent the spread of weeds.

Leeks.—These, if grown for exhibition, will be forward in growth, and they must be earthed up every fortnight or three weeks to produce a pure blanched stem; but where this useful winter vegetable is only grown to supply the kitchen, good useful produce may be raised without much trouble. Young plants placed out in the main quarters now will be of good size by November, and they will then remain good until the following May, being much hardier and less liable to seed prematurely than the more tender early-forced plants. The easiest way of treating them is to throw out a number of small trenches about 9 inches deep and 18 inches apart, dig plenty of manure into them, and afterwards dibble in the plants.

Another good way is to manure a piece of ground thoroughly, and after digging it over dibble the plants out in it 9 inches apart each way. A thick pointed dibble should be used, which will make a hole from 2 to 3 inches in diameter and 3 inches deep; drop the plant into this, only putting a very little soil over the roots, and allow the hole to remain open, when the stems will have plenty of space to develop freely. Rich ground is the main requirement in the production of fine Leeks.

Autumn Onions.—The Onions which were raised from seed sown last autumn are now from 12 inches to 20 inches in circumference, but they have almost ceased growing, and some of them are beginning to split, which spoils them in a great measure, especially for keeping; and we would suggest that the whole of them be drawn up now and harvested. They should be taken from the soil and be spread out on a gravel pathway or somewhere that they may be kept dry. When they have large juicy stems these should be partially twisted off close to the neck, as this will prevent them from decaying in a manner prevalent in the case of thick necks.

Young Carrots.—We find Carrots are more valued when quite young, sweet, and tender than when large, old, and tough, and a batch of the little ones if sown now to come in during the autumn months will be found most useful. The Horn varieties only should be sown in any good ground where grubs are not plentiful. They should be sown in rows a foot apart, and thin sowing where the seed is good will be found most satisfactory.

Autumn Lettuce.—Seed of these should now be sown. We always sow them in small beds, where the plants are allowed to stand until they are 2 or 3 inches high, when they are transplanted to the main quarters. Those varieties noted as good summer kinds may still be put in, and in late districts a pinch of some of the winter sorts may also be sown. Keep on transplanting out any young plants in store.

Autumn Cabbage.—From the middle of July to the middle of August is the time to sow Cabbage seed to produce those plants which are planted out in autumn and head in the early spring months. In late districts a good sowing should be made now, but in early situations there will be no hurry in sowing for a week or two yet, as the seed germinates freely at this season and the plants grow fast afterwards. This crop, however, is rather a variable one, as if sown too early the plants are so liable to bolt, particularly in spring; and if sown late it may throw them back in becoming ready for use. The plan we always practise, and which invariably succeeds, is to sow a little seed at three different intervals during the time named above, and one or other of the batches is sure to be right. In sowing the seed a very good piece of ground should be selected for its reception, and we always think it preferable to sow in rows rather than broadcast, as the plants which will remain in the seed rows throughout the winter can easily be kept clean, and they grow more dwarf and hardy in rows than when crowded together in narrow beds. The rows should be 12 inches apart and about 2 inches deep. Sow rather thinly, and never allow any weeds to interfere with the free and hardy growth of the plants.

Late Greens.—Where it is doubtful if the supply of winter greens will be sufficient, Savoys, Brussels Sprouts, &c., may still be planted out in the ground being cleared of early crops. Although plants put in now will not come in for autumn use they will be found most acceptable in spring and about that time.

FRUIT-FORCING.

Vines.—The temperature in late houses in which the Grapes have not yet passed the stoning process must not be allowed to range too high at night. Continue a little fire heat if necessary to maintain the temperature at about 70°. Commence increasing the ventilation early in the



KITCHEN GARDEN.

Greens between Potatoes.—Potatoes are now growing strongly, and where planting winter Broccoli, Brussels Sprouts, and Savoys between

day, and maintain at 80° to 85° through the day, closing at 80° with plenty of moisture. When Muscats are ripening they should have fire heat to maintain a temperature of 85° to 90° by day, and 70° at night, with a free circulation of air, affording sufficient moisture to prevent any undue maturation of the foliage. Occasionally the berries of Muscats are scalded from exposure to the direct rays of the sun, especially where the panes of glass are large; and in this case the laterals should be given more play than usual, and if shading be deemed expedient it should be very light, herring netting being sufficient. Consequent on the cold weather in spring and early summer and the great amount of firing necessary, red spider has been very troublesome, and as the health of the foliage is essential to full crops another season the usual remedies against its spread must be applied, which is also quite essential to the perfect finish of the present crop, which cannot be expected to finish well, especially in colour, if this pest be allowed to exist. The border must have due attention in mulching, and be given copious supplies of water both inside and outside. Vines from which the fruit has been cleared should be well washed with the syringe or engine on fine evenings, and have free ventilation day and night. To encourage the Vines to make surface roots and to plump the eyes weak liquid manure should be given occasionally, especially to inside borders. Vines in pots now ripening their wood and intended for early forcing will require less moisture and more air; but these must not be too dry at the roots, or it will cause the premature ripening of the foliage, and an occasional syringing will be necessary to keep the foliage healthy until the buds are developed.

Peaches and Nectarines.—Early-forced trees from which the fruit has been removed must have attention in watering the internal borders, and syringing the trees to keep them free of insect pests until the flower buds are properly formed and ripened. In succession houses trees that have a large surface of leaves exposed to the direct rays of the sun will require large supplies of water both inside and outside the house, which should be given at somewhat higher temperature than that of the house. Syringe well twice a day until the fruit commences ripening, when it must be discontinued over the trees, but moderate moisture maintained by damping the borders occasionally. Let the fruit have full exposure to the sun, seeking to insure flavour by admitting air to the fullest extent on hot dry days. Mulch inside and outside borders, and give abundance of water to trees in late houses, which are now stoning. In order to effect the thorough ripening of the wood keep it well thinned and tied in, not allowing it to become crowded, and remove gross growths, which are not likely to ripen well, and are otherwise destructive of an equal diffusion of the sap. Mark trees which from their vigorous growth are likely to require lifting and curtailing at the roots, also those which, from enfeeblement, require the borders renovating, and provide the requisite supply of strong loam, which should be of a calcareous character, or made so by the addition of tenth of lime rubbish or chalk broken up small.

Strawberries in Pots.—Where early runners have been layered in small pots they will now have rooted, and should, before they become root-bound, be transferred to the fruiting pots. For very early work 5-inch are suitable, and 6-inch is quite large enough for any but the very strongest growers that are not to be forced until late in the season. The pots should be well drained, and the compost good turfy loam with a fifth of well-decayed manure in a moderately moist condition, only so as to admit of its being rammed firmly into the pots. Sufficient space should be left for watering, and a mulching of short horse dung given so as to encourage surface roots. Stand the pots on ashes in the full sun, but if possible sheltered from winds, allowing sufficient space between each for the full development of the foliage. Where layering has not been proceeded with it will be advisable to layer into the fruiting pots at once, as it is hardly possible to detach plants in small pots without some check, and this, when the season is advanced, is of considerable importance.

PLANT HOUSES.

Clerodendron fallax.—Young plants that have been raised from seed should be placed in 6-inch pots, and if likely to come into bloom before they are wanted pinch out the points and allow them to branch. From seed sown now some useful plants in small pots will be produced; in fact, to maintain a succession of this useful plant a little seed should be sown at intervals of a few weeks. Those plants that are just going out of bloom will, if the old flowering spikes are cut away and the plants placed in pots a size larger in brisk heat, soon break again into growth, and in due time flower freely. Plants from which seed is required should stand while in bloom in a drier atmosphere than in the stove.

Abutilons.—Where these plants are appreciated this is a good time to strike the tops and strong side shoots for the batch to flower first. It is preferable to insert the cuttings singly in small pots, as nearly every one will root if placed in heat and kept in a close frame. As soon as the small pots are full of roots transfer the plants into pots in which they are intended to flower, and gradually harden them. By the insertion of good cuttings, and treated as advised, some well-furnished plants will be produced by autumn, which will flower freely when about 9 inches high. For purposes of decoration constant propagation must be resorted to, for when the plants become tall half their beauty is gone.

Begonias.—Where these plants have been kept in heated structures up to the present time, and are intended for autumn and winter-flowering, they should be gradually hardened and placed in cold frames without delay. This applies to such kinds as *Ingramii*, *Weltoniensis*, *nitida*, *manicata*, and others which do much better under cool treatment during the summer months than in heated structures. Any plants in a backward state should be encouraged until they are established in their

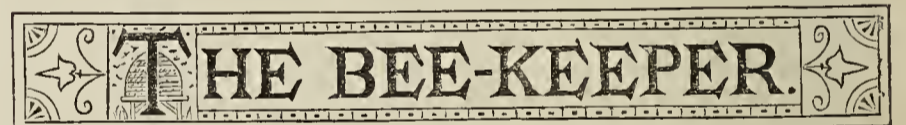
flowering pots, and should then be treated as above. *B. semperflorens grandiflora* raised from seed is most useful, but should not be pushed on too rapidly after they are once established in small pots, for this useful *Begonia* is a strong and rapid grower. While in cold frames these plants must have shade from strong sun, be aired judiciously, and closed early in the afternoon while the sun is upon the frames.

Chrysanthemums.—Stopping must be discontinued after this date, and the plants intended for decoration and to produce flowers for cutting should be allowed to grow naturally. Staking must be pushed on as rapidly as possible now the whole of the stock are in their flowering pots. Plants intended for exhibition will be showing what is called the July bud, which must be removed, and the shoots not required that form near its base. All lateral growths must be removed from these plants as soon as they appear. Cuttings can now be rooted of Pompon as well as large-flowering kinds from plants that were planted out for the purpose. The large-flowering kinds should be inserted singly in 3-inch pots. A number of the others should be placed together in 5-inch pots and allowed to grow together afterwards. The dwarf plants for decorative purposes will be found most useful, and will root readily in a cold frame kept close, moist, and shaded.

Azaleas.—Plants that were assisted early by heat to make their growth in Peach houses and vineries will by this time have formed their buds and be ready for placing outside or in a cool structure. The plants are better for being outside, except where the locality is very wet, as they ripen up their growths and are brought afterwards into flower easier than when kept the whole season under glass. At first they should have a position slightly shaded from direct sunshine, but at the same time the plants must have abundance of light, and should by no means be placed where the drip from trees and buildings will fall upon them. In a short time the plants may with safety be fully exposed to the sun, but their pots must be protected, or much injury will result if the sun strikes directly upon them. It is wise to plunge the pots, but when in this condition the watering of the plants must not be left in the hands of the careless, or else the plants will soon suffer and much injury result. Syringing should be well done during bright weather twice daily.

Deutzias that have been grown indoors to make their growth ready for early forcing should now be turned out and plunged in a sunny position in a warm border. If the pots are full of roots feed liberally for some time until the wood is thoroughly ripe and the flower buds plump.

Scented Pelargoniums are amongst the most useful plants that can be grown for the supply of greenery for associating with cut flowers. A good stock should now be rooted and grown on until they are placed in 6-inch pots. They root quickly on a shelf in a little heat, and if the cuttings are strong and good to start with, a quantity of useful material for cutting is soon produced.



THE EXHIBITION AT KNIGHTSBRIDGE.

WE will now proceed with our remarks on the British Bee-Keepers' Association's Show. In our last letter we concluded our report of the honey exhibits so far as super honey was concerned, and we mentioned that the run and extracted honey exhibited was of a superior kind. This leads us to say a few words about the extractors which were entered in Class 39; 260 to 263 were machines which have long been before the public. They were not for competition, but placed by their inventor, T. Cowan, Esq., who has repeatedly carried off the first prizes at various shows. Mr. Blow took the first prize with a handy instrument, No. 259. The same exhibitor obtained third prize with a machine which was priced at 8s. more than the former. The good points in the one to which the preference was given were—1st, The bar and all mechanism was easily lifted out by the removal of two screws, thus giving facility for thorough cleansing; 2ndly, A cover was also provided, which is requisite with all extractors, since it is not always convenient to draw off honey into another vessel for ripening; 3rdly, This useful article was put at a low price—two guineas, and we doubt not will meet with a large demand. No. 266, to which the second award was made, had its own peculiar advantages. It was conical at bottom, and thus allowed all honey to drain out, and it was constructed so as to hold a great quantity of honey before it became necessary to draw off, the cages being placed well above the bottom of the cylinder.

Messrs. Abbott Bros. exhibited a very neat handy article, No. 257, and to all appearance, but for one fault, might be called a "Perfect Extractor." It was offered at the low price of 30s. There was no multiplying apparatus, but the action of the hard wooden spindle working in a box-wood socket was most easy and pleasant to manage. The one fault was the metal employed for the cylinder; zinc would undoubtedly be highly prejudicial as a receptacle for honey. Doubtless we shall see this useful article brought forward again with another kind of cylinder. We must not omit to notice that Mr. Blow had admirably arranged the structure of No. 258, but £2 10s. is a long price to pay for an extractor, and only the well-to-do amateur can buy at such prices.

Class 40 contained some exhibits of wax of the purest quality. It is a pity that such pure wax is not always obtained in the manufacture of foundation. Classes 41 and 42 were for glass jars, in which liquid honey

could be sent to market. We are approaching the desired standard for such useful articles. Unless the pure English honey be offered in a clear, neat, prettily labelled receptacle, it has a chance of being pushed out of the market by foreign produce of far inferior quality when offered in a more inviting form. The eye first requires to be pleased, the palate has the second chance. First displease the eye, and the taste is unlikely to be called into the arbitration. We must therefore congratulate Mr. Blow and other exhibitors on the success which has attended their efforts to obtain such inviting receptacles for run honey.

We always approach the table set apart "For any New Invention Calculated in the Opinion of the Judges to advance the Culture of Bees" with some amount of excitement and much expectation. We cannot say that our expectations were realised by this year's exhibits. Mr. Cowan has invented an ingenious contrivance for ripening honey. It consists of a number of shallow trays arranged one over the other, and placed at such angles as to allow the honey when poured into the top tray to gradually run from tray to tray until it reaches the bottom, traversing in its course some 50 feet of surface. These trays are traversed by metal tubes, which would become a miniature system of hot-water pipes when in use, and the heat from these would cause sufficient evaporation of surplus moisture from the honey to render it fit for bottling in a short period of time. Another ingenious contrivance which we noticed consisted of a small cage made of excluder metal, to which was fastened a calico bag about the size of a pillow case. This was said by the inventor to be an apparatus for enabling the novice to capture the queen bee readily. The swarm, after being hived in a skep, was to be shaken into the bag, and by constantly shaking this bag the worker bees were expected to all pass through the wire cradle, while the queen would be left. We should conceive that the bee-keeper would after all have some trouble in capturing the queen, where many drones had joined the swarm. In some cases the cradle would be filled with them. A long narrow horsehair brush might be useful, which was among these exhibits; but we always find a goose-quill or bunch of asparagus quite equal to the occasion when brushing bees from combs. All these little luxuries can be purchased by those who make bee-keeping a mere hobby, but our aim should ever be to render bee-keeping such an inexpensive undertaking that the cottager may take up the more humane and modern system and gain thereby.

We must now leave this part of the Exhibition and examine the exhibits of hives. In Class 5 Mr. Hooker, in the opinion of the Judges, showed the best hive for winter and summer use. This was his well-known Alexandra hive, which first appeared in 1876. Some slight alterations and improvements had been added. As a specimen of the elaborate and expensive class of hives it is certainly an excellent one, and would doubtless give pleasure to the amateur who does not care much about cost of appliances. Mr. Thompson and Messrs. Abbott took second and third prizes respectively in this class. Class 6 was to contain hives adapted to the same purposes as those in Class 5, but the price was not to exceed 40s. There were eight entries, all priced at £2 each. Nos. 19 and 18, exhibited by Messrs. Baldwin and Abbott respectively, were excellent hives of the class, and secured first and second awards. We think it would be better for ease of manipulation when changing sections to have the rows in the rack separated by a strip of wood, which could be easily lifted out and replaced. The sections on No. 18 fitted closely together, and in the height of the honey harvest would give some trouble to the bee-master. Mr. Baldwin also gave us a little more for the money by having his hive nicely painted and fit to stand any weather. Messrs. Neighbour's twin hive, No. 24, deservedly had the second prize. It was a very cheap hive considering the great amount of work in it, and there is no reason why two stocks of bees should not winter well in it. It is a pity that hive-makers will fasten on the covers to hives with immovable butts. It is next to impossible to open a hive on a windy day with such an arrangement. The lid could be hinged on pivots, which would allow of its being either folded back or on windy days lifted off altogether without running the risk of a gust of wind upsetting the hive altogether.

In Class 7, for hives not exceeding 30s, were some excellent exhibits. Who would wish for a more serviceable, solid, well-made hive, replete with every convenience for wintering and for honey-harvesting, than Messrs. Abbott's "Combination?" Mr. Baldwin's "Universal No. 2" was also a similarly useful hive, and Messrs. Neighbour's formed with the others a good trio. Mr. Overton had evidently expended much trouble in rendering the exterior of his hive sound and weather-tight, but did not give us so much for the 20s. within.

In Class 8 we come to hives nearer the price which a poor man could afford to give. Mr. Howitt's combination hive was a most useful one. The frames might be made to hang more accurately, but that is a matter easily rectified. The hive was good and solid, and would last for many years with the outlay of the cost of a little paint each summer. No. 40 was almost equally cheap and substantial; and No. 37, which was awarded a prize at Bridgewater, was very solid and good. Although only three prizes were awarded to this class there were other hives of great merit, especially those exhibited by Messrs. Abbott, Overton, Hooker, and Walton. All cheap useful articles, and such as a cottager with fair practice would soon pay for by the extra honey his bees would give him through using such appliances.

We now come to the cottagers' hives in Class 9, at the low price of 15s. 6d., and here, without doubt, there was keen competition. In this class we saw a decided improvement on former exhibits of equal value. A great advance has evidently been made by manufacturers towards solving the difficulty of placing a really useful hive before cottagers at a price within their means. Such articles as those which took prizes in Class 9 are comparatively far cheaper than skeps, and the amount of pleasure the owner

of such a hive would derive, let alone the greater facility for obtaining surplus honey, would soon compensate him for the extra outlay. Messrs. Dines & Son took first honours with a solid, well-made, well-fitted hive, with a broad frame of sections inside, fourteen sections on top, dummy, &c.—a hive, which in the hands of an intelligent man could be made to do anything practicable in bee-keeping. No. 49, Baldwin's Bridgewater prize hive No. 2, was another excellent piece of workmanship at the price. In this hive two frames of sections were placed in the body box, ten frames for brood nest, and a set of ten sections over. There were other hives almost equally cheap and good. Mr. Stothard's, No. 58, gained third prize, a wonderfully cheap hive at the low price of 7s. 6d., for which low sum was given a well-made body-box, eight frames, a dummy, and 15 lb. sections. No. 48, a section of a tree hollowed out, and so arranged as to contain bars and frames, was exhibited by Messrs. Abbott. A similar section could be used as a super. This hive would be a pretty ornament on a lawn or in a shrubbery, but we should be doubtful as to its utility as a bar-frame hive. The wood could hardly fail to swell with wet or crack with dry weather, and the greater objection would be the fact that the frames being of various lengths are not interchangeable. A minor objection is the zinc roof, which would not do for a winter covering on account of condensation and drip, nor as a summer cover to the super, as the combs would melt beneath it.

We have now exhausted our remarks on this year's exhibits, excepting that one must not fail to notice Mr. Drinkwater's hive—the only exhibit in Class 10. This was an amateur's praiseworthy effort to show a useful hive of his own make. So far as the workmanship went there was room for improvement. Some little difficulty was experienced in moving and replacing the various parts of the hive. A more simple contrivance for giving the bees access to the side sections could be arranged. Again, the cover was fixed to the hive—a drawback in a windy spot. Some good straw hives were exhibited in Class 11; and Mr. Blow, the only exhibitor in Class 12, showed a good specimen of the Stewarton hive. Altogether the Exhibition was a decided success, and will doubtless help to increase the knowledge of bee-keeping and to encourage its humane culture in the United Kingdom.—P. H. P.

BEES, HIVES, HONEY, &c., AT THE ROYAL AGRICULTURAL SHOW AT YORK.

At the recent annual Exhibition of the British Bee-Keepers' Association, held in the Duke of Wellington's Riding School, Knightsbridge, the Bishop Suffragan of Nottingham in distributing the prizes called special attention to the fact of a tenant farmer, residing in Lincolnshire, being well known to his lordship, having made a profit of £100 from bee-keeping during the preceding year. Many other instances of success in bee-keeping may also be recorded. The Council of the Royal Agricultural Society of England may, therefore, feel highly gratified at the success which has attended their efforts to promote bee-keeping in connection with their annual exhibitions during the last five years. The bee department of the Royal Show at York is, as in previous years, under the management of the British Bee-Keepers' Association.

The Show opened on Monday, the attendance being somewhat limited owing to the high fee, 5s., which is charged for admission on the first day. The department for bees was, however, well patronised, and the sales for surplus honey very brisk, good prices being realised. Prizes were awarded as follows:—

For the best hive for observation purposes—first, Mr. S. J. Baldwin; second, Mr. T. B. Blow; third, Messrs. Neighbour & Son. For the best hive not exceeding 15s.—first, Messrs. Dines & Son of Maldon, Essex; second, Mr. T. B. Blow, Welwyn; third, Mr. S. G. Baldwin, Bromley, Kent. For the best hive not exceeding 10s. 6d.—first, Mr. S. G. Baldwin; second, Dines & Son; third, Mr. T. B. Blow.

Messrs. Neighbour & Son of Regent Street, London, were awarded first prize for the best collections of bee-keeping appliances, the second prize going to Mr. Blow. The collections of these two exhibitors were an exhibition of themselves, and were well worthy of inspection.

In the classes for comb honey the prizes were awarded—first to Mr. J. Garratt, Hockenden, St. Mary Cray, Kent; second, Mr. E. Gulston, King's Langley, Herts; and the third to the Rev. T. B. Garland of Ranby, near Retford, Notts. Prizes for run or extracted honey are only offered in one class, the prizes being gained by first, Mr. Garratt; second, Mr. R. R. Godfrey; third, Mr. W. Martin. Practical instruction in the art of bee-keeping and the manufacture of comb foundation is given at intervals on each day of the Show.

PEAT AS A FUEL FOR SMOKERS.—Many bee-keepers have had trouble in procuring a good article for use in smokers—one that will light easily and last well. It has been so with myself, until, seeing it suggested that peat was a good thing, I found that it produces volumes of smoke, is easily lit, and keeps alight well if broken in pieces the size of a walnut. The Tramways Companies use peat-moss for bedding, and this peat is used somehow to stiek the corners of the bales, and can be had for very little. I use Clarke's smoker, and think it would be an improvement if fuel could be added as needed at the top of fire-box; the latter should be same diameter top and bottom, and with a longer, narrow chimney, which would give a sharper draught on applying the match. What enterprising firm will manufacture one on the cold blast principle with these improvements?—JOHN C. LAMBERT (in the *British Bee Journal*).



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

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

Books (T. F. B.).—Particulars concerning the culture of the Rose are given in "Florists' Flowers for the Many," published at this office, price 4d.; post free, 4½d. This is the cheapest work we know upon the subject. (De Smet and H. C.).—We do not know any work giving coloured plates of carpet beds. Mr. Graham's "Guide to Hampton Court" gives numerous diagrams that would be useful to you. It can be obtained from Mr. Graham, Superintendent, Hampton Court Gardens, and we think the price is about 1s.

Grapes Spotted (Subscriber).—The berry sent appear to have been punctured by some insect, causing slight exudation of the sap.

Names of Peas (C. B.).—The specimen labelled No. 2 is the true William I., the other resembles Sangster's No. 1.

Caterpillars on Roses (E. C. O.).—The best plan is to frequently examine the trees, removing and destroying all the caterpillars that can be seen.

Roses Affected by the Orange Fungus (F. J. D.).—Your Roses are attacked by this injurious fungus, and the reply to "A Young Beginner" above will indicate what had better be done.

Tragopogon porrifolius (Henden).—The plant can be found in many parts of Great Britain, chiefly in damp positions, and usually flowers about May. We cannot tell you where you can purchase plants in flower now.

Vines and Azaleas Injured (W. J.).—There is no doubt but that the fumigation was the cause of the injury, and there is no remedy except removing the foliage and shoots that are past recovery and wait for fresh growth.

Hose-in-Hose Gloxinia (H. S.).—We have seen similar varieties to that of which you sent a specimen, but are not aware that there is any further name than that given above. In point of beauty it is inferior to the ordinary "single" forms, though it is interesting as a curiosity.

Tropaeolum Flowers (R. & S.).—The flowers were much faded through being closely packed in cotton wool, but as far as we can judge they are of a deep rich colour and neat in form, and if free and of good habit is doubtless a useful variety.

Currant Leaves Falling (J.).—Probably the bushes have been suffering from drought, which the recent rains would no doubt assist materially in remedying. If the bushes are old and weak a mulching of manure or a good supply of liquid manure would prove beneficial.

New Pelargoniums (J. P.).—The flowers you sent were rather shattered, but the pink variety appears to be very clear in colour, and the scarlet bright, but there are many others equally as good, though of course we cannot judge respecting the habit and floriferousness of the plants from single trusses.

Tomato Leaves Curling (E. D'Olier).—The most probable cause of the leaves curling is too dry an atmosphere and an insufficient supply of water at the roots, but the old leaves usually curl more or less, and some plants are more given to it, as you note, than others. Mulch with short manure, supply water abundantly at the roots, and keep the house a little closer.

Vines Infested with Thrips (W. S.).—There is no question about the insects on the Vine leaves being thrips. Fumigate the house on two or three consecutive evenings and repeat in the course of a week. Probably the insects have passed from the Ferns to the Vines.

Marshall Niel Rose Leaves Diseased (A Young Beginner).—The leaves appear to be attacked by orange fungus, to destroy which dissolve 2 ozs. of blue vitriol in hot water, and then add 3 gallons of cold water, and with this sponge the leaves or syringe the tree; and as the fungus is chiefly on the under side of the leaves care should be taken to wet them there with the solution. Supply liquid manure, and if planted out mulch with partially decayed manure. Soft soap at the rate of 4 ozs. to the gallon is also good against the parasite, but not nearly so effectual as the vitriol water.

Nectarines Diseased (J. H.).—In the absence of information as to the condition of the tree and the soil of the border in which it is growing we have some difficulty in arriving at a correct solution of the cause of the disease which has attacked your fruit. The probability is that it arises from an impaired constitution of the tree, and we are led to this supposition because of the small size of the fruit. This want of vigour may have been caused by successive attacks of red spider, which destroy the functions of the leaves. Perhaps you may have observed the leaves looking sickly, and the young wood after the leaves have fallen destitute both of fruit and leaf buds;

if so the trees have suffered from this pest. Has the house received sufficient air? These disease spots are often produced by inattention to this. Look to the border and see that the drainage is perfect, and the soil open and porous, with a proper admixture of calcareous matter.

Strawberries Eaten by Slugs (J. P., Dublin).—We do not know what you can now apply to prevent the fruit being eaten by the slugs; but you may raise the fruit above the ground or mulching material by some forked sticks thrust into the ground, and place the trusses so that they rest in the fork of the sticks. This will save the majority of the fruit. Securing the trusses of fruit to small stakes will answer nearly as well, but is more tedious. We use crinolines formed of galvanised wire, which answer perfectly, not a fruit so far as we have observed being eaten by slugs.

Watercress in Shallow Boxes not Succeeding (W. J. N.).—There must not be any shade but full exposure to the light, an open situation, yet sheltered from cold winds, so as to accelerate the supply in spring. We cannot account for the plants dying in winter, as they are perfectly hardy. Any good loam will suit Watercress well, and if manure of any kind be added it should be cowdung, but it is best to put in the plants—i.e., rooted cuttings, in good soil and afterwards dress with cowdung. The water over the soil should not be deeper than 3 or 4 inches at most. Straw shutters or a good thickness of mats supported by a framework of lathes so as to just keep them clear of the plants is sufficient protection in winter, and should only be used in severe weather, continuing the protection over the plants during the prevalence of frost and upon a thaw until the plants are thoroughly thawed. We have grown Watercress at 500 feet above sea level.

Vines on the Long-rod System (H. S.).—The Vines should have the eyes rubbed off so that the bearing shoots (not laterals) are 15 to 18 inches distance apart. This is essential to admit light and air to the bearing shoots to insure the proper development and finishing of the crop. The most probable cause of the shoots having in some cases more vigour than others is their taking the lead and exhausting the stored-up sap in the rod, and though the three most vigorous canes have been detached, the remaining ones having no such supplies to draw upon are comparatively stationary. Another reason is that the flow of sap is most abundant at the upper part of the cane or rod, and the shoots are consequently most vigorous. The Grapes are scalded, which is due to the sun or heat acting on the berries whilst covered with moisture. When Grapes begin colouring they should have a little ventilation constantly.

Packing Plants for Tasmania (H. J. G.).—Wardian cases are the best for packing plants in to travel a long distance, especially when they are choice or delicate. They can be purchased of various sizes of some nurserymen and dealers in horticultural sundries, the prices differing considerably according to the size and finish. The plants should be thoroughly watered before being packed, but the superfluous water must be allowed to drain off previous to placing them in the case. They should be stood upright and packed very closely and securely with moss and hay, afterwards standing the cases in the open for a time before screwing the tops on. Treated carefully in this way plants will travel a long distance safely without receiving any attention during the voyage.

Useful and Injurious Insects (A. R. Cox, Wavertree).—Your No. 1 is certainly the grub or larva of that very valuable but insufficiently appreciated species of beetle, the two-spotted ladybird, *Coccinella bipunctata*. No. 2 is the caterpillar of a moth called the buff ermine (*Arctia lubricipeda*). The perfect insect appears in June about gardens and fields, and lays its eggs upon a great variety of plants. More commonly the caterpillars occur from July to September upon those of low growth, but they are sometimes found upon shrubs and trees. They rarely do any appreciable amount of injury, as it is easy to discover and remove them, since they feed conspicuously.

Perennials from Seed (Willesden).—Seeds of most of those previously named can be obtained from the chief firms, and the following can also be obtained in the same way, enabling you to raise a good variety of plants for the spring:—*Anchusa italica*, *Aquilegia cœrulea* and *chrysantha*, *Aubrietia deltoidea* and *græca*, *Calandrinia umbellata*, *Campanula carpatica* and *turbinata*, *Couvolvulus mauritanicus*, *Delphinium nudicaule* and *hybridum*, *Gentiana acaulis*, *Geum atro-sanguineum*, *Gnaphalium Leontopodium* (*Edelweiss*), *Lupinus polyphyllus*, *Myosotis dissitiflora*, *Oenothera macrocarpa* and *taraxacifolia*, *Helianthemum*, *Sedum cœruleum*, and *Veronica spicata*. If you desire to do so, spores of the hardy Ferns can also be obtained and raised with the others.

Uses of Water Lilies (J. H.).—The leaves and stems of these plants and their relatives are generally astringent and bitter, the roots possessing these qualities very strongly developed. The rootstocks of *Nymphæa alba*, the common white Water Lily, contain a quantity of starch and mucilage, with tannin and a narcotic principle that is removed by washing, the roots being then used as food in some countries, particularly in Sweden. We do not, however, think the petals would be very beneficial for the purpose you name. The flowers of the yellow Water Lily, *Nymphæa lutea*, are said to possess a narcotic property, and in some parts of England they are called Brandy Bottles, from the resemblance of their odour to brandy. In Turkey a cooling drink is prepared from them.

Melons not Setting (W., Herts).—Plants growing in frames placed on manure are not unfrequently very vigorous from the roots of the Melons passing through the soil into the rich compost below, and over-luxuriance is not favourable to the setting of the fruit. The only course we can recommend you to pursue is to remove some of the strong growths, so that those remaining are so thinly disposed that the sun can shine on every leaf. Tread the soil very firmly, being very careful not to injure the foliage, and do not give any water for some days, or only just sufficient to prevent the foliage flagging. If the ends of the main shoots are cut off when they reach nearly to the sides of the frame, the axillary growths following will produce pistillate flowers, to which pollen should be applied from the staminate an hour after the frame has been opened in the morning. The fruit-bearing laterals should be pinched at one leaf beyond the flower immediately the latter is seen, and before it expands.

Ginger-beer Plant (E. M. C.).—The fungus you have observed is pro-

bably either the Yeast Plant or the Vinegar Plant, though we cannot determine which it be without seeing a specimen or being furnished with a full description. Both these fungi have been regarded as peculiar forms of species of Penicillium. The Rev. M. J. Berkeley in his "Introduction to Cryptogamic Botany" says—"It is quite clear that yeast is merely an abnormal state of a fungus, very different in habit and forced into a peculiar mode of development by its submerged position." Again, in another portion of the book he observes—"Yeast is in fact nothing more than a peculiar condition of Penicillium, which is capable of almost endless propagation without ever bearing perfect fruit." Under the microscope the Yeast Plant is seen to consist chiefly of small globules, while the Vinegar Plant consists of delicate interlaced threads.

Names of Plants (*J. W.*).—*Euonymus europæus*. (*H. B.*).—1, *Lychnis chalconica*; 2, *Veronica spicata*. (*F. T. A.*).—The blue flower is *Trachelium cœruleum*. The Fern is *Adiantum macrophyllum*.

COVENT GARDEN MARKET.—JULY 18TH.

LARGE supplies, with trade quieter, have considerably reduced prices all round. Crops of soft fruit generally good, and prices in favour of buyers.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	0 0 to 0 0	Grapes	lb.	1 3 to 3 6
"	per barrel	0 0 0 0	Lemons	case	10 0 20 0
Apricots	box	2 0 2 6	Melons	each	2 0 3 6
Cherries	½ sieve	4 0 10 0	Nectarines	dozen	6 0 10 0
Chestnuts	bushel	0 0 0 0	Oranges	100	6 0 10 0
Currants, Black ..	½ sieve	4 6 5 0	Peaches	dozen	6 0 12 0
" Red	½ sieve	3 0 5 0	Pears, kitchen ..	dozen	0 0 0 0
Figs	dozen	2 0 3 0	" dessert	dozen	0 0 0 0
Filberts	lb.	0 0 0 0	Pine Apples, English ..	lb.	2 0 3 6
Cobs	100 lb.	0 0 0 0	Raspberries	lb.	0 3 0 5
Gooseberries	½ sieve	2 6 3 0	Strawberries	lb.	0 3 0 9

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus, English	bundle	0 0 0 0	Mustard and Cress	punnet	0 2 0 3
Asparagus, French	bundle	0 0 0 0	Onions	bushel	2 6 3 6
Beans, Kidney	100	0 0 0 0	Parsley	dozen bunches	3 0 4 0
Beet, Red	dozen	1 0 2 0	Parsnips	dozen	1 0 2 0
Broccoli	bundle	0 9 1 0	Peas	quart	0 9 1 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	6 0 0 0
Capsicums	100	1 6 2 0	" Kidney	cwt.	6 0 7 0
Carrots	bunch	0 4 0 0	Radishes	dozen bunches	1 0 0 0
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 0
Coleworts	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 0
Cucumbers	each	0 4 0 6	Seakale	basket	0 0 0 0
Endive	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Fennel	bunch	0 3 0 0	Spinach	bushel	2 6 3 0
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 6 0 9
Leeks	bunch	0 3 0 4	Turnips	bunch	0 0 0 0
Lettuce	score	1 0 1 6			



THE SUSSEX BREED OF CATTLE.

(Continued from page 41.)

THE Sussex cattle exhibited at the Royal Show at Kilburn gives us the opportunity of bringing to notice the stock of the most successful breeders in the year 1879, the year in which the show was held. It was particularly noticed that the large frames of the Sussex animals, evenly covered with firm flesh; their freedom from the lumps and patchiness of fat which is but too common in showyard specimens of some other breeds; their wonderful formation on the loins and ribs, there being no space left unfilled between the hip and the rib; their uniformity and excellence of colour; and their evident constitutional power and hardiness, mark them out as one of the most valuable beef-producing breeds. At this show the class for old bulls was very good, most of the entries were noticed by the judges. The champion prize for the best male was awarded to a very good yearling, entered by Mr. Hodgson, Lythe Hill, Haslemere, Surrey. The Right Hon. the Speaker wins the second in this class from his estate at Glynde in Sussex. Messrs. Heasman of Angmering, Sussex, win the first and second prizes for calves. The cow class was considered of remarkable merit. Mr. Braby's "Bouncer," the champion female, was greatly admired; she had a great level table-like back, and was excellent on the ribs. Mr. Braby's first-prize heifer, together with Messrs. Heasman's yearlings, are of great merit.

We have been rather particular in naming the winners upon the occasion of the great International Exhibition in London,

because we desire to lay before our readers the names of the breeders of those specimens which indicate the promise of maintaining animals of a large outline and great muscular frame. In the future we not only wish to preserve the size of the Sussex stock for the production of animals capable of tillage of the land as working cattle, but also to prevent the anxiety shown by breeders for exhibition causing too great a diminution in the size of their choicest animals, and to a certain extent reduce them in the estimation of the tenant farmers as rent-paying animals.

We cannot now refer to breeders of Sussex stock whose names figured at the meeting of the Bath and West of England Association held at Tunbridge Wells in 1881, although 126 Sussex cattle were entered for prizes upon that occasion, and which was certainly the greatest number of the breed ever exhibited at any meeting yet held in this country. It occurs to us, however, that it will be well to make some observations relating to Mr. Braby's herd, to whom we have just referred as the owner of the champion cow "Bouncer," for it may be of some importance to know that the Maybank herd contains much that is worthy of attention at the present time. In connection with Mr. Braby's herd is the offshoot herd belonging to his son, Mr. Ernest Braby, at Drungwick. The Maybank and Drungwick herds are now worked together, one bull bought by Mr. E. Braby at Messrs. Heasman's sale doing duty for both. "Never sacrifice constitution for symmetry." These were Mr. Braby's own words, and they seem to strike a keynote and to suggest the main line of his own practice as a breeder. Not that his animals want symmetry; of that they have quite as much as animals bred for symmetry regardless of constitution; but constitution is of primary importance, and it is easier to control the forms of animals sound in their vital organs and of robust health than to restore lost vigour or to purge away hereditary taint. It would be well if breeders of the live stock of the farm generally, of whatever kind, thought more than they usually do of the paramount importance of good constitution.

The Maybank herd, as a first-rate breeding herd, may be said to date its commencement as far back as 1865, and within the sixteen years of its existence its representatives in the show yard have brought home in round figures sixty first and second prizes (some of them representing two, as prize and medal or prize and cup), inferior honours not counted. These prizes were won from 1867 to 1881 inclusive, at the Shows of the Royal Agricultural Society of England, the Smithfield Club, the Bath and West of England, the Royal Counties, and various local societies. During these sixteen years, too, the health of the herd has been remarkably good, no infectious diseases having broken out, illness of any kind having been extremely rare, and quarter-evil unknown. This disease—common in Sussex and Kent—is in both counties called puck—a name derived from former times and traditions. Pedigrees were not so much attended to by Sussex breeders sixteen years ago as they are now, and do not now receive nearly so much attention, as breeders will find to their advantage, if their cattle are ever to draw foreign and colonial buyers.

The Maybank foundation dams were drawn and selected from stocks of known purity and acknowledged excellence, and bulls of superior character and breeding were obtained. A notable sire, Jonah (187), of the strain of the late Mr. Thomas Child, was used in the herd with excellent results. Jonah, when slaughtered, weighed 200 stone (of 8 lbs.) dead weight, and had 24 stone 6 lbs. of internal loose fat. The family which has most distinguished itself in Mr. Braby's hands is that descended from Beauty (1151), a cow by Mr. Thomas Child's Blackstone (68), who, besides other produce, gave birth to Bouncer (1472) by Jupiter. The long list of prizes won by Bouncer includes the champion prize for the best female in the Sussex classes at Kilburn, as above stated, and the reserve number for this championship was that of Rival (1813), Mr. Braby's first-prize heifer.

We will again quote from a paper by Mr. Wm. Housman as given in the *Agricultural Gazette* in November, 1881, when on his visit to the county of Surrey. He says:—"Two herds are selected as representing the Sussex cattle in the county of Surrey—those of the Earl of Onslow at Clandon Park near Guildford, and those of Mr. James Stewart Hodgson of Lythe Hill, Haslemere. The bulk of the herd of the Earl of Onslow's herd is kept at the home farm at Dedswell, about four miles from Guildford. Here are, in a lot of twelve, four of six animals purchased at Mr. James Braby's sale at Rudgwick; Princess, conspicuous by reason of her great length and size, good outline, and fine pair of true Sussex horns; she is six years old, and traces through the Maybank's herd to the strains of Mr. C. Child and the late Mr. W. Botting; and

Empress, short of four years old, have noticeably soft moss-like and thickset hair, on which the light mist drops of a drizzling autumn morning hang like dew on the blades of grass. The majority of the Sussex cattle seen hitherto had not yet put their rough coats on. These a little in advance of their companions show the sort of winter hair they can grow. Turning at length from the Rudgwick purchases to the eight other cows and heifers in the yard, we have Fanny Fern 2nd, Cherry, Dahlia 2nd, and Young Strawberry, all from the herd of Mr. Alfred Agate—Young Strawberry, one of the grandest lot of cows that filled the ring at the Bath and West of England Show in June last, a fine large cow, in character and size a suitable companion for Princess to make a pair.

At Dedswell Farm, about two miles from Temple Court, are the cows in milk, the stock bull, and the "young things." Here, too, is the dairy. But what has the dairy to do with a herd of Sussex cattle? Why, here a good deal. The system of management differs from that of Sussex herds in general. The calves are suckled for a fortnight only, then weaned and brought up on skim milk, linseed, and Mr. Bowick's lactina—the latter found to answer well. The cows when parted from their calves are treated as dairy stock. Some are fairly good milkers, others not very good. Whether Sussex cows are the best for this purpose, and whether this is the best way of treating Sussex cattle, may be questionable; but it is the system which has been carried on here for some years, and the present bailiff, Mr. M'Farlane, is mostly continuing the practice established before the herd was committed to his charge. His experience, so far, has favoured the belief that the Sussex, trained for milk, may be made a good dairy cow; and although subjected to such a drain, the cow herself must look light and poor beside the cow whose only duty beyond bearing a calf is to moderately keep it for four or five months, yet Mr. M'Farlane holds that deterioration of the breed for beef-making would be no necessary consequence of its great improvement for the dairy. He points to the Shorthorn. No doubt prime steers are often bred from first-rate dairy cows; but it is questionable whether extraordinary dairy properties can be perpetuated in a family without some sacrifice of flesh and of the flesh-carrying form, or extraordinary flesh growth become hereditary without loss in milk and butter." We do not think it can be done as a rule. There will, of course, be exceptions.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour is still employed in tillage for root crops, such as late Turnips, Thousand-headed Kale, and Rape. Intervals, however, will be claimed and used for the carting of hay in the irrigated meadows and in the late cold meadows near to brooks, and especially where the pastures lie beneath the level of night fogs, and also in various counties in the north midland and north-western districts where pastures prevail in extent beyond the arable and cultivated districts. In these it is very seldom that the hay harvest can be completed before the commencement of the corn harvest, particularly where winter Oats, winter Beans, and early sorts of Peas are cultivated, and in some districts a sufficiency of agricultural labour is not located, and much work is to be done by casual and travelling labourers. This should really be made a matter to be provided for by the tenantry or the home farmers of the district, or the commercial advantages which should be attached to agriculture must suffer, and the oftener the land changes hands by the introduction of new tenants, any measures likely to meet the pressing requirements of harvest, the more the subject will be neglected, and farming carried on to a disadvantage. Horse labour will for some time be required on the fallows in preparation for the next year's Wheat crop; but we wish to again remind the home farmer that as soon as the fallows can be more than half made it is well to consider the advantage of seeding the land with Mustard at the rate of a bushel for three acres, but it should be done upon any really heavy, cold, clay soil before the 20th of July, otherwise the bulk to be ploughed-in will be too light, or the ploughing-in be too long delayed. In either case it will prejudice the preparation for seeding with Wheat. It is, however, a capital plan upon soils in general where the Mustard seed can be sown in reasonable time, for during the growth of Mustard until it comes into bloom it is increasing the supply of manure for the next Wheat crop, and in various instances when the work is properly carried out in due season the value of the manure contributed by the death and decay of the Mustard ploughed in may be estimated at from £3 to £5 per acre for the Wheat crop. At the same time the indirect advantages are many and great. For instance, after the Mustard is sown no more labour is required upon that land until ploughed-in, whereas if it had remained a naked fallow it would have required tillage during the harvest period, or the twitch would have increased at a time of year when adverse weather would probably prevent the completion of the fallow, and the application of either yard or box manure at seed time. We are of opinion that the Mustard, especially where it grows strong, that quite irrespective of the

smothering influence of the Mustard it has a deleterious effect upon the remaining couch. In addition, at any rate the horse labour is free for other work for a considerable period, say five or six weeks, during which time a lot of important horse labour may be completed, such as scarifying or ploughing and cleaning the Wheat stubbles, or sowing the same with stubble Turnips, Rye, Trifolium, and winter Vetches, each being of great consequence whether these crops are used by ploughing-in or feeding with sheep. The odd horse or horses whose work it is to horse-hoe the root crops may now continue to prepare them for singling and hand-hoeing. It is, however, frequently the case in a growing root season like the present hand-hoers are not to be obtained in numbers sufficient to do the hoeing and singling in time, but especially in harvest, when the greatest difficulty often occurs; but when there is a full and regular plant of Turnips in the rows we have frequently used the horse-hoes across the rows. This will save the roots against injury from being too thick, and women or lads may then single them without difficulty. We have often saved very fine crops of Turnips in this way when it has been quite impossible to save them in the ordinary manner for want of hoers.

Hand Labour.—Thatting the hayricks must be attended to, and it is difficult to get this work done in proper time if we trust to professional or journeymen thatchers, who often suit their own engagements before our interest, instead of which we prefer to learn one of our staff of men on the farm to do the work, and then it may be done immediately the stacks are ready, whether of hay or corn. Now this is a matter of great consequence in the management of labour, for workers on the farm can always in showery weather find time for drawing and piling the straw ready for use at short notice or for immediate requirements. The hand-hoeing of the Mangolds, Carrots, and all root crops should be done in due season, and the number of workmen and women required provided accordingly; but the live fences must all be clipped or trimmed, together with the banks and borders, before harvest if neat and effectual fences against stock are required.

Live Stock.—Upon the best grazing farms where fattening bullocks are kept instead of dairy cattle, they should be so managed as to have a frequent change of pasture. We also object to large numbers being fed together on the same pasture. It should, however, be made a matter of calculation as to the numbers required to consume the grass in due season, and the change of pasturage should be carried out even if the stock of each field be made to succeed each other in turn occasionally, in preference to grazing large numbers in one herd. In some pastures it is necessary to supplement the grazing by allowing the animals some cake and bean meal mixed, but to prevent waste the cake and bean meal should be mixed with a little cut Mangolds and placed in skeps, one for each animal, got ready previously for the animals to partake upon their change and entry from one pasture to the other. Where sheep are kept as an established custom on a breeding farm this is the time for the sale of the offgoing ewes and lambs, but a provision should be made for wintering the usual quantity of stock, for while sheep are selling at such prices the advantages of selling as many as can be spared, having regard to the usual stock of the farm, are obvious.

THE AGRICULTURAL SHOW AT YORK.—At the extensive Show opened this week we are desired to state that Messrs. Sutton & Sons, Reading; Messrs. James Carter & Co., High Holborn; and Messrs. Webb & Son, Stourbridge, and others have large stands of roots and seeds very tastefully arranged.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 524 and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1883.		deg.	deg.		deg.	deg.	deg.	deg.	In.	
July.										
Sunday	29.917	66.8	58.7	W.	63.1	76.2	57.5	118.0	54.8	0.102
Monday	29.818	65.3	67.4	S.W.	64.2	74.8	58.8	111.0	54.8	—
Tuesday	29.916	65.5	57.4	W.	63.3	73.4	53.3	127.3	46.9	—
Wednesday ..	29.699	62.0	57.3	E.	63.7	72.5	53.0	119.0	51.7	—
Thursday	29.603	61.7	57.6	E.	63.7	68.3	56.8	100.2	52.3	0.170
Friday	29.675	62.3	56.5	S.W.	62.2	72.6	53.4	125.7	49.7	0.019
Saturday	29.758	62.1	57.6	N.W.	62.2	61.1	53.2	111.8	47.7	1.431
	29.769	63.7	57.9		63.2	71.7	55.1	116.1	51.1	1.723

REMARKS.

- 8th.—Fine and warm, overcast at times; heavy rain with lightning and thunder 10.15 P.M.
 9th.—Dull and rainy in early morning; fine day.
 10th.—Very bright early; changeable during day and gusty winds; fine calm evening.
 11th.—Cloudy at first; bright afternoon; high gusty wind all day.
 12th.—Dull and squally; rain in afternoon; fine cool evening.
 13th.—Squally and showery; bright morning and fine evening.
 14th.—Fine morning; thunder storm began 11.45 A.M., lasting till 0 15 P.M., with very heavy rain between noon and 0.5 P.M.; another storm between 3.45 and 4.5 P.M.
 Cooler than the previous week, but temperature still above the average. Noteworthy chiefly for the very heavy rains of 14th, nearly an inch falling in half an hour in the first storm and 0.40 inch in twenty minutes in the second.—G. J. SIMONS



COMING EVENTS

26	TH	Eastbourne and Stoke on-Trent Shows.
27	F	Quekett Club at 8 P.M.
28	S	Royal Botanic Society at 3.45 P.M.
29	SUN	10TH SUNDAY AFTER TRINITY.
30	M	
31	TU	Buckingham Show.
1	W	Warwick Show.

FIRST-RATE ONIONS IN A SECOND-RATE LOCALITY.

WHEN this appears in print the gardener's year will just be commencing; indeed, in some senses will have already begun. Not very much can be done now towards securing good crops of fruits or vegetables or a display of flowers for the current season; but now or never must the foundation be laid for next year's Strawberries, Cabbages, Onions, Roses, Carnations, bedding plants, and all or nearly all else beside. That being so, a few words on Onion-growing will be seasonable.

Onions are sown at two very distinct seasons of the year—in July and August, and from February to April. The exact time depends greatly on the climate. In the north of England or in Scotland the middle of July is not too early, especially in cold seasons; but in the south of England the seed may or may not be sown a week or two later. When sown too early there is a tendency in the crop to run to seed in spring, especially on hot poor soils. When sown too late the plants do not gain strength enough to stand over severe winters.

While first-rate Onions cannot be grown on poor soil, rich soil is not suitable for sowing in at this season, as the plants are on such soil certain to grow much too strong, with the certainty of perishing during winter should the weather prove severe. Heavy clay grows the best Onions; but if the seed is sown in autumn on light soil well firmed down, and in spring the plants are transferred to heavy rich soil, the best results may confidently be looked for. If a choice of soils cannot be had, and the soil be only heavy clay, the beds should be partly raised in order to secure dryness, and some light material incorporated with the surface.

Freshly applied manure is not good for autumn-sown Onions. A far better way of preparing the soil is to apply manure liberally for some early crop such as Potatoes, Cauliflowers, Turnips, Lettuces, &c., and to simply fork up the soil after these are removed, pulverising it thoroughly and afterwards firming it moderately before sowing. Onions will not do well on a loose soil. Decidedly the best way is to sow in rows, although many good growers sow in beds 4 or 5 feet wide with alleys between. When in rows weeds are much more easily kept under, and alleys are dispensed with.

In the case of spring-sown Onions the soil should be very thoroughly prepared. It should be dug two spades deep at least. In a good climate manure should be incorporated with the upper 18 inches of soil if the very finest Onions are wanted. When the climate is wet, northern, cold, not more than the upper 6 inches should be made rich, and for reasons which will be given. In a good climate there is little fear of the plants not bulbing, in which case the better the feeding the finer the Onions. In a wet cold climate a rich soil combined with continual damp and a deficiency of sun will cause a rank growth of "thick necks," which often fail to bulb at all or produce bulbs that will not

keep. When the upper 4 inches only is made rich under such climatic conditions the plants start vigorously, but afterwards, when the roots get beyond the manure, halt and begin bulbing.

Too often the reverse of this is seen. Manure is dug or trenched in deeply, and the surface soil is poor. Seeds sown on this germinate well enough perhaps, but the resulting plants stand long and make little progress. This is true of all kinds of plants. In consequence of this lingering some precious weeks early in the season are lost. But by-and-by the roots reach the manure, and the plants go in for a spell of growing just when those better managed have made their growth and are beginning to form bulbs. Under such conditions the hardy and beautiful little Queen Onions are seldom bigger than Cherries; but when the first young roots find food in abundance, the moment they push from the seed, instead of being obliged to spend their strength making long roots to go in search of it, they develop into useful Onions.

When by reason of the climate we dare only manure the very surface, so that we may induce rapid spring growth followed by a kind of premature bulbing, useful, but not what may be called first-rate Onions, may be produced. To do so requires that some out-of-the-way plan should be tried. The climate must be assisted, and as many weeks as possible added to the growing season. The summer heat is sufficiently high even in the most northern parts of these islands to grow the best of Onions in ordinary seasons, but north of the Trent summer is too short; hence the necessity for securing what we have called premature bulbing by a judicious placing of the manure, so securing not large but very useful Onions of good quality, or Onions as good as can be grown anywhere by a lengthening of the summer, or practically so.

For long it has been the habit to sow in autumn and transplant to rich deeply dug soil in spring. By this means large Onions are produced which ripen early. Such, however, are almost always very coarse, and cannot be regarded as first-class. The cook despises them, and they will not keep. One reason for autumn-sown Onions being coarse is that hitherto only such coarse kinds as the Rocca and Tripoli have been sown in autumn under the impression that these alone were fit for the purpose. But this is not so; for many, indeed most of our finer Onions which are usually sown in spring, may with confidence also be sown in autumn, and much better Onions thereby be the result. Still, autumn-sown Onions are coarse. Sometimes, too, an exceptionally severe winter kills them, and spring-sowing must be resorted to.

A good old plan, not now so much practised as it with benefit might be, is to sow ordinary varieties thickly on poor soil in May or even June. The crowding and the poverty cause these to ripen off in autumn when not much larger, often, indeed, smaller, than peas. Planted in spring as Shallots are on firm rich soil, these often grow into splendid bulbs which ripen early. Even the Onions which are too small for use from the ordinary crops may be so planted, especially when severe weather has damaged or destroyed the winter Onions. They will then be of service in the kitchen before spring-sown Onions are ready; but they seldom make good bulbs for keeping, being almost certain to run to seed. True, if the seed stems are pinched out bulbs will form but not of the finest kind. Sometimes, however, they are invaluable, especially on light soils, for neither maggots nor mildew touch them.

These methods of stealing a march on time, as it were, have been practised for generations, and success more or less certain has followed the practice. More recently, in Scotland, the plan of sowing in heat has been adopted with splendid results. Those of your readers who have visited the international exhibitions held in the north in recent years will doubtless have wondered at the Scotch Onions as much perhaps as at Scotch Leeks. These Onions have been nursed on, in pots probably, but certainly under glass. It is the

custom with exhibitors to sow in boxes kept very near the glass, as early as January and not later than the beginning of February. The soil used is very rich. Often enough hotbeds are used, and the young plants forwarded on these under frames. A good heat is maintained, and airing is attended to, to prevent drawing as much as possible, though that is not greatly feared, for after transplanting the old leaves disappear in a short time as others are made. A dozen or two are generally pricked off when the second leaf is forming into thumb pots, from which they can be easily and without injury transplanted. Oftener, however, they are pricked out in other boxes, though they are often left alone. When the soil in the boxes is filled with roots liquid manure is given every time water is wanted. By such means the plants are frequently stronger by April than are those sown in the autumn.

Such preparation is by no means so laborious as it may seem. In a really cold climate, in fact, a much greater weight of Onions may be raised with a certain amount of work thus than in the ordinary way. Sown on a hotbed or in boxes not a great deal of labour is involved in this nursing, and the dibbling-in of a few thousands is hardly more work than is involved in the sowing, hoeing, thinning, and weeding needed by a breadth of Onions that will produce an equal weight by autumn, for a much smaller piece of ground and a much less number of plants will suffice. Nay, it often happens that those sown in the ordinary fail wholly or partially by maggot, mildew, or even want of sun, which is seldom the case with transplanted Onions; and, above all, the produce is very much finer, and such as one can look at with pride instead of humiliation. Let it be understood, however, that it is only in backward localities that we consider such a plan the best.

Maggots often ruin spring-sown Onions. It is seldom that this occurs if soot is very plentifully used when the Onions are sown or planted, and again when fairly growing. Wood ashes are also capital preventives, and so is charred garden rubbish. These are also capital manures. For heavy soils ordinary manure well made is the best, and for light soils cow manure. But thoroughly decayed hotbed manure which has been under frames or in pits, and so has not had its virtues washed away, spread over the surface and very lightly forked in, is the best dressing that can be given. During winter urine may be poured over the ground with great benefit, and at midsummer the same well diluted will prove of immense service.

Onions often fail to keep after wet seasons because they are not properly dried. Unless really dry weather occurs at harvest time a good plan is to spread the Onions thinly in vineries, Peach houses, Melon pits, and other structures which are kept dry and airy. A Melon pit from which the plants have been removed is a capital place, for then the Onions may have heat, sun, and arid air, which cannot fail to dry them.

Among the best growers that we know of it is hoped that no offence will be given if we name the following in the hope that this may catch their eye, and that they may further enlighten your readers on this subject:—Mr. Neil Glass, Carbrook, Larbert; Mr. Donald Macbean, Johnstone; Mr. G. Potter, Seacliff, North Berwick; and last, but by no means least, your esteemed correspondent, Mr. Murray, Culzean, Maybole, whose Onions were, we are told, comparable to "gas-globes."—A SCOTCHMAN.

SEASONABLE HINTS ON VERBENA CULTURE.

MANY people of late have expressed regret that they cannot grow Verbenas satisfactorily in their flower beds, and as these plants do well with me visitors frequently conclude that there is something in our soil which especially suits them; but as I grew them equally well in at least two places before coming here I do not think the soil or the climate ought to have all the credit.

The Verbena when well grown, and more especially the variety known as Purple King, fills a place in the flower garden for which

no perfect substitute can be found; but it must be grown properly or not at all, for there is scarcely anything so miserable-looking as badly cultivated Verbenas, and to grow them properly requires a considerable amount of attention. Purple King is not supposed to be a strong grower, but mine are planted about 15 inches apart, and they will fill this space by the middle of August, which is quite as soon as they are wanted here, and last in full beauty till late in the autumn. If there is a secret in their cultivation it is this: They must be kept growing always—not necessarily fast during the winter months, but they must be kept growing. Let them once become stunted and hard, and it takes a considerable amount of coaxing to induce them to start again freely.

They are liable to mildew more or less towards late autumn. Cuttings taken then will not strike freely, and those which do strike do not grow kindly. It is a good plan to take a few cuttings as soon as the plants get into a thoroughly vigorous growth after they have been planted out—say by the end of July—to grow these cuttings briskly, and then, if they are likely to become too large to keep them for stock through the following winter, they will furnish by September better cuttings than can be had from the beds.

A cold close frame is suitable for them to strike root in during July; but in September, if the weather becomes chilly, they do better in a little warmth, such as is afforded by a gentle hotbed. I use boxes 32 by 12 inches for them, and lay panes of glass over these boxes in addition to the covering afforded by the sashes. Very small cuttings are preferred, taken from vigorous shoots fully exposed to the light. They are simply cut off half or three-quarters of an inch below the first pair of moderate-sized leaves, and have the flower bud picked out, if there is one. We do not want many for stock; fifty or sixty plants of a sort are ample to keep through the winter. We can then afford to give them plenty of room, and they are all the better for it.

Rather light soil is placed in the box to the depth of 2 or 3 inches, and a little sand or road grit is scattered over the top. The cuttings are then inserted with as little delay as possible, so that they may not commence flagging, for if they do they will certainly be a day or two longer in striking. A sharp-pointed dibber should never be used, as it is apt to leave a cavity below the cutting, which should always rest on a solid bottom, and the leaves should always stand up clear of the soil. Immediately a box is finished it should be watered rather copiously with a fine rose, covered with the panes of glass and placed in the frame, where it will need no more attention besides shading till the cuttings are rooted.

When this stage is reached one of the panes of glass (I have either two or three to cover a box) is shifted about a quarter of an inch, so as to admit a little air, and in a couple of days from this the panes are removed altogether. In three or four days more the sashes may be opened an inch, and so on a little at a time till the young plants will bear complete exposure. They are then transplanted to other boxes filled with moderately rich soil, and allowed a space of 6 inches from plant to plant. If they are likely to grow too large before winter we start afresh by taking cuttings off them, and proceeding again in a similar manner. A few healthy young plants is all we want for stock. Keep them gently growing throughout the winter, and an almost unlimited number of thousands can be raised from them in the spring. If there is any suspicion of insects I dip all cuttings in the softsoap and petroleum mixture recommended some time ago in this Journal, and plants, when we are transferring them, are subjected to the same treatment if necessary.—WILLIAM TAYLOR.

CLEANING STONWORK.

THE paths and curbs in plant and fruit houses are not unfrequently formed of stone, and this in many gardens is by no means the limit of the stonework that has to be kept perfectly clean. In order to accomplish this severe scrubbing is resorted to very frequently, yet it is almost impossible to keep flags and stonework free from green. In plant and other houses where water is continually thrown about, scrubbing becomes an arduous and laborious operation, and the stonework in spite of this retains a green appearance. They cannot be kept clean by this means, however determined a man may work at them, as I have ample proof. Some years ago I had charge of a number of houses in which the floors were formed of Yorkshire flags, and I worked at these with a will, first in the hope of getting them clean, and then keeping them in that condition afterwards. During the two years I had charge of these houses days and weeks, if not months, of valuable time were wasted in scrubbing, and with results anything but satisfactory.

Another plan is to scour the stonework by means of other coarse-grained stone and water, which will, without doubt, accomplish the object in view by grinding down and reducing the stone until it is perfectly clean. To grind down soft sand-

stone in order to make it clean does not take up very much time, but this would require to be repeated very frequently, and soft stone in a very few years would be greatly worn. Try this stone-rubbing system on material of a very hard or flinty nature, and it requires a lengthened period of time to thoroughly reduce the stone until it is as clean as when new. This, too, if worked at as well as the scrubbing system, will prove an operation that will not only waste time but prove exhausting and laborious.

It must not be understood that I am an advocate for green and dirty curbstones and floors in the houses or about the grounds; on the contrary, I delight in seeing them as clean as the day they were new. This can, as I hope to show, be safely and readily accomplished with a minimum of labour and cost in comparison to the system too frequently employed in gardens for cleaning stonework.

Chloride of lime, if judiciously used, may be employed to clean stonework in houses where the most delicate plants or fruits are grown without the slightest injury. On the other hand, if the inexperienced are allowed to use it carelessly much damage to both fruits and plants may result. I have always found when injury to any particular plant has resulted from its use that the cause has been traceable to negligence on the part of those entrusted to carry out the operation. Even with young men that have never used it—all that have come here never having used it before—one or two lessons are ample in initiating them. The careless should have a certain quantity mixed for them to cover a certain quantity of stonework. A very little of the lime mixed in a pail with water will clean the whole flags and curbs in a house of good size. When applied with an old hand or hair broom the floor should have the appearance as if a quantity of milk had been brushed over it, a little stronger if the floor or stones are very green. After being applied it should be continually moved about the flags by means of the old brush by which it was applied—scrubbing is not necessary—until the chloride of lime forms a froth, which it will soon do, and when in this state the work of removing the green is rapidly going on. It should be allowed to remain upon the floor about ten minutes after it reaches this stage, and can then be well washed off, when the flags will be thoroughly clean.

Some attention is needed in washing it off, for if not well done the stonework assumes a white appearance, which is not the case when well washed. The chloride of lime, whether employed indoors or out, should never be allowed to dry upon the stones or flags, or some hard scrubbing will be necessary to remove it.

When employed indoors it is decidedly safer to use it during early morning, at night, or on dull days, as it is then less liable to injure anything than when the sun is shining with force upon the house. From the time the lime is first laid upon the floor the house should be well ventilated. In applying the lime attention is needed that it is not splashed upon the doors or other paint in the house, as it destroys the paint and turns it a rusty colour that no amount of washing afterwards will remove. The only objection that can be urged against its use for the purpose indicated is the odour, or "disagreeable smell," that some call it, that is left for a short time in the house after its use. It will smell for a few days, but it is by no means disagreeable; in fact, is not half so objectionable as the smell arising from applications of strong liquid manure that are so liberally poured upon Vine and Peach borders in many gardens. However, if the odour arising from the lime is objectionable, and the house requires cleaning while the family is at home, spirits of salts may be used. This is more expensive, but will, as far as my experience goes, injure nothing, will clear off every particle of green, and leave no offensive smell. It should be diluted with water, the quantity entirely depending upon the strength of the acid. I have frequently used this when the family has been here, but in spite of the slight smell arising from the chloride of lime we most decidedly prefer it. The last-mentioned, if used with care, is an easy, inexpensive, and effectual plan of thoroughly cleaning floors formed with flags and other stonework in the garden and grounds.—W. BARDNEY.

THE GOLDEN APPLE.—Mr. Ronald McLeod, Mount Tröodos, Cyprus, writes to a daily contemporary as follows:—"It will, I think, be a subject of interest to know that the identification of the fruit which in the Old Testament and in ancient Greek writings is called the 'Golden Apple' has become possible. 'The three Golden Apples given by Venus to Meilanion, whereby he won the race with Atalanta, were plucked, it is said, either from the Garden of the Hesperides or from an orchard in Cyprus.' Any proof helping to establish the identification of this fruit will come naturally with greater weight from Cyprus, the home of

Aphrodite. In Cyprus at the present day in early summer almost every garden has trees laden with 'ta chrysomela,' 'Golden Apples,' and the bazaars of the towns are filled with the fragrant fruit. The modern Greek name for the Apricot is 'to Berykokkon,' but the Cypriote still calls it by the ancient name 'to chrysomelo,' since he knows no other, thus carrying the mind back to the distant past when Cyprus was the Garden of the Eastern Mediterranean, and fit to be the favourite residence of the Goddess of Beauty. The 'Golden Apple' of the Book of Proverbs is also, doubtless, the Apricot. The references in the Old Testament apply, in all respects, to this fruit tree alone. It has been abundantly cultivated in Palestine from early times; its foliage forms a 'delightful shade,' and is bright and pale like 'pictures of silver,' while it bears 'Apples of Gold' of 'fragrant smell' and 'sweet to the taste.' Dr. Clarke says that the Apricot tree appears to be indigenous to Cyprus. If this be so, the 'Apples of Gold' of Proverbs xxv. 2 are certainly Apricots. If, on the other hand, as is also asserted, the Apricot is a native of Armenia, then both the tree and probably its name were thence introduced at some early period into Cyprus. When the constant intercourse of Cyprus with the Eastern mainland in all ages is borne in mind, together with the fact of the particular commercial dealings which existed between the Israelites and the Phœnicians at a time when Cyprus was largely colonised by the latter, and when, for a while, it owned allegiance to Hiram, King of Tyre, there is the strongest probability for the assumption that the fruit which the Greek afterwards called the 'Golden Apple' is identical with that which in King Solomon's time was known by the same name; and that both names were derived from a common source."

GARDEN CHEMISTRY—PHOSPHATES.

(Continued from page 55.)

SOME guanos, though containing little nitrogen, are especially rich in phosphates. Those from Mejillones contain as much as 71 per cent., and make the best of superphosphates or dissolved guanos. Dissolved Peruvian guano is one of the most active artificial manures in existence, as it contains ammonia (nitrogen equal to) 12 per cent, and phosphoric anhydride equal to 22 per cent. of tricalcic diphosphate.

In recent years a more than usually active phosphate has been before the public under the name of "fimur," which is manufactured from the sewage of the midland counties by what is known as "Scott's process." It is "an ammoniacal phosphate of magnesia," but contains potash and other fertilising matter in addition. At Easter Ardross, applied to Turnips, it gave 27 per cent. over the next best crop produced by other combinations of phosphoric anhydride and nitrogen, the next best being from a mixture of undissolved coprolites, bone ash, and ammoniac sulphate; although in the latter case twice as much phosphoric anhydride was given as in the case of "fimur," the nitrogen in each case being the same. In other cases on different subjects its effects have proved equally striking; and when a quick return is desired it will doubtless prove a useful manure.

Among numerous experiments with dissolved pitted against undissolved phosphates, the balance of results are in favour of dissolving not only mineral phosphates but even bones. But most of these experiments have had reference to the current crop alone. In farming practice, so long as the law does not provide for "unexhausted improvements," this is perhaps enough; but in the case of the garden, when in the hands of the proprietor, or even in the case of market gardeners who are generally protected by leases, it is doubtful if the use of soluble phosphates is at all to be recommended. Garden soils have a dissolving power over such that enables the plants grown to use the applied phosphates soon enough. Then phosphates are by no means liable to loss; and though the current crop leave an unused residue, it will be taken up by a succeeding one. Dissolved cost one-third more than undissolved phosphates, and often have a hurtful power on soils already containing acids. Of course this can be prevented by the use of lime, or by precipitating the soluble phosphate by adding bone dust. Still it may be doubted if in gardens even mineral phosphates are the better by being dissolved. Moreover, in the case of fruit borders something lasting is of positive benefit, and in such tricalcic and monocalcic phosphates alike speedily assume the same form—the bicalcic. True enough, phosphates, soluble in water, can be much more thoroughly diffused through the body of the soil, and a given quantity will present a greater surface than will an equal quantity of even impalpable powder produced by mechanical means. No grinding can produce an equal state of fineness with what chemical means can; but then the same money will buy more of the ground phosphate, and the distribution difficulty is no difficulty compared with what it is with the farmer who is tenant at will or near the end of his lease.

But Mr. Jamieson's experiments make it doubtful if dissolved phosphates are really so superior after all. In Aberdeenshire it was found that a mixture of steamed bone flour and coprolite produced, in two instances out of five, results identical with the same substances rendered soluble; in two cases the results were inferior, but only

about 10 per cent. ; and in one case actually superior crops resulted. In the case of the soluble phosphates the quantity given was equal to 100 lbs. of phosphoric anhydride per acre, in the case of the insoluble 150 lbs. were given ; these quantities costing about the same sum. Thus, while the crops in the first instance were nearly equal, the phosphate remaining in the soil would be much greater in the case of the insoluble than the soluble, and would affect the after crop to a much greater extent. Indeed, this was found to be the case. Not only so, it was found that the Turnips were much more prone to disease after dissolved than undissolved phosphates. It appears that the fungus which causes the disease feeds more particularly on the pungent oil found in Turnips and other members of the order ; that this oil is rich in sulphur, and that the sulphuric acid present in dissolved phosphates favour the disease by promoting the production of the oil in question. Whether this theory be correct or not, there can be no doubt as to the facts ; and as the Brassica order have to follow each other in closer rotation in the gardens than in the field, the danger will be the greater ; for it is found that when Cabbages or Turnips follow in too rapid succession finger-and-toe, clubroot, and other diseases often decimate, if not totally ruin, the crop. But when bones, fowl or pigeon manure, and human excreta are used to supply the phosphates demanded, superphosphates will hardly be wanted. Space here does not permit, otherwise we would refer at length to the experiments with soluble *v.* insoluble phosphates in Sussex ; but the conclusion arrived at after elaborate experiments under a variety of experiments was, that a mixture of bone flour and ground coprolite was the most economical manure to use so far as phosphates were concerned. Owing to the greater solvent power of garden soil they will, doubtless, prove even superior in the garden to what they have in the field.

As the manufacturers of superphosphate derive most of their profit, not from the phosphates, but the vitriol necessary for their reduction, and as those who make their own superphosphate at home must at least buy this, it does not pay to make it at home where the appliances are necessarily rude. Still, many people like to make their own, and especially those who have collected a quantity of bones. For these who are anxious to reduce these we may describe an easy inexpensive method of doing so. A large wooden trough or tub in which to mix the materials, and a wooden spade is necessary. Iron tools are worse than useless. A coating of pitch will be an improvement, as it will preserve the tub from being charred by the acid. Even this may be dispensed with, as the process may be conducted on the bare ground if a close firm spot is chosen into which the acid will not seak. To prevent the liquids running away a rim of ashes will be necessary. The finer the bones are broken, or the mineral phosphates ground, the more rapidly will the transformation take place. In the operation three things are necessary—phosphate, acid, and water. There are many kinds of phosphates, as we have pointed out, and an extra allowance must be made for those which contain a considerable amount of calcic carbonate, ferric oxide, alumina, &c. There are three kinds of acids—white, brown, and chamber : 64 lbs. of white (specific gravity 1.845°), 82 lbs. of brown (specific gravity 1.700°), and 114 lbs. of chamber acid (specific gravity 1.450°) are the quantities required to convert 100 lbs. of insoluble phosphate into soluble. Brown acid is usually used because it is considerably less expensive than the purer white. Except when it is manufactured chamber acid is seldom used, the cost of the carriage of mere water making it less economical than brown, which is cheapest, unless when the distance from the manufactory is great, when the white may be used. The amount of water employed is about 3 in 40. Half of this is commonly used for thoroughly moistening the phosphates and half for diluting the acid. Afterwards the acid is poured on the bones, &c., and the whole thoroughly mixed. When mineral phosphates are used it is well to have more acid than enough rather than less, and to add bone dust afterwards. By so doing most of the phosphate will be dissolved, which is not usually the case. The addition of bones afterwards will reduce the amount of soluble matter, yet not the value of the compound, but the reverse.

At a manufactory in our neighbourhood the following rule is observed in the manufacture of a mineral superphosphate guaranteed to have from 25 to 28 per cent. of soluble phosphate (this term usually misleads ; soluble phosphate is not meant, but tricalcic phosphate rendered soluble, which is of course very different) :—One ton of Cambridge coprolite, 17 cwts. of brown acid, and 3 of water. For "dissolved bones" 7 cwts. of half-inch bones, 13 of coprolite, 16 of brown acid, 3 of water, and (afterwards for drying) 2 of plaster of Paris. This gives about 24½ per cent. of soluble phosphate as well as fully 1 per cent. of (nitrogen equal to) ammonia. Other proportions are used, but these will sufficiently indicate to the beginner the proportions of the different materials wanted.

Soluble phosphates soak into the soil and so are thoroughly distributed. When precipitated by lime they are readily used ; when, as on rusty ground deficient in lime, iron oxide precipitate them they are not considered so available ; but it is considered that the iron

ultimately takes the place over of the lime. In such cases it may be well to precipitate them beforehand, otherwise lime in any form, except the sulphate, should not be used for drying or diluting the newly made superphosphate. Bone dust is best, but ashes, sand, or dust will suit. The better they are dried and the more finely pulverised the more easily are they distributed with uniformity.

While for long bones have been used in the construction of Vine and other borders and for trees and plants in pots, it is to be regretted that anything like scientific experiments with phosphates in the garden as in the field are unknown. We may reason from analogy ; we may point out that garden crops demand phosphates largely, and that garden manures supply them sparingly ; we may instance numberless cases where bones and other forms of phosphates have been used, and success has attended ; but, compared with what has been done for agriculture, we gardeners have not yet made a beginning. Indeed, but for the rays reflected from agricultural chemistry, garden chemistry would still be obscured in darkness. What we know of the solvent power of soils, and the facility with which roots in general attack other mineral substances, we can hardly be wrong in supposing that a liberal addition of ground or even broken coprolites to borders, which are "made to last a lifetime," would prove a lasting and satisfactory source of the phosphoric anhydride Vines, Peaches, and other fruits need. We can hardly doubt but many an acre of orchard soil could thus be cheaply improved ; but nobody has proved it, and we want proof, without which we must found our hopes of success on what is likely rather than on what is certain.

Phosphates can hardly be applied wrongly to very old soils, or indeed any, for the reasons already given. All garden crops require them. Old worn-out lawns greatly benefit from such, especially when applied a year after a dressing of lime has been given to kill moss and sweeten the under soil. Grasses, and especially the finer kinds, depend for their very existence on finding phosphates ; when these fail in the soil other plants that do not so much depend on phosphoric anhydride usurp their place. In cases of extreme poverty an addition of some nitrogenous manure will help the action of the other ; but finely ground bones, preferably steamed bone flour, is perhaps the best either for encouraging fine grasses on inferior soils or renovating these on old turf. From 5 to 8 cwts. per acre may be regarded as a good dressing ; for kitchen garden or flower ground from 5 to 10 cwts. suffice for Cauliflowers or Cabbages, 2 or 3 cwts. for Potatoes, but none when these follow Cabbages which have been liberally dressed the year before.

As illustrating the effect of carbonic dioxide on the solubility of different phosphates, and as a guide to the solvent power of the soil, we may add that Mr. C. P. Williams found that the following, when suspended in water through which the gas was passed, became soluble in the degrees indicated below :—

	Parts of water.
Calcic phosphate in apatite is soluble in...	222-222
" " " finely ground apatite ...	140-840
" " " bone ash ...	5-678
" " " burnt bones ...	8-020
" " " South Carolina phosphate...	4-122
" " " same finely powdered ...	6-554
" " " in phosphatic guano from Orchilla ...	8-009

From this it will be seen that some phosphates are very much more soluble in the soil than others. Apatite we may mention is the form known by the name of Canadian and Norwegian phosphates.

—SINGLE-HANDED.

(To be continued).

A STRAWBERRY ENEMY—BIRDS.

MR. ROBERT GRINDROD in blaming mice for biting Grape berries clean off the bunch (see page 50), gives these mischievous little animals a character they do not deserve. Voles and common rats do so, but mice content themselves with eating a little out of each berry. The garden here is so placed as to bring us a perfect scourge of animals ; rats, mice, squirrels, hedgehogs, pheasants, partridges, blackbirds, and sparrows congregate together round it as to a common centre, and make themselves at home as much as they can. Rats take to fruit very readily. Not only are Grapes eaten, but I have occasionally had to watch the Pear trees and shoot the rats when eating the fruit. Beans they prefer to Peas, and when hard pressed for food will eat growing Potatoes. Mice like Peas better than Beans, and will destroy the produce in the pods as well as when lying as seed in the ground. I do not think mice are so fond of fruit as rats are, they seem to prefer grains and seeds. Last fruit season squirrels were very bad ; very unwillingly they were shot down, sometimes as many as five or six in a day. Plums are apparently their favourite fruit.

Pheasants are very tame here, and are strictly preserved even in the garden. As a consequence Peas have not only to be protected before the plants appear, but occasionally they have to be kept netted until the pods are ready for picking, when sparrows and chaffinches attack them. Pheasants are extremely fond of some yellow flowers, notably *Doronicum*

caucasium and Crocuses. They also eat the Crocus bulbs during summer. They attacked Lettuces and Cabbages last winter for the first time in my experience, and kept up the taste for them till the arrival of summer. Blackbirds are comparatively harmless in a wet season; slugs and worms are then plentiful, and they are not pressed for food. During the drought of the present season Currants had to be netted five weeks before ripening. Birds were so hard pressed that they were glad of anything. It is interesting to see blackbirds throwing themselves against nets protecting wall fruits; they soon find out that the net will give sufficiently to allow them to get their beak into the fruit, provided they throw themselves with sufficient force against the net. The only remedy is to keep the net well off the trees by means of forked sticks, and to stretch the net as tightly as possible when it is put up. I am very averse to killing if it can be at all avoided. Blackbirds and finches are partially defeated by gathering fruit as quickly as possible when it is sufficiently ripened.

Three years ago some of us had a lesson from wasps on the proverb, "Not to leave till to-morrow what can be done to-day." A gardener noticed a few wasps in a vinery one Saturday. The necessity of protection was obvious, but he left it till the Monday. The intervening Sunday was a hot day, and on the Monday morning there were absolutely no Grapes left to protect. Another case I knew where the gardener went to pick his Gooseberries, but when the nets were removed he found the bushes quite bare.—B.

TWO PRETTY ROSES.

In few gardens are any of the numerous species of Roses now grown. The abundant and handsome progeny which have been obtained by



Fig 14.—*Rosa alpina*.

cultivators of the Rose in the past fifty years have ousted the typical species, some of which possess a modest beauty that is gradually becoming more recognised and appreciated. These so-called "single" Roses are, however, rarely seen except in botanic gardens, and two of these which have been so preserved are represented in the accompanying woodcuts—namely, *Rosa alpina* and *R. sericea*, attention being specially called to them as charming, free, and graceful plants.

R. alpina (fig. 14) is the first of Lindley's tribe Pimpinellifoliæ, which also includes such pretty species as *R. stricta*, *R. sulphurea*, and *R. myriacantha*. It is a native of Europe, and was known to and mentioned by most of the old authors under an alarming number of names, all of which have given way in favour of that adopted by Linnæus. It attains a height of 8 feet as the maximum, but is usually much less, the flowers being solitary and of a bright rosy-blush colour. Several varieties of this are known, differing in unimportant characters, such as the depth of shade in the flowers and peculiarities of the fruit. The specimen figured was grown in the Trinity College Botanical Garden, Dublin.

R. sericea (fig. 15, p. 73) is one of the Caninæ group, and was well figured in Lindley's "Monographia." Our specimen, however, repre-

sents a variety with much larger flowers than that, and is rather closer and more sturdy in its habit. It forms a kind of connecting link between the European and Indian Roses, having *R. canina* on the former side, and *R. indica* on the latter; but it belongs more distinctly to the Asiatic species, being itself found at Gossam Than, whence it was some time ago introduced to England. The flowers are slightly cupped, pale pink or blush, almost white in the centre; and the leaflets are small, with several deep serratures at the apex.

MR. LAXTON'S NEW PEA EVOLUTION.

I HAVE sent for your inspection a sample of Mr. Laxton's new Pea Evolution, and which, in my opinion, promises to be a first-rate midseason variety, and being a robust grower and of branching habit the individual peas should be sown 1 foot apart, otherwise the haulms, which are from 4 to 5 feet high and heavily cropped with large well-filled pods of the Pride of the Market type, will not have sufficient room to develop themselves. As an instance of this, I may state that when I received my packet of Evolution on the 11th of March I resolved to make the most of the hundred which it contained, and therefore two days later sowed them in small pots filled with light mould (putting one pea in each pot) and put them into heat, and so soon as they came up and attained a height of 6 inches a short stick was put to each plant for support. A couple of weeks later these Peas, having been gradually hardened off, were transplanted in rows 6 inches apart in the row, and although they looked very thin in the rows for some time, it is obvious enough now that the result would have been better if the young plants had been 6 or 9 inches further apart. And as a proof of this assertion, several ranks of that excellent variety, Culverwell's Giant Marrow, in other parts of the kitchen garden are everything that could be desired, and these, which in some cases transplanted and in others sown in the drills, were allowed 12 inches in the rows. Therefore the results of these sowings of expensive Peas points to a practical conclusion—viz., that no matter how cheap the seed, providing it be good, do not on that account sow it too thickly, as by so doing the seed is not only unnecessarily wasted, but the object aimed at—a good crop, is reduced to a minimum.—H. W. WARD.

[The Pea Evolution appears to be a good variety, the pods of moderate size, containing eight to ten peas, but the specimens sent were too advanced to test their quality satisfactorily. Culverwell's Giant Marrow, also received, is a very fine variety, the pods of great size, and containing nine to eleven large peas of good quality.]

HISTORY OF THE FANCY PANSY.

It is evident that the Fancy Pansy is now firmly established in popular favour, and as there is evidently a still growing popularity for it, I think it will be as well if the early history of this flower is given at once, so that in the future it may be known when this form was introduced and who first took it in hand. Mr. Miller in the *Journal* of the 19th inst. (page 46), clears up a little of the fog which has hitherto surrounded the Fancy Pansy, and shows us that Mr. John Downie exhibited some six kinds at the Botanic Gardens, Regent's Park, in 1852, but from that time until about 1858 this type of Pansy was an unrecognised and almost unknown flower amongst florists.

In the *Journal of Horticulture* of June 28th (page 539), in your notice of the meeting of the Scottish Pansy Society in the Waverley Market, Edinburgh, the following paragraph appears:—"At the dinner in connection with the above Society, Mr. Ross, Laureneekirk, replying to a vote of thanks to the Judges, spoke of the high quality attained by Fancy Pansies, as demonstrated by those shown in the Waverley Market that day. When he first got them he thought so slightly of their qualities as to throw the entire lot out, and for years he had disliked them; but now they were quite as good in all qualities as the English (Show) Pansy, and eclipsed them in size of bloom, richness, and variety of colouring. It may be stated that the Fancy Pansy is of Belgian origin, and was taken in hand first of all by Mr. Downie." As there are misconceptions existing as to the early history of this flower, and as no other person can speak with greater authority on the subject than myself, I venture to trouble you with a few remarks.

I believe it was in 1858 that Mr. Andrew Henderson of the Wellington Road Nurseries, London, wrote to me when I was residing in Shipley, to say that on a recent visit to France he had met with some new forms of blotched Pansies, but as he could not grow them in London, asked if I would undertake to grow them, and his firm would take all the plants I could raise. We agreed as to terms, and I took them in hand. To Mr. Andrew Henderson, who is now the proprietor of the Pine Apple Place Nurseries, therefore, belongs the credit of first introducing the improved forms to English growers. The experience of the first year decided me in going on with their culture; but many of my old florist friends, amongst them my old friend Mr. Downie, ridiculed me for growing

them, saying they would spoil our race of Show Pansies, and in fact, they thought, as Mr. Ross says he did, "slightly of their qualities." I began raising seedlings, and sent out the first English-raised seedling, Princess Alice, at that time a wonderfully fine white with an immense blotch.

In the "Florist and Pomologist" for February, 1862, in a paper on the Fancy Pansy written by me, I stated that "the old familiar stereotyped forms of Pansies, consisting of white ground, yellow ground, and self varieties, with which we have been familiar, were running a great risk of finding a powerful rival in public opinion in the new and pleasing forms of Fancy or Belgian Pansies. These are now fast approaching the circular form, combined with texture and substance, which the stern law of the florists demand before they can be admitted into their circle. Whether florists will ever recognise the Fancy Pansy remains to be seen, so completely do they set at defiance all recognised rules with regard to colouring; but as all do not view flowers with a florist's eye, and look more to a diversity of pleasing colours combined with form, I venture to predict for Fancy Pansies a large amount of popularity, and their recognition as a florist's flower on the exhibition table." I wrote these words at a time when the feeling of my brother florists generally were dead against the Fancy Pansy. In the same article from the "Florist" I gave the following information—"To the French florists belong the merit of effecting a marked improvement in this class of Pansies. For four years since their best kinds were Eva, Bobo, Floribunda, Cerberus, Cœrulea alba, Eckard, and others, which are now (*i.e.*, in 1862) worthless. These were followed by Prince Imperial, Ali Bey, Parpaillot, Mirael, Agnes Sorrel, Napoleon III., and Masaniello. These kinds showed plainly that considerable headway was being made, and these were followed in 1860 by Belle Esquemoise, Louise Miellez, Distinction, and others, all raised in France. Here, however, the mantle of the French growers seemed to fall, for with the exception of Octavie Demay and Noemi Demay, none others were introduced from France or Belgium in 1861, and these two varieties were more remarkable for novel colours than an advance in form. This probably arose from the death of M. Miellez of Lille, who died about two years since."

It will be as well to state here that the varieties I have enumerated, with the exception of Princess Alice, were obtained from M. Miellez, at that time a celebrated French florist, by Mr. Andrew Henderson, and were sent on to me. My first batch of English-raised seedlings sent out by me were Princess Alice, Donald Beaton, Etoile du Nord, Tiger, and other fine kinds. In the "Florist" for December, 1862, is a coloured illustration of three of my seedlings—Princess Alice, Leotard, and Mrs. Moore, and in an accompanying notice of the Fancy Pansy the following extract will be found:—"We quite recollect two or three varieties being brought into notice some twelve or fourteen years since, but being regarded as unwelcome intruders they were speedily discarded. We believe Mr. Downie of Edinburgh was one of the first raisers, and about twelve years since introduced Dandie Dinmont and one or two others. Mr. Salter also took them in hand, but the kinds being generally small and unattractive the flower did not make headway in popular opinion. The French florists, especially M. Miellez of Lille, afterwards followed in the same track, and succeeded in producing Mirael, Belle Esquemoise, Princess Mathilde, and other kinds, which were first introduced into England by Messrs. E. G. Henderson & Son, and were placed in the hands of Mr. W. Dean, Shipley, for cultivation, the colder climate of the north being more suitable than that of London. In the hands of Mr. Dean the flower soon made rapid progress, and Princess Alice, Etoile du Nord, and other advanced kinds were introduced by him in the autumn of 1861." In the "Florist" for July, 1863, my brother, Mr. Richard Dean, under the signature of "Quo," gives a lengthened description of the new Fancy Pansies of that period, the greater portion of which were seedlings of mine. These included Her Majesty, Harlequin, Attraction, King of Italy, Impératrice Eugénie, Prince of Wales, Princess of Wales, and several other fine kinds. These were figured in the "Florist" and the "Floral Magazine," and the Belgian Pansy, as it was at first called, was fast rising into popularity. I believe I may claim the credit of first using as a distinctive name for the new class of Pansies the term Fancy Pansy in contradistinction to the Show class; and although that veteran amongst our florists, Mr. John Downie, introduced the Fancy Pansy years before—sorts which were almost discarded, I think also that I may be awarded the place of honour as the father of the modern Fancy Pansy.

I believe I am correct in stating that the first Scottish florist who took the modern Fancy Pansy in hand was Mr. John Laing, formerly of Dysart Gardens, and of the firm of Messrs. Downie, Laird and Laing, and now of the Forest Hill Nurseries, London, who cultivated them for at least two years before the other Scotch florists would grow them. In fact, I have Mr. Laing's authority for stating that even then Mr. Downie was very reluctant to take the Fancy Pansy in hand. Mr. Laing's first seedling of note was a bright-coloured variety named Professor Berkley, a Marigold-coloured flower, which was lost. Then soon after Mr. Laing introduced a batch of new kinds, his own seedlings, amongst which was Earl of Rosslyn, a very fine flower. Then Mr. Downie took the flower in hand, and during the long number of years since then no man living or amongst those who have passed away has done more to improve this lovely race of Pansies and to make it popular. It is very far from my wish to rob him of any of his hard-earned honours, for I esteem him too much for that; but had I not taken the flowers in hand in 1858 it is just possible that the Fancy Pansy would not be what it now is. Our Scottish florists have made the flower their own; it has now reached a very high standard of per-

fection, and it is much to be deplored that so much seed of foreign origin is sold and grown as Fancy Pansies; for although many of them possess lovely shades of colour, they are invariably very faulty in form, and fall so very short of the fine qualities our home-raised varieties possess. Mr. Miller is quite right in stating that the demand for our Show Pansies is very limited compared with the demand for Fancy Pansies. But we must never let our Show Pansies with their stern points of quality so dear to old florists pass into oblivion, and young growers will learn more about the properties of the Pansy by the culture and study of the Show varieties than from the Fancy section. I am in no way wishful to under-rate the Fancies, but rather to encourage more attention to our glorious Show varieties. It would greatly interest the younger Pansy growers of the present day if they could see what varieties we had to work with fifty years since. I have now before me coloured plates of some of the leading Pansies known at that period, and were figured in Harrison's "Floricultural Cabinet" of November and December, 1833. These kinds are Skyblue and Yellow, Allen's Queen Adelaide, Appleby's William the Fourth (which was regarded as a great improvement, but has a very butterfly appearance now), Maid of Athens, Prince George, and Thompson's Favourite. I remember all these varieties, and it would be very interesting to trace back through the pages of the "Floricultural Cabinet" the early history of the Show Pansies.

Since writing the above I have received from Mr. Alfred Salter through Mr. Richard Dean further valuable information respecting the first varieties of Fancy Pansies known in England. Mr. Alfred Salter is the son of a very old and highly esteemed horticulturist and florist, the late Mr. John Salter, who died several years since. In his letter he writes—"I am sorry for the delay in replying about Fancy Pansies, but I have had to refresh my memory and look through old catalogues and note-books to find the information you require. My father was through all his life fond of Pansies and used to grow them at Shepherd's Bush, as an amateur, many years before he went to Versailles, when he left England. He then took all the best varieties with him to France, but the hot summers and cold winters did not suit them; but he continued to grow many seedlings, and amongst these he noticed (I think it was in 1847, the year before he left Versailles) some curious striped and blotched colours, and seed was saved from these, and when he returned to England in 1848 the seed was sowed by my father at the Versailles Nursery, Hammersmith, where they attracted the attention of the late Mr. Donald Beaton and others. The flowers were exhibited at the Horticultural Society, and many florists laughed at them and called them French rubbish.

In 1851 three varieties were offered for sale, and the stock of these soon sold out, and each succeeding year novelties were raised, and I think one of the first orders for these came from Messrs. Downie and Laird of Edinburgh, but they had nothing to do in originating them. Dandie Dinmont was introduced by them, and I find it in our catalogue for 1854. We continued to cultivate these Pansies extensively at Hammersmith until 1859 or 1860, when we gave them up, or rather they gave us up, as we found they would not grow so near London. They were called Belgian Pansies in my father's time. I keep all our old catalogues, and enclose a few extracts and dates as follows. In 1851 my father offered three new varieties for sale—*viz.*, Cœrulea striata, white and blue; Mars, bronze and yellow; and Novelty, yellow striped with maroon. In 1852 sixteen new varieties were sent out, all raised by my late father. In 1853 twelve more were sent out, and in 1854 other new varieties were introduced, and the following is an extract from our catalogue of that year. "*Fancy Pansies.*—This class was first brought into notice in 1850 by John Salter, and were not then offered as Show flowers, but for their fantastic colours. Since that time they have been greatly improved in form, and the new varieties of this season will be found larger, more regularly striped, and a great addition to this distinct and attractive class, which promises to become as popular as the 'Fancies' of any other flower. In 1855 and 1856 new varieties were raised by English and French growers, and M. Miellez of Lille sent out one or two very fine varieties. In our catalogues of 1857 and 1858 a long list is given, and includes Magpie, giving as synonyms of this variety Mazeppa, Paul Pry, Wonderful, and La Pie, but who raised it is, I believe, unknown."

All Pansy growers will thank Mr. Salter for this information, and I think we shall now have set at rest the question of who first took this flower in hand.—WILLIAM DEAN, *Florist, Walsall, Staffordshire.*

[Mr. Dean's varieties, Her Majesty, King of Italy, Impératrice Eugénie, and Harlequin, as figured in the *Florist*, December, 1862, far surpass the majority of varieties that are raised now from foreign seed.]

NEW BRIGHTON ROSE SHOW.

WHILE London was mourning over a thunderstorm which by its violence stopped the Eton and Harrow match, a beautiful though somewhat cold day gladdened those who had been instrumental in getting up this pretty little Show on the banks of the Mersey, especially Dr. Bell, who had organised it for the purpose of assisting the Wallasey Cottage Hospital, and who kindly gave the use of his grounds for the purpose. These grounds are very picturesque, and the more pleasing as they are quite unlooked for in the midst of a somewhat populous suburb of Birkenhead. As it was held in a tent, and was associated with a lawn tennis tournament, it may readily be conceived that unfavourable weather would have very seriously damaged its prospects. The grounds are very pretty, and when they have been improved, which Dr. Bell proposes, will be still more so. This being the object of the Show, of course large tempting prizes were not to be looked for, yet they were sufficient to

bring Messrs. Cranston from Hereford and Messrs. J. Dickson & Co. from Chester, while the Wirral amateurs contributed largely by their beautiful blooms to the success of the Show. It will be memorable to me this season for the very best bloom of Marie Baumann I think I ever saw; it was exhibited in Messrs. James Dickson & Co.'s stand. Larger blooms I have seen, but I have never seen one more perfect in form or so brilliant in colour. In the latter point it was more like a good bloom of A. K. Williams. The blooms exhibited by Mr. T. B. Hall of Larchwood, Rock Ferry, and by Mr. Griffiths, were very good, and the superb trusses of Madame G. Luizet, Marie Cointet, Baronne de Rothschild, and Capitaine Christy exhibited by Messrs. Cranston and Dickson were decidedly admired; and altogether Dr. Bell may be heartily congratulated on the success which has attended his efforts to combine the love of the Rose with the advancement of so good an object as a cottage hospital.—D., Deal.

PIGEONS ATTACKING PEAS.

BEING a subscriber from the commencement of your valuable periodical, I am desirous of inquiring if you, or any of your numerous readers, know of a parallel case to that decided by Judge Stevens at the last court day held at the Boston County Court. I am a grower of the best varieties of Peas for seed, such as Pride of the Market, Stratagem, Telephone, &c. They are scattered about in a nursery ground 4 acres in extent, between young trees. Some hundreds of cottages abut on the west side, and several of the occupants keep poultry and pigeons. The poultry I have occasionally caught, traced them home, and told the owner if I caught them again I should sue them for damage, and they have at once been kept in. The pigeons, however, continued destroying crops partly or wholly. I gave orders to my people to tell all who kept pigeons that the birds would be liable to be shot if they continued destroying my crops; but as the annoyance did not cease, a gun and licence were procured, and a pigeon was shot by my son. An action was entered against him for this. He was sued in the County Court for £8 for the pigeon, and £1 costs. My solicitors assured me that the case was so good and the law so strong on my side that I needed no one to defend it. However, the case was gone into before Judge Stevens, who unfortunately is a pigeon fancier, and would not allow the pigeon to be brought into court to be fairly valued by a competent person we had for the purpose. Because the bird has taken prizes at a show held at a public house, the Judge told the plaintiff without seeing it he had no doubt it was a very valuable bird, and gave a verdict for the plaintiff for £5. When I asked that the case might be tried by a jury, I was told there is no appeal.—T. B. DOLLY.



SO great has been the demand for Mr. Wright's TREATISE ON MUSHROOMS that, although a very large edition was prepared, it is quite exhausted, and the publisher is unable to immediately execute many orders that he has received during the past week. Another edition will be published as quickly as possible, and the orders in hand will then be executed.

— MR. J. GEORGE, who has been gardener to Miss Nicholson, Putney Heath, for the past thirty years, has, we are informed, resigned his situation, and taken premises at 10, Victoria Street, Putney, with the intention of extending his business in horticultural sundries. It is well known that Mr. George has rendered good service in improving the Abutilons, having reared many beautiful varieties. Ivy-leaved Pelargoniums have also received much attention from him with excellent results.

— RELATIVE to the PRINCESS LOUISE COIL GRATE that was illustrated on page 15 of our issue of the 5th inst., and described as patented by Mr. Deards of Harlow, Essex, Mr. Robert Renton Gibbs, Mill Street, Liverpool, states that he "has had the grates in use and has been fixing them for the past fifteen years." We never before heard of the "Gibbs' Hot-water Grate" (which, according to the illustration before us, appears similar to the Princess Louise), nor, we venture to say, have the vast majority of our readers. Mr. Gibbs does not say that he patented his grate; but Mr. Deards informed us that he patented the apparatus to which we referred.

— THE EVENING FETE held by the Chiswick and Turnham Green Horticultural Society in the gardens of the Royal Horticultural Society at Chiswick on Thursday last proved very successful, a large number of visitors assembling, as the evening was fine and clear though

rather cool. The gardens were very tastefully illuminated with coloured lamps, about 4000 being employed in festoons and arches over the chief walks and around the Council-room. The Horse Guards' band, under the leadership of Mr. C. Godfrey, performed a choice selection of music, including a new walse, "Camille," composed by the Honorary Secretary of the Society, Mr. J. T. Musgrave, which was greatly admired.

— THE third part of the serial work on "HARDY PERENNIALS AND OLD-FASHIONED FLOWERS" (170, Strand) continues the description of species from *Helleborus colchicus* to *Lathyrus latifolius*. The matter both cultural and descriptive is correct and good, but several mistakes occur in the names, capital initial letters being used for the specific titles as in previous issues. Several woodcuts are given, one of *Hydrangea paniculata grandiflora* being a most unsatisfactory representation of a beautiful and useful plant.

— "A PRACTICAL TREATISE ON THE FUCHSIA" is the title of a little work just issued (E. W. Allen, 4, Ave Maria Lane), which gives a brief outline of the general culture needed by this popular plant. The author is Mr. F. Buss, whose experience as a grower and exhibitor should render his production worth perusal.

— A CORRESPONDENT asks if any of our readers can give the name of the light pink Clove that is now being sold in a cut state in Covent Garden. The flowers are nearly the colour of C. Souvenir de la Malmaison, and about as large as a good-sized Pink.

— MR. A. PAUL of Gilmore Place, Edinburgh, informs us that he was the winner of the first prize for six stove and greenhouse plants at Edinburgh on the 11th inst., and not Mr. Paterson as stated in our report on page 56, last week.

— MESSRS. J. JEFFERIES & SONS, Cirencester, send us a choice collection of HARDY FLOWERS, including examples of many useful plants. Very noticeable is *Lilium testaceum* with pale orange or creamy yellow flowers, exceedingly fragrant and free. *Campanula Trachelium album plenum*, a double white full-flowered form, is not very commonly seen, but is pretty and well worth notice. Several other dwarf species and varieties of Campanulas were also included, all attractive and useful.

— A CORRESPONDENT writes that "the PHYLOXERA has been discovered in the vineyard of Mr. Alderman Lightfoot, Mayor of Accrington. It is feared that the Vines will have to be destroyed."

— MR. H. JAMES, Castle Nursery, Lower Norwood, writes:—"Having constantly to reply to questions relating to VANDA TERES, I thought a note of what I have recently seen might interest those of your readers who are anxious to succeed with this lovely Orchid. In a house at Mr. Alexander Durce's garden, Dulwich, there is now in bloom a small plant with three spikes of twenty-one of its lovely flowers—seven on each spike. The plant is about 3 feet above the piece of cork to which it is wired. Mr. Bachelor, the gardener, informs me it has never been taken out of the stove, in the centre of which is a large water tank; but during the winter months is hung near the glass. So it is not a necessity to take it out to the stokehole to dry it in the winter months, as we are sometimes told."

— WE regret to record the death of MR. WILLIAM BIGGS, Sandsfield Park, West Derby, Liverpool, age 51 years. He had been in the service of the late Mr. Arnold and his widow for twenty-one years, and was one of the first, if not the first, to exhibit dwarf-trained Chrysanthemums in St. George's Hall. Mr. Biggs was a good practical gardener, and a man highly respected by all who knew him. He leaves a widow and six children.

— MR. JOHN NIXON writes:—"I am disposed to think that many writers take a great deal more trouble in STRIKING ROSES than they have any need to do. I strike mine in the same manner as Gooseberry or Currant cuttings, and all grow equally well."

— A HITHERTO unknown form of the POTATO DISEASE, which had been making slow but steady progress near Stavanger during the last ten or twelve years, has recently begun to show increased energy. The stalk of the plant is the part affected, and Herr Anda has discovered small white fungoid growths, which after a time assume a greenish, and finally a black, colour, after attaining the size of a small Bean. While the fungus is rapidly increasing at the expense of the plant, the interior of the stem is first reduced to a pulpy condition, and next shrivelled and hollowed out, until nothing remains but a mere outer

shell, which breaks down on being touched. When the ripe black germs of the fungus have remained in the earth through the winter, they are found after the return of the next year's warmth to have developed small stalked fruits filled with minute spores, which penetrate into the young plants before they appear above the ground. The end of July or beginning of August is the time when the ravages of the fungus are most conspicuous, and at those periods whole fields of Potato plants are often rapidly reduced to the condition of withered straw.—(*Nature.*)

— "B." writes:—"In light soils like that we have to do with the only way to obtain large STRAWBERRY FRUIT is from young plants. Now is the time to see about planting. This we do by going over the youngest plantation and placing a stone over each runner, so as to keep the young plant steady and the soil moist. In a few weeks they can be lifted with a mass of roots, and if planted by the first week of August a good crop is certain the next season. As our ground is trenched regularly in the winter season, when Potatoes or other crops not long in the ground are removed, we can plant out at once without any further preparation. The rows are 3 feet from each other, and the plants 2 feet apart in the row. Our best kinds are President, which colours well when young, and Vicomtesse Hericart de Thury. Crops of Lettuces can be taken between the rows, both in autumn and spring, without doing harm to the Strawberries."

— AN Australian paper thus describes PINE APPLE CULTURE IN QUEENSLAND—"Very few people have any idea of the possible yield with Pine Apples where the climate and soil favour their production. It has been recently stated by a Mr. Rodda, after an inspection of a Pine Apple patch, that an acre of soil would yield over 10,000 fruit in the season, and where a plantation is well established and the plants in their prime this is not an over-estimate. On an average of 5 feet from plant to plant an acre would carry 1750 plants per acre. The first year two to each plant would be a good yield, the second year four or six, and after that strong plants will often give from eight to twelve Pine Apples in the year, if not all at one time at intervals during the season. So, then, the first year's yield would be 3500, the second year from 7000 to 10,000, and the third year, if eight or twelve fruit were produced on each stool, the yield would be 14,000 or 21,000. Startling though these figures may appear, they are quite within reach with good cultivation. With the neglect so frequently attendant upon Pine Apple and Banana culture, however, the half of this is a high average; but taking 10,000 as an average crop, and the low rate of 1s. per dozen as the market value, one acre of Pine Apples would realise over £40, which is a good return for the labour and outlay necessary to produce them. It has always been a matter of surprise to us that the cultivation of this delicious fruit has been so much neglected, especially when the fact, so frequently brought to light, that Queensland-grown Pine Apples are equal, if not superior, to those grown in Florida or elsewhere, is taken into consideration. The cultivation necessary for a 5-acre plantation, and everything to be done efficiently, could be easily compassed by one man breaking the land up deeply in the first instance with the plough followed by the subsoiler. Coast lands in Southern Queensland are very well adapted for this fruit if the soil is deep, rich, and drained thoroughly."

THE PARSLEY-LEAVED BRAMBLE.

At page 391 of the Journal for October 26th, 1882, you inserted a note from me on the above-named valuable autumn fruit as grown at Oakbrook, Sheffield, which note elicited inquiries from a number of correspondents in different parts of the country as to the origin of this variety and where it could be procured, as it appears to be not generally grown in the nurseries.

It seems to be commonly supposed that it is one of the numerous varieties of American Blackberries, a list of which may be found in most fruit catalogues, and a somewhat sweeping condemnation of which was given by Mr. J. Muir at page 5 of your issue for July 5th. I am told by Mr. Sibray of the Handsworth Nurseries that it first originated as a chance seedling (deposited most probably by the birds) in their nursery grounds many years ago. He believes it to be a seedling from an American cut-leaved variety, which they cultivated at that time, named *laciniatus*. He says that when it was first noticed they were so much struck by the distinctive character of its foliage, &c., it was decided to grow it and test its fruiting

capacities, which proved to be so exceptionally good that its propagation was at once commenced. They do not, however, appear to have done much towards making the merits of this truly valuable fruit generally known, and I believe that it is still very little grown except locally. I am strongly of opinion that it is one of the most valuable of hardy fruits, and ought to be cultivated in every fruit garden.

My notes in October last as to the quantity of fruit we had then gathered were not in any way exaggerated, and we continued to gather fine fruit for several weeks afterwards. At the present time our stock is growing very vigorously, and promises even better results than last season. The clusters of fruit produced on our canes are certainly much finer and the fruit larger than the engraving of Kittatinny shown on page 519 of last volume. I have been measuring the fruiting spurs or racemes, which are now just expanding their first blooms, and find they average 2 feet in length from their junction with the cane. There is also an average of fifty bloom buds to each spur, and forty spurs to each cane, which are about 12 feet in length. As we grow an average of four canes to each root or stool, we have a total average of 8000 bloom buds from each root, and nearly every bloom may be relied upon to produce a fruit fully as large as the largest and best Raspberries; and coming in as they do after Raspberries and all other bush fruits are over they are highly esteemed.

We grow a single row of them on a south border 22 yards long. The roots are planted 5 feet apart in the row, and the canes are trained more or less horizontally over a row of wood stakes, which are 9 feet high and 2 feet 6 inches apart. They require an open sunny position to ripen the fruit properly, coming in as it does in the comparatively dark damp days of October. Our system of cultivating them is very simple, and consists in cutting clear away at pruning time most of the old canes which have borne fruit, to make room for the young canes made during the previous summer. If sufficient young canes have not been made to fill the space, some of the best of the old ones are left and have their fruiting laterals pruned off close to the cane. They are then again all trained to the stakes, and have a liberal dressing of decayed manure given to their roots.

During the summer they require very little attention, as the young canes are left to grow pretty much as they will till the regular autumn pruning and tying. I feel sure your correspondent Mr. J. Muir cannot have seen this variety of Bramble, and that if he did see it fruiting as it does with us in September and October he would gladly alter his opinions concerning Brambles, at least in so far as regards the Parsley-leaved variety.

I would also wish to strongly advise "J. E. D., Devon," to give it a trial on his deep rich soil, and if it proves as satisfactory with him as it has done here (and I have little doubt but that it would do), providing it receives the little attention it requires as to pruning, training, &c., he would not afterwards feel suspicious of tall talk in the matter of praise bestowed upon it.

In October, 1879, Prince Leopold was staying at Oakbrook for a day or two on the occasion of his visiting Sheffield for the purpose of opening Firth College. The Bramble was then (Oct. 22nd) in fine condition, and received very high praise from His Royal Highness both for its qualities as a choice dessert fruit upon the table and for its free-fruiting character. Messrs. Fisher, Son & Sibray tell me they afterwards had the honour of supplying his gardener with a stock of plants.—W. K. W.

BIRD SCARERS.

MANY devices have from time to time been invented to scare birds, which from being stationary and having a similarity of sound are, after the birds become accustomed to the form and sound of the intended scarer, of little practical value. Even live scarers, unless capable of inflicting injury on the depredators, are treated with indifference. A pinioned hawk attracts more than it drives away; the birds join in chorus in tormenting their powerless adversary. A chained cat is of no use. We have some half dozen, their domicile in the centre of the garden, having the freedom to go in and out as they like and where they like, but are mostly, at least in the daytime, at home. We have no mice, no rats, and birds are exceedingly wary, except sparrows, which seem to be as thoroughly domesticated as the cats.

It is as a scarer that I wish to mention the cat. When at the Rev. H. L. Ewen's, the Rectory, Offord D'Arcy, Huntingdon, some time ago, I was struck with the novelty of both cats and kittens being employed as bird scarers, not by tethering, as is sometimes done, with string or chain to a particular place, but by a sort of continuous running line. In this particular instance the cats, adults or kittens—the one as far as I could see being as good as the other—were employed to protect Strawberries from thrushes and blackbirds. The Strawberry

beds were 4 to 6 feet wide, with an alley between. At each end of the alleys a peg was driven into the ground, and between these pegs galvanised wire, I think No. 10, was stretched about an inch from the ground, though it rested on the ground in some places. Before securing the wire to the pegs a piece of small chain about 12 inches long was secured to the wire by passing the wire through a ring at one end of the chain, and at the other end of the chain was a swivel ring, such as is used for dog chains, only both the chain and rings were smaller. The cats were secured to the chain by small collars, and the cats could run the whole length of the Strawberry beds without let or hindrance, and that they answered completely their purpose was evident by the fine fruit, principally President, being unmolested. It is necessary to state that at each end of the "run" a drain tile (about 9 inches diameter) was laid on its side in the line of the run, and slightly sloping to it, and the end furthest from the run in both cases was closed with a board, whilst those next the run were left open, thereby forming a good shelter for the cats in inclement weather. Saucers replete with milk and other evidences of food being supplied, rendered the arrangement complete.—G. ABBEY.

DISHONEST ROSE-SHOWING AT SHEFFIELD.

As you have alluded to this case, which was *sub judice* when your reporter left, I should like to give the details, for a more barefaced attempt at fraud was never made. Attention was first attracted by the



Fig. 15.—*Rosa sericea* (Lindley. Hort. Kew). (See page 69.)

remarkable character of the blooms, which were said to have been grown within six miles of Sheffield, and also by the fact that the labels on these and on another stand which came from a town famous for its Rose-growing were in the same hand-writing, and the same errors were observable in each. It was mentioned to me, and I was requested as Secretary of the National Rose Society to take action in the matter. My reply was that I could not act on "suspicion," and that a charge must be made and evidence adduced. This was done, and one of the offenders came into the Rose tent, where our President Canon Hole, Mr. Whitwell, and others were. In an evil hour for himself the man offered to show anyone his garden. This was just what we wanted. A gentleman present who was desirous of unearthing the whole matter offered to pay the cab hire; a competent person agreeable to both parties was selected; I directed the box to be taken out of the Exhibition and carried off to compare with the trees from which the blooms were said to be cut. In an hour's time they returned. The culprit walked coolly into the tent and said as calmly as possible, "They were not my own growing; two or three of us thought we could manage it!"—a piece of cool effrontery I certainly never saw equalled. He received a suitable lecture from our President, but I think some of those whom he had befooled to go four miles were much more inclined to apply stronger measures. I need not say the boxes were disqualified, and a card was put on each "Disqualified for dishonest showing;" while the person who supplied the blooms, and who had got a prize in another class, was informed his prize money would be withheld. As these prompt measures were adopted I do not think it well to give the names; but assuredly these persons will never be allowed to exhibit at any future exhibition of the National Rose Society. The decision gave general satisfaction, as the parties had been long suspected; and it was fortunate that this occurred at an

exhibition of a society which was independent of all local influences, and shows the valuable influence exercised by the National Rose Society.—D., Deal.

DARLINGTON ROSE SHOW.

WHEN some time ago I drew attention to the liberal schedule offered by this newly-formed Society, I ventured to prophesy that it would be sure to attract a goodly number of exhibitors, and that its promoter, my excellent friend Mr. Whitwell, might look forward to a good show, although the date fixed, July 18th, was somewhat late for the southern amateurs. I say amateurs, because they are mostly dependent on cutbacks, while the nurserymen with their large quantities of maiden plants are just as able, in fact better able, to show at the later as well as the earlier dates. My prophecy was amply fulfilled, and an extensive and excellent display of Roses was the result of the exertions that had been made; in fact, I think the Exhibition was quite equal to that held at Darlington last year by the National Rose Society.

The Exhibition was held in the same place, Southend Park, close to the town of Darlington, and in a larger and better tent than that used last year. The park had been kindly placed at the disposal of the Society by the Misses Pease, and was most suitable for the purpose. Of course, in such an Exhibition everything depends on the weather. A Rose show in a tent pitched on grass is a dreary thing in wet weather, and happily, although the weather had been very threatening and showery during the few previous days, yet it held up wonderfully until the evening, when a heavy shower fell. There was one circumstance that militated against the attendance, and that was the Royal Agricultural Society's Meeting at York, and on this day the ever-popular Prince of Wales was to lay the foundation stone of a new institute. This attracted a large number of the country gentry who had been attracted there, while there were excursion trains from all directions. This prevented the same amount of success as last year, still upwards of £150 was taken at the gates—a very notable result when compared with some other exhibitions which have been lately held. I have been at a good many Rose shows, but I may, without hesitation, say that a better managed one I never assisted at. Mr. Whitwell took the entire arrangement upon himself; he was not hampered with a committee, and having an excellent staff of clerks at his disposal, all ran as smoothly as possible. Mr. Byers, the Assistant Secretary, had everything arranged in excellent order. The boxes were placed in the position in which they remained until the close of the Exhibition, the classes commenced at one end of the tent and went round in consecutive order to the other end, a numerous staff of Judges assisted, and at the appointed hour the public were admitted, the most difficult class to judge, the seventy-two, being the only one over which the Judges had to linger so long as not to be quite ready when the hour for admission came. The innovation introduced at Sheffield of appointing lady judges was again carried out, and Mrs. Whitwell ably discharged her duty—the critical eye and practised judgment, which so materially help in her home flowers, were invaluable in deciding on the merits of others, and in no case did I hear any complaint of the judgment.

In going over the principal awards I proceed, as in duty bound, to the amateurs first; and here, as might be supposed, Mr. Whitwell, being at home and being able to cut his flowers in the morning, exhibited in magnificent style. I question if his box of thirty-six has been equalled this year, and, as far as my judgment goes, was much in advance of that which won the challenge cup at South Kensington. I have mentioned a bloom of Marie Baumann at New Brighton which seemed to me the best I had seen this year, but it was eclipsed by one shown to-day by Mr. Whitwell in this stand—equalling that in colour and form, but excelling it much in size. He had besides in this stand La France, Etienne Levet, Thomas Mills, Marguerite de St. Amand, François Michelin, a grand bloom; Alfred Colomb, Baron Hausmann, Madame George Schwartz, two excellent blooms of varieties not often seen now; Dupuy Jamain, Capitaine Christy, a splendid bloom; Camille Bernardin, Madame Gabriel Luizet, Louis Van Houtte, Duchesse de Morny, Ernest Prince, Comtesse de Serenye, A. K. Williams, very fine; Sultan of Zanzibar, a grand highly coloured flower; Charles Lefebvre, Duc de Rohan, very good; Marquise de Castellane, Senateur Vaisse, Annie Wood, splendid (I know no one who shows this variety as Mr. Whitwell does); Duke of Wellington, Le Havre, Mons. E. Y. Teas, Emilie Hausberg, very good; Madame Victor Verdier, Paul Neyron, a moderately sized bloom and very good—not at all the monster that he usually is; Madame Charles Wood, and John Stuart Mill. Mr. T. B. Hall of Rock Ferry was a good second; but he was handicapped, as the expression is, by the fact of his having had to cut his flowers the day before and bring them a long and tedious journey by rail. The third stand was disqualified for having no less than five Marie Baumans in it. In the class for eighteen Mr. Whitwell was again first with Marguerite de St. Amand, Duke of Wellington, Duc de Rohan, Baronne de Rothschild, Thomas Mills, Alfred Colomb, Dupuy Jamain, Madame Victor Verdier, Capitaine Christy, Annie Wood, Eugène Verdier, François Michelin, Etienne Levet, Marie Baumann, La France, Madame Hippolyte Jamain, a splendid flower; and Charles Lefebvre. Mr. Hall was again second, and Mr. Hanlin third. In the class for twenty-four Mr. J. Burrell of Heighington, Darlington, was first with an excellent stand of Devienne Lamy, Louis Van Houtte, Madame Gabriel Luizet, Le Havre, Duchesse de Vallombrosa, Jean Liabaud, Etienne Levet, Beauty of Waltham, Comtesse de Serenye, Duchess of Bedford, Marguerite de St. Amand, A. K. Williams, Marquise de Castellane, Madame Victor Verdier, May Quennell (coarse), Marie Baumann, Comtesse d'Oxford, La France, Marie Baumann, Madame Hippolyte Jamain, Duke of Wellington, Eugène Verdier, Horace Vernet, and Countess of Rosebery. The Rev. J. H. Pemberton was second, and the Rev. J. Garnet, Christleton Rectory, third. In the class for twelve Teas or Noisettes Mr. C. Davies, The Grammar Schools, Aynhoe, was first with Souvenir d'un Ami, Souvenir de Paul Neyron, Madame Lambard, Alba Rosea, Anna Ollivier, Souvenir de Madame Pernet, Maréchal Niel, President, and Marie Van Houtte. Mr. Hall was second, Mr. Pemberton third, Mr. Whitwell fourth, and Mr. Mawley extra. The chief local prizes were won by Mr. McLachlan, and Mr. A. Pease, M.P.

In the open classes the prize for twelve single trusses of any dark Hybrid Perpetual was won by Mr. G. Prince, Oxford, with a splendid box of A. K. Williams; Messrs. Paul & Son were second with fresh but small blooms of

Duke of Teck; and Messrs. Cranston third with Duke of Edinburgh. In the class for any twelve light Roses Messrs. Cranston were first with Baronne de Rothschild, Mr. Cant second with the same, and Mr. Prince third with Capitaine Christy. In the class for twelve blooms of any Tea or Noisette Mr. Prince was first with Perle des Jardins, Mr. C. Davies second with Marie Van Houtte, and Mr. Cant third with Souvenir d'un Ami. The National Society's silver medal for the best box in the amateurs' class went to Mr. Whitwell, and in the nurserymen's class to Messrs. Paul & Son. Had there been a medal for the best Rose in the Show it would unquestionably have been given to Mr. Whitwell for his grand bloom of Marie Baumann.

In the nurserymen's class the first prize in seventy-two was taken by Messrs. Cranston, the second by Messrs. Paul & Son, and the third by Mr. Cant, Colchester. In the class for twenty-four trebles Messrs. Paul & Son were first, Messrs. Cranston second, Mr. Cant third. In the class for thirty-six singles Mr. B. R. Cant was first with Mdle. Eugénie Verdier, Beauty of Waltham, Duchesse de Morny, Xavier Olibo, Général Jacqueminot, Marie Baumann, Mdle. Marie Verdier, Abel Carrière, Marguerite de St. Amand, Maurice Bernardin, Elie Morel, Madame Charles Wood, Comtesse de Serenye, Prince Arthur, Baronne de Rothschild, François Michelin, Etienne Levet, Fisher Holmes, Horace Vernet, Mons. Alfred Dumesnil, Duke of Wellington, Capitaine Christy, Duke of Teck, John Hopper, Princess Beatrice, Niphotos, A. K. Williams, Alfred Colomb, Countess of Rosebery, Reynolds Hole, Marie Finger, Star of Waltham, Victor Verdier, Charles Lefebvre, Madame Hippolyte Jamain, and Duke of Edinburgh. In the class for eighteen trebles Mr. J. House of Peterborough was first with Baronne de Rothschild, Alfred Colomb, Marquise de Castellane, A. K. Williams, Helene Paul, Mons. E. Y. Teas, Marie Baumann, Victor Verdier, Sénateur Vaisse, Madame Eugénie Verdier, Dr. Andry, Mdle. Marie Verdier, Elie Morel, Sir Garnet Wolseley, Etienne Levet, Dupuy Jamain, La France, J. S. Mill. In the class for twenty-six Teas and Noisettes, not less than eighteen varieties, Mr. G. Prince was first with a beautiful stand of Catherine Mermet, Alba Rosea, Maréchal Niel, Innocente Pirola, Jean Ducher, Souvenir de Paul Neyron, Souvenir de Madame Pernet, Souvenir d'Elise Vardon, Perle des Jardins, Comtesse Riza du Parc, Madame Van Houtte, Madame Hippolyte Jamain (Tea), Comtesse Nadaillac, Souvenir d'un Ami, Niphotos, Adam, Mdle. M. Amand, Anna Ollivier, Madame Lambard, Amazon, Marie Guillot, and Mons. Furtado. In the class for thirty-six varieties Messrs. Hawkins & Son were first; Mr. May, Bedale, second; and Mr. J. House, third. It will thus be seen that the main prizes amongst amateurs were won by northern growers, while the southern nurserymen carried off the chief prizes in their class; indeed the northern and midland men were generally conspicuous by their absence. Messrs. Mack & Son did not put in an appearance, and neither did Mr. Frettingham or Mr. Merryweather, and I think one can only say, More's the pity. It was believed that the time fixed would especially suit them, but I suppose it did not. Notwithstanding, a brilliant and highly successful Show was the result of all the care and thought bestowed on it by its promoters—I hope the first of a long series of successful exhibitions.—D., *Deal*.

MELONS UNDER CUCUMBER TREATMENT.

For several reasons I have been much interested in Mr. Stephen Castle's narration of his failure to grow Cucumbers under the "express" system, and beg to thank him for manfully publishing his failure. With me a great failure is always a great lesson, and have no doubt Mr. Castle considers himself amply repaid for the loss sustained in the valuable experience gained. He commenced the experiment during a very trying season, the change from dull cold weather to sudden excessively hot and bright weather being too much for those plants and growers unprepared for it. How did the "express" system work, or how is it working at Prescott this season? Perhaps Mr. Bardney will kindly oblige us with information on the subject, and we shall then be better prepared to form an opinion upon the soundness of the non-ventilation theory generally.

I must also confess to a partial failure with Cucumbers and Melons, the crops at one time in each instance being at one time lighter than anticipated. Both are similarly treated with regard to soil, training, moisture, and ventilation; in fact, since we have fully mastered the system which I have previously described as being long adopted at Longleat, I find that Melons are as easily grown as Cucumbers. By way of excuse for the partial failure I may state that, owing to alterations having to be made early in the year, the ordinary work has been thrown much later than usual, and among other things we were unable to give the Melons and Cucumbers the first shift they really required when the first crop had commenced to rapidly swell off. It may be remembered that the Melons are grown in raised pits formed with loose bricks, and in order to maintain the vigour of the plant one or more shifts as well as top-dressings are given to each. Some of ours did not get this shift when needed, and as a consequence of this and not having any manure to root into as used to be the case, and in spite of receiving two good waterings per day, the plants flagged twice, and the foliage was slightly burnt during the few hot days experienced late in May. This check deformed many of the embryo Cucumbers and caused the Melons to be much smaller than would otherwise have been the case. If we had slightly shaded during the hottest part of the day the check would have been less apparent, but considering the root run, the plants were large, and the foliage quickly evaporated all the available moisture, and burning naturally resulted.

In another earlier house the plants had received the proper attention in the shape of a shift and top-dressings, and here we had and still have famous crops. One plant of an excellent variety raised by

Mr. Austin of Ashton Court ripened seven large fruits, has four more ripening, and six more now of the size of Lemons. Another plant of Carters' Emerald has five large nearly ripe fruits averaging 5 lbs. each, two still larger later fruits, two others three parts grown, and a late crop reduced to six in number. By this it will be seen, if the plants are strongly grown, allowed to extend, and receive liberal treatment at the roots, Melons will set of themselves and swell off in a manner similar to Cucumbers; and what is more to the point, seeing that the foliage and growth is always vigorous, the fruit when ripe must be of the best quality. Farmyard liquid manure in preference to dressings with fertilisers is given twice a week, and in common with the Cucumbers the Melons are only lightly though frequently top-dressed with rough turfy loam. Into this they quickly root—in fact the surface of the heaps are frequently matted with fibres. With plants in this state and kept well supplied with moisture, burning, provided a small amount of air is given during the brightest weather, is out of the question. But if either badly rooted, rooted deeply into cold rich manure, or allowed to get dust dry at the roots, then flagging and perhaps burning are certain to result. We have studied Mr. Taylor's air-giving theory, and readily admit that not only in the case of Vines, but also with Melons, Cucumbers, and plants generally, that a little air given early is much safer and better than a larger quantity given when the atmosphere has nearly reached a scalding point.

Although we have on the whole every reason to be satisfied with the progress we have made with Melons this season, we are yet surpassed by an amateur and his gardener living in Frome. This gentleman devotes the central pit of his plant stove to Melons, and with these on the trellis overhead Stephanotis trained across the glass end of the house, Bougainvillea glabra in two corners, Tomatoes on the roof on one side, and Cucumbers on the other, all growing in pots or boxes, the two former flowering splendidly, and the two latter fruiting abundantly, besides a number of Caladiums, Ferns, Coleuses, and other plants, he has one of the prettiest and most profitable houses imaginable. The Melons, four in number, or one in each corner of the pit, are grown Cucumber fashion, and very fine they are. The variety is the Eastnor Castle, as grown by Mr. Taylor, and some of the fruits are now near the size of footballs. Our heaviest fruit of Eastnor Castle weighed 5 lbs. These, by comparison, will weigh at least 8 lbs., and, what is more, are certain to be of fine quality, as nothing but loam is given to the roots. Here again the fruit are of different ages, and a good succession will be secured from these four plants. I wonder how many professional gardeners will supply their employers with such a valuable lot of Melons as will be grown in this ordinary plant stove.—W. IGGULDEN.

THE AUSTRALIAN GUM TREES.

RIVAL vegetable giants, though in widely separated portions of the globe, are the Wellingtonias of North America and the Eucalypti of Australia, for both tower far above their neighbours, reaching and even exceeding 400 feet in height, constituting a phase of vegetable growth of which those who are familiar only with the comparatively modest altitude attained by European trees can form little idea. Wellingtonias it is true are in some localities in England fast advancing, and may probably in future years reach a height of 100 feet or more, but we cannot expect to see Eucalypti in anything like their true proportions in this latitude, as unfortunately the hardiest yet tried out of doors occasionally succumb in severe winters.

In favourable counties such as Devonshire and Cornwall Eucalypti have a chance of making more vigorous growth not so likely to be checked or injured by very low temperatures. This seems to be particularly the case in the gardens at Powderham Castle, Kenton, Devonshire, where there is an exceedingly fine specimen, probably the largest and most handsome in cultivation. It is 60 feet high, and has a trunk 9 feet in circumference; this fine specimen has lately flowered, and from sprays kindly forwarded by Mr. D. C. Powell, the gardener, the accompanying woodcut has been prepared. The chief beauty of the flowers resides in the stamens, which are very numerous, white and crowded densely, forming pretty little tufts; the flowers, too, are associated in dense clusters, and have a pleasing effect. Like other species, the corolla is combined with the woody calyx, the upper portion of which falls off, carrying the corolla with it, so that, as with the Mimosas and Acacias, the stamens are by far the most conspicuous portion of the flower. In reference to this plant, Mr. R. A. Rolfe, Kew Herbarium, writes:—"It is the true Eucalyptus coccifera, *Hook. f.*, from the mountains of Tasmania, where it grows at the summit at an elevation of 3-4000 feet. This specimen is probably from the identical tree from which the figure in the "Botanical

Magazine" was prepared (tab. 4637), as, though the source does not appear in the description under that figure, I find on reference to the Herbarium that it was from a specimen which flowered at Powderham Castle, near Exeter." The species does not seem to be well known in cultivation, for it is rare that even small plants are seen, which is the more regrettable, as it is one of the most ornamental.

In the temperate house at Kew several large specimen Eucalyptus

Though *E. globulus* is commonly used in a small state for subtropical bedding in the parks, it cannot be safely left unprotected except in very warm or sheltered localities, as it is almost invariably injured even by moderate frosts. A specimen of *E. Gunni*, another very ornamental species, has, however, been out of doors on a mound near one of the museums at Kew for a number of years, and although it has been occasionally injured it has apparently recovered, and has



Fig. 16.—EUCALYPTUS COCCIFERA.

are grown, such as *E. corynocalyx*, *E. globulus*, *E. citriodora*, *E. amygdalina*, *E. eudesmioides*, and *E. cordata*, which range from 20 to 30 feet high, and some of them have been repeatedly cut down. *E. globulus* especially advances very rapidly under glass, trees there having made a growth of 16 feet in one year after being cut down. It is the rapid growth and the antiseptic or anti-malarial properties possessed by this and other species which have rendered them so useful for planting in unhealthy districts in India and elsewhere.

now three or four large stems in good health. This was long known as *E. polyanthemos*, but has now been definitely referred to the above species, the small rounded glaucous leaves being very distinct from most of the others. Much confusion exists in the names of the Eucalypti, and seeds of many apparently different forms are sent to England under the same name, and *vice versâ*, giving rise to many errors that cannot be corrected until the plants flower. This some seldom do until of considerable size, though such

species as *E. globulus* flower more frequently; the latter, indeed, occasionally perfects its seeds, and at Kew young plants have been raised from the home-grown seeds.

E. cudesmioides, incidentally mentioned above, is represented at Kew by a specimen believed to be nearly thirty years old, and has quite a substantial trunk. It is a very distinct form, with long narrow leaves on drooping branches, and the bark peels off in large flakes somewhat like the common Plane. *E. cordatus* is another species worth a note, for plants of moderate size are very attractive, the leaves being small, heart-shaped, and very glaucous. *E. Risdoni* is one of the most distinct of all, the leaves being perfoliate and surprisingly suggestive of *Lonicera scmpervirens*. *E. citriodora* has rough tapering leaves, not remarkable in form, but possessing a powerful fragrance resembling the well-known *Aloysia citriodora*. *E. amygdalina* is known to the colonists as the Peppermint Tree, *E. Gunni* as the Cider Tree, from a liquid which exudes from the bark when injured in spring, and several others have similarly distinctive names, derived from some property possessed by the trees.

LEEK ROSE SHOW.

If, as we are told, the sight of a brave man struggling with adversity is a sight for the gods, then surely a society which amidst many adverse influences still maintains its position, and is determined to do and conquer, is deserving of all praise; and such has been the case with Leek. I have now been there for several years, and I have never been there but before the Show and on the Show day it has been wet; and as the Rose exhibitors there are amateurs who do not grow on a very large scale, it may be imagined that it is fighting under very adverse circumstances to carry on their Show. Yet they "have not despaired of the republic," and so from year to year, hoping for better times, have continued their operations. The present year has been no exception to the rule. Heavy rain fell on the night before, and cold showers were prevalent on the morning of the day; still, withal that, a larger and better class of exhibits was shown on this occasion than on any previous one at which I have been present. Some alterations were made this year—the open classes had been done away with, as they involved considerable expense, and, indeed, only one exhibitor (Messrs. Jas. Dickson & Co. of Chester) used to show in the class, so that it was deemed advisable to do away with it and give more prizes in the other departments of the Show. The Exhibition was held, as usual, in the West Street School-room, in some respects well adapted to the purpose, although the approach to it is not very good and difficult for those who bring large plants to the Exhibition. These plants, mainly of stove and greenhouse plants, Ferns, and Fuchsias, were placed about the room, and were filled by the productions of Mr. Glover, Mr. Crusoe, &c. In the class for fifteen stove and greenhouse plants Mr. E. Cliff Glover (gardener, Mr. Roberts) contributed a fine collection, consisting of *Allamanda cathartica*, *Croton Weismannii*, *Aphelaxis macrantha*, *Vinca alba*, *Kentia australis*, *Anthurium Schertzerianum*, *Rhynchospermum jasmynoides*, *Croton pictus*, *Latania rubra*, *Acalypha macrophylla*, *Lapageria alba*, *Erica ventricosa eximia*, and *Dieffenbachia Bausei*. From the same gardens come six very fine Ferns, including excellent examples of *Todea superba*, *Alsophila australis*, and *Platynerium alciorne*.

In Roses Mr. S. Eye was, as usual, foremost in the class for twenty-four. His box contained fine blooms of Marie Baumann, E. Y. Teas, François Michelin, La France, Jean Cherpin, Royal Standard, a very good bloom; Le Havre, Camille de Rohan, Alfred Colomb, &c. In the class for eighteen Mr. Arthur Johnson was first with La France, Mons. Boncenne, Sophie Fropot, La Rosière, Charles Lefebvre, Marquise de Mortemart, &c. In Class 3, for twelve varieties, Mr. Roberts was first with Mdlle. Eugénie Verdier, Marquise de Castellane, Général Jacqueminot, Fisher Holmes, Gabriel Luizet, Duke of Wellington, Dr. Andry, Madame Berard, &c. In the class for six Mr. James Gilmore was first with La France, Madame Victor Verdier, Elie Morel, Dupuy Jamain, and Marquise de Castellane. In the class for six light Roses Mr. Roberts was first with Eugénie Verdier, Marquise de Castellane, Peach Blossom, La France, Egeria, and Duchesse de Vallombrosa. In the class for six dark Mr. Gilmore was first with Mons. E. Y. Teas, Dr. Andry, Louis Van Houtte, Mons. Boncenne, Charles Lefebvre, and Dr. André. In the class for six of one colour Mr. A. Johnson was first with fine blooms of La France, and Mr. Kemp second with good blooms of Marie Baumann. The bronze medal of the National Rose Society was awarded for the best bloom in the Show to Mr. Kemp for a fine bloom of La France. There were also some Pansies, a few bouquets, and a very pretty dinner-table stand contributed by Mrs. Johnson not for competition.

Situated as Leeks amongst the Staffordshire hills, and attracting a considerable amount of rain, the Society has had to fight its way against many obstacles; but if the Rose-growers of Leek will go on with the courage they have done, I look forward to seeing a prosperous Society and a good exhibition. They have made experiments, are not above taking hints, and so deserve, even if they do not achieve, success.—D., Deal.

THE GREENHOUSE AND ITS INMATES.

(Continued from page 35.)

DEUTZIA GRACILIS.

DEUTZIA GRACILIS is a very sweet hardy plant, well worth growing in the greenhouse. After flowering is past all the old shoots should be cut out and the strong young growths from the base encouraged. Potting should be done after flowering, but comparatively small pots will be sufficient to grow very fine plants in if liquid manure be given

occasionally. We have had plants for six years in 6-inch pots which annually made shoots 2 feet long and flowered most profusely. Loam and leaf soil or decayed manure suits them. To obtain an abundance of flowers the plants should be grown all summer, or at least until the shoots are ripe, under glass—in a frame, a vinery, the greenhouse, or anywhere else where the temperature is a little higher than an ordinary summer temperature out of doors. This will insure a fine display. By August the plants should be put out to rest until January, when they may be brought into the house.

DIELYTRA SPECTABILIS

This is another very fine hardy plant suitable for making a display in early spring with very little trouble. All that is wanted is to lift the roots any time after October and pot them and place them in any kind of glass house, hot or cool, and in due time beautiful specimens will be produced covered with flowers. In spring the plants should be planted out again. Should an increase of stock be wanted a plant should be lifted (not a forced one) just as the young buds are pushing, and each bud detached with a piece of root and planted out in rich soil. In one year these plants will be fit for potting and forcing.

EPACRIS.

Epacris are very ornamental Heath-like plants which deserve to be more commonly grown than they are. Some people consider them to be difficult of cultivation, but such is not really the case. Some particulars must be carefully attended to, however, if success is to be insured. For soil good fibry peat must be provided, and sharp silver sand mixed with it to keep it open. Efficient drainage, efficient watering, and firm potting are also necessary. When once plants which are firmly potted in peat become dry ordinary waterings are not sufficient to moisten the soil thoroughly. They must be watered again and again until the water pours from the hole in the bottom of the pot. Indeed if the dryness is allowed to go too far there is nothing for it but steeping the pot in the cistern until the air balls, which are displaced by the water, cease bubbling up. After the ball is thoroughly soaked no more water should be applied until necessary, when a thorough supply should be given. This is one of the secrets in successful Epacris-growing. Another, as we have said, is firm potting. Another consists in growing them in an airy greenhouse, where as little fire heat as possible is used, and where a constant circulation of air is kept up on all favourable occasions.

After the flowers have faded the young growth should be cut back. Erect kinds should be cut close back to the old wood, and drooping kinds scarcely so far back. After they are cut back they should be kept rather close until they begin to grow again, when, if necessary, they should be potted into larger pots. After they have fairly recovered from cutting back and potting they should be plunged in ashes out of doors for the summer. By the end of September they should again be housed. They are rather difficult to raise with ordinary appliances, and raising plants from cuttings is hardly worth an amateur's trouble, for young flowering plants may be purchased very cheaply.

The amateur should purchase his plants when in bloom so as to suit his taste, or a respectable nurseryman will generally advise him as to the best kinds to buy: we, however, name a dozen good varieties. *E. Butterfly*, *E. campanulata* and *campanulata alba*, *E. Fireball*, *E. hyacinthiflora fulgens*, *E. Ingramii*, *E. impressa*, *E. Lady Panmure*, *E. Lowii*, *E. miniata splendens*, *E. odorata alba*, *E. Sunset*, *E. Vesta*.

ERICAS.

Almost all that we have said in regard to Epacris applies to Heaths, except pruning. Most Heaths require very little pruning, and some do not require it at all. Such free-growing popular kinds as *E. hyemalis* should, however, be treated exactly as advised for Epacris.

Sometimes mildew appears on these plants. This is caused by a too damp and stagnant atmosphere. The cure is dusting with flowers of sulphur and a circulation of dry air. At the same time too much fire heat must not be given. A winter temperature of from 40° to 45° is quite sufficient for these plants, and it is better to be below these figures in very hard weather than to employ fire excessively. If scale appear it should be removed with a pointed stick, but they are by no means subject to insects of any kind.

Potting should be done after growth has commenced, and must be done firmly. Our remarks on Epacris as to soil, watering, and standing out apply here, so they need not be repeated. The following dozen are good, but we may add that the varieties are very numerous, and no more attractive feature of a garden can exist than a house of well-grown Heaths. *Erica Aitoni Turnbulli*, *E. Archeriana*, *E. aristata Barnesi*, *E. Austiniana*, *E. bruniades*, *E. Cavendishiana*, *E. grandiflora*, *E. hyemalis* (very valuable for ordinary decoration), *E. McNabiana* and *rosea*, *E. Shannoniana*, *E. tricolor Turnbulli*. In making the above selection we felt at a great loss what to select, for many of the very best kinds are not included. Some, such as *E. Massoni*, are very subject to attacks of mildew, which soon ruin them, and others are weakly growers.

ERIOSTEMON.

This is a genus of neat, graceful, hardwooded plants which require to be treated very much like Heaths. The same soil and temperature which suit Heaths will suit them. They are all spring-flowering plants, and should be cut pretty well back after flowering if they are to be kept within bounds. If large plants for exhibition are wanted cutting-back should not be practised, but they do not make very effective exhibition plants, although in a small state they are very sweet and furnish very elegant sprays for glasses and other purposes. Instead of plunging these

plants out of doors, as advised for Heaths it is better to keep them in a frame, as they are rather tender. Nevertheless, an ordinary greenhouse temperature is quite sufficient for them. The sorts usually grown are *E. buxifolius*, *E. cuspidatus*, *E. linearifolius*, *E. myoporoides*, *E. neriiifolius*, *E. pulchellus*, *E. scaber*.

ERYTHRINAS.

Erythrinæ are very handsome easily grown plants, and we strongly recommend them to those whose accommodation for growing plants is limited, because they may be kept all winter in any kind of place where frost does not penetrate, and after they are started in spring may be wholly grown outside, and only removed to the greenhouse as they come into flower. They are remarkably handsome flowering plants, and their wants are few. A mixture of loam and leaf soil, with a good dash of sand and a few pieces of charcoal, suits them admirably for soil. An annual potting just as they start will be sufficient for ordinarily large plants, and an annual pruning—which consists in cutting off all the summer's growth down to the mouth of the pot—coupled with such summer's and winter's treatment as we have hinted at will insure success. We advise a little heat for starting them in, though, because they start more regularly than if left outside. If started in a warm temperature we advise careful hardening-off and placing outside early in June; their removal inside when the first flowers show themselves. After they are cut down they should be kept rather dryish and away from frost. *E. Crista-galli* is the best known, and a fine plant it is. It is hardy in the warmer districts of England and Ireland, but must rank as an easily grown greenhouse plant in the less favoured districts of these islands. In addition to *E. Crista-galli* we have a form named *E. ruberrima*, quite as good, only dwarfer than *crista-galli*.—A. H.

ROYAL HORTICULTURAL SOCIETY.

JULY 24TH.

A COMBINATION of attractions was provided at Kensington on Tuesday, the long tent being well filled with the numerous exhibits. In addition to several new plants, fruits, and vegetables submitted to the Committees, there was a magnificent display of Tuberous Begonias, probably the finest that has ever been seen at a show, both in quantity and quality, Messrs. J. Laing & Co. having a superb collection. Ferns, Gloxinias, and the vegetables in competition for the special prizes offered were also extensively shown.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. There were present Messrs. A. W. Sutton, J. Willard, John Burnett, S. Lyon, Thomas Laxton, G. Goldsmith, R. D. Blackmore, Lewis A. Killick, Sidney Ford, Phillip Crowley, James Smith, and J. Roberts.

Mr. J. Roberts, gardener to Baroness L. de Rothschild, Gunnersbury Park, Acton, showed three superb bunches of Madresfield Court Grapes, grandly coloured, the berries large and the bunches even. Three good bunches of Foster's Seedling were also shown well ripened. A silver medal was recommended for this exhibit. Mr. J. Bowerman, Basingstoke, sent three dishes of Tomatoes, the fruits large, scarlet, even in form, and well ripened. It is said to be very prolific, and is of good flavour, a first-class certificate being awarded for it under the name of Bowerman's Prolific. Melons were shown by Messrs. J. Hughes, Eydon Hall, Byfield; S. Ford, Leominster; H. W. Ward, Salisbury; and C. Ross, Welford Park. Mr. D. Brown, Linthorpe, Middlesborough-on-Tees, was awarded a first-class certificate for a large Strawberry named Duchess of Edinburgh, raised from a cross between Sir Joseph Paxton and Oscar. The fruits were extremely large, wedge-shaped, and dark scarlet in colour. Mr. Ford showed ripe fruits of *Monstera deliciosa*, for which a letter of thanks was accorded. Mr. A. Faulkner, Hungerford, showed a large seedling Raspberry, with some preserve prepared from it. A vote of thanks was accorded, the opinion of the Committee being that it was very good for preserving. Mr. J. Hughes sent samples of a seedling kidney Potato named Earliest of All, the tubers being even in shape and of regular size. Mr. Mortimer, Purley Park, Reading, showed fruits of Purley Park Hero Cucumber, very even and good. This was highly approved for market purposes, and is to be tried at Chiswick. Mr. Laxton exhibited fruits of a new early hardy longpod Bean named John Harrison, for which a first-class certificate was awarded. The pods were of great length and the beans large. Messrs. Cannell and Sons, Swanley, sent a basket of a good curled Parsley, Beauty of the Parterre. Messrs. J. Veitch & Sons showed a very large collection of Cabbage and Cos Lettuces.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. The following were present—Messrs. J. McIntosh, H. Bennett, John Wills, John Dominy, James Hudson, J. James, H. Eckford, J. Cutbush, J. Laing, G. Duffield, Shirley Hibberd, H. Ridley, H. Turner, and H. Ebbage. Mr. Buxton, gardener to Sir Trevor Lawrence, Bart, M.P., Burford Lodge, Dorking, exhibited several handsome and curious Orchids, two large specimens of *Renanthera Lowii*, one with four and the other with six long spikes of chocolate-blotched flowers, with a few yellow ones at the base. The spikes on one of the plants exceeded 6 feet in length, and bore about thirty flowers each. This remarkable Orchid was figured in this Journal, page 109, vol. iii., the plant shown in miniature being a good representation of the Burford plants. A wonderfully strong plant of *Grammatophyllum Ellisi* with five enormous spikes of glossy brown and yellowish flowers was shown. *Dendrobium McCarthiae* was in fine condition, with about three dozen of its delicate drooping purple-tinted blooms. Handsome pitchers of *Nepenthes Mastersiana* and *N. sanguinea* were exhibited, the former holding 14 ozs. of water and the latter 17 ozs. Both were of a fine dark red hue. Cultural commendations and a gold medal were awarded for the Orchids and *Nepenthes*. Mr. Cummins, gardener to A. Smee, Esq., the Grange, Wallington, was awarded a vote of thanks for a distinct species of *Trichopilia* with a pale lemon-yellow lip. Mr. Child, The Gardens, Garbrand Hill, Ewell, was awarded a cultural commendation for a fine specimen of *Cypripedium Stonei* with five spikes of flowers.

Messrs. W. Paul & Son, Waltham Cross, exhibited two seedlings from *Gloire de Dijon*, one deep rose and the other scarlet, both extremely fragrant and pleasing. These varieties attracted much attention, as they are likely to prove very useful. Messrs. G. Bunyard & Co., Maidstone, Kent, exhibited a dozen boxes of Rose blooms, representing a great number of handsome varieties, fresh, bright, and good.

Messrs. J. Carter & Co., High Holborn, exhibited an interesting and beautiful collection of Sweet Peas, for which a vote of thanks was accorded; and a similar recognition was adjudged to Mr. H. Eckford, The Gardens, Boreatton Park, Shrewsbury, for a similar collection. Messrs. J. Veitch and Sons, Chelsea, sent a number of seedling forms of *Iris Kæmpferi* very diverse in colours and forms. Messrs. H. Cannell & Sons, Swanley, contributed a collection of double Balsams, the flowers extremely large and full, white, cream, pink, salmon, scarlet, and purple; and collections of Carnations and Picotees were also staged, representing a selection of the best varieties. A silver Banksian medal was awarded to Messrs. J. Cutbush and Sons, Highgate, for a large collection of Ivies, nearly 60 varieties being represented.

The Society offered several prizes for plants, Tuberous Begonias, Ferns, and Gloxinias, which contributed greatly to the beauty and extent of the Exhibition.

Tuberous Begonias.—A grand display of these was formed on one side of the long tent, a perfect blaze of scarlet shades being produced, slightly toned down by a judicious admixture of white, yellow, and pink varieties. Messrs. J. Laing & Co., Forest Hill, were deservedly awarded the first prize for a magnificent group, the flowers being extremely large and the plants vigorous. Many superb new varieties were included, and several of the best were certificated. A central plant of Magenta Queen in a basket elevated 3 feet above the group, was most noticeable, the richly coloured flowers being borne in great profusion and drooping round the sides of the basket. Mr. H. Coppin, Shirley, Croydon, followed with a smaller but beautiful group; a fine collection being also contributed from the Society's gardens at Chiswick. In the amateurs' class for twelve Tuberous Begonias Mr. Tong, gardener to J. S. Law, Esq., South Lodge, Southgate, was placed first with well-grown and profusely flowered plants. Mr. J. Weston, gardener to D. Martineau, Esq., Clapham Park, was third; and an extra prize was adjudged to Mr. Child for a fine collection not in competition.

Ferns.—In the open class for these Mr. J. Child was awarded the first prize for grand specimens of *Phlebodium aureum*, *Davallia Mooreana*, and *Microlepia hirta cristata*. Mr. G. Stevens, Putney, was placed third with smaller but healthy plants.

Gloxinias.—Mr. J. Child had the best twelve plants, the flowers large and richly coloured. Mr. Stevens being placed second with plants that had evidently suffered considerably in transit.

First-class certificates were awarded for the following plants:—

Coleus Ellen Terry (King).—A very distinct variety. The midrib crimson, the lateral veins white, and the body of the leaf green. The leaves are broad and neatly crenated.

Coleus Henry Irving (King).—Very handsome, ovate, tapering leaf, regularly crenated; centre dark crimson maroon, margined with yellow and green.

Spiræa palmata alba (Veitch).—A charming companion for the well-known rose-coloured type, the large plume-like cymes of flowers being pure white. A most valuable acquisition.

Odontoglossum eugenes (Stevens).—This was exhibited as a supposed natural hybrid between *O. Pescatorei* and *O. triumphans*, and the appearance of the plant seemed to justify the opinion. Sepals and petals spreading, the latter slightly broader, pale yellow, nearly white in the centre, blotched chocolate. The lip is creamy white, with an irregular band of chocolate across the centre.

Angræcum Scottianum (Baxter).—A charming little Orchid with white flowers; the sepals and petals very narrow and small; the lip heart-shaped, broad, $1\frac{1}{2}$ inch in diameter; the spur being yellowish and 4 or 5 inches long.

Ficus elastica alba variegata (R. P. Ker & Sons).—A handsome variety, the leaves broad and irregularly but broadly margined with creamy white. Very effective.

Tuberous Begonia Stanstead Surprise (Laing).—A grand scarlet variety, with enormous flowers nearly 6 inches in diameter, the petals almost 3 inches across.

Tuberous Begonia Mrs. Anson (Laing).—A magnificent variety, petals extremely broad, of a warm scarlet colour. The flowers are remarkable for their fine form and great size.

Tuberous Begonia Miss Turner (Laing).—Similar to the above in size and form, but bright clear rose in colour. Very handsome.

Tuberous Begonia Countess of Rosslyn (Laing).—Flowers very large and round; the petals broad and bright orange yellow in colour.

Clematis Jackmanni alba (C. Noble, Bagshot).—A seedling variety from Jackmanni, with white flowers. Very robust and free, a fine companion to the ordinary blue form.

Aetæa spicata fructu-rubro (Ware).—A neat bushy plant with bipinnate foliage and dense clusters of bright scarlet berries.

Calochortus macrocarpus (Ware).—A new Californian species with large mauve-purple flowers, the petals very broad, with a few yellow hairs at the base.

Lilium pardalinum Warei (Ware).—A variety with fine yellow flowers, much dwarfer than the type, and very floriferous.

SPECIAL PRIZES.

For Messrs. Sutton & Sons' prizes for six dishes of early Potatoes there were twelve collections staged, all of great merit and very close in quality. Mr. W. Ward, The Gardens, Longford Castle, Salisbury, was adjudged the first prize for clean samples of Reading Russet, Schoolmaster, International, Prizetaker, Vicar of Laleham, and Early Border. Mr. J. Hughes, gardener to Col. Cartwright, Eydon Hall, Byfield, was a close second with Wonderful Red, Earliest of All, Early Border, Prizetaker, Myatt's Prolific, and White Emperor. Mr. F. Miller, gardener to J. F. Friend, Esq., Northdown, Margate, was third. For a dish of round Potatoes Mr. W. Meeds, The Gardens, Beckett Park, Shrivvenham, was first with Henderson's Prolific, eleven dishes being shown. For one dish of kidney Potatoes Mr. H. E. Gribble, Canon Hill, Maidenhead, was first with Cosmopolitan, eight dishes being shown.

Messrs. Suttons' prizes for three early Cabbages were won by Messrs. Meads with Wheeler's Imperial; G. Summers, The Gardens, Sandbeck Park, Rotherham, with Suttons' All Heart; and J. Millen, The Gardens, Hamstead Park, Newbery, third. There were fourteen competitors.

One collection of six dishes of Tomatoes was staged by Messrs. J. Carter and Co., Holborn; Mr. K. Phillips, gardener to Dr. Baker, The Doodars, Meopham, being awarded the first prize for fine examples of Vicks' Criterion, Large Red, Green Gage, Perfection, Dedham Favourite, and Trophy.

THE HERBACEOUS PLANT BORDER.

(Continued from page 58.)

Sidalcea candida.—This has an erect spike or stem about 2½ feet high, the upper portion of the stem being clothed with pure white flowers about an inch across. It blooms very freely, continues fresh a long time, and is in every respect a first-class perennial. It is from Colorado and quite hardy. It does best in moist but well-drained loamy soil, and is in every way a desirable plant.

Eurotia Youngi.—A first-class plant, and one of the most effective of the genus. Flowers bright deep yellow, very profusely produced, attaining to a height of 24 to 30 inches. It does well in any soil, but preferably a well-drained loam, where, if it does not grow so vigorously, it is hardier.

Lycchnis chalcidonica.—This grand old plant is still one of the best border plants in cultivation. Flowers bright scarlet, borne in heads. Light soil. *L. chalcidonica flore-pleno*, the double variety of the preceding, is quite as showy, but the flowers are not so freely produced. This is one of the finest for cutting, and is more durable than the single form. *L. chalcidonica alba flore-pleno* is also a fine companion plant to the scarlet double form. They do best in light soil.

Achillea Ptarmica flore-pleno.—Fine masses of this a yard and more across are very effective, and for cutting purposes it is one of the very best in perennials. It has many erect stems 2½ to 3 feet high, forming branching terminal heads bearing a profusion of pure white flowers, very double—not only continuing a long time, but the flowering is extended over several weeks. Where cut flowers are in request (and where are they not?) it should be grown in quantity. It prefers a light or well-drained soil, but will grow almost anywhere except in shade.

Coreopsis lanccolata.—Very showy. Flowers large, bright golden-yellow, very freely produced. This is probably the finest of the perennial *Coreopsis*, and is exceedingly useful for cutting. It does well apparently in any soil in a sunny position, and grows to a height of 3 feet.

Campanula Hendersoni.—The flowers of this are very numerous, of a deep purple colour, very bright. It continues to flower through the summer. Although very vigorous in growth it does not attain to a height of more than 18 inches.

Campanula grandiflora pumila.—This is a very beautiful Bell-flower, having large blue flowers, the rigid stems being covered with them. It attains to a height of about 12 inches.

Spiraea Filipendula plena.—Though old and common there are none finer, its pretty Fern-like foliage and very numerous corymbs of white double flowers being very effective. It likes a moist soil, and attains to a height of 2 to 3 feet.

Malva moschata alba.—For freedom of flowering and continuancy through the summer this has much to recommend it, the flowers being 2 inches or more across, pure white, and very sweet. Though a perennial it is perhaps best continued by seed, treating it as a biennial. It ought to find a place in every garden, attaining to a height of 2½ to 3 feet, or even more in good soil.

Catananche bicolor.—Flowers blue and white, about 2 inches across, borne solitary, and though somewhat antique it is very effective, and a free-growing plant that ought to be given place, as its flowers are very useful for cutting. This is perhaps best treated as a biennial.

Campanula Van Houttei.—One of the largest flowers in the genus, the flowers being very fine, deep blue, borne on erect stems about 2 feet high. It is one of the most distinct of the family, and is very showy. *C. Van Houttei pallida* has lavender-coloured flowers, and is very interesting and effective.

Campanula persicifolia alba plena.—A free grower in good soil, having stems 3 feet high, the stems or spikes covered with pure white very double flowers, and will grow anywhere, except, perhaps, in very wet soil and in shade. It is useful for cutting.

Helianthus multiflorus plenus.—A very vigorous perennial Sun-flower, growing 4 feet or more high, producing deep yellow double flowers from now to autumn. It is very useful for cutting, and forms very effective masses or single specimens. Any good soil suits it.

Scotymus grandiflorus.—This has deeply divided Thistle-like

foliage. The veins being white give it a variegated appearance, and the several divisions are terminated with white rigid spines. The flowers are bright golden-yellow, Centaurea-like, borne solitary at the end of the stems. It grows about 2 feet high, and is very distinct and effective.

Polemonium Richardsoni.—The flowers of this are bright light blue, the plant growing about 15 inches high, having many stems, at the extremities of which the flowers are borne very profusely, the plant having a neat compact habit. This is the best of the *Polemoniums*.

Geum coccineum plenum.—Few plants can vie with this for the brilliancy of its flowers—bright scarlet, the flowers being more profuse than in the single variety; double, or, more correctly, semi-double, and, lasting a long time, is useful for cutting. It comes freely from seed, and is best treated as a biennial.—G. ABBEY.

NATIONAL CARNATION AND PICOTEE SOCIETY'S SOUTHERN SHOW.—JULY 24TH.

MODERATE both in extent and general quality was the Exhibition of Tuesday last at Kensington, and the sanguine expectations of some lovers of these popular flowers were by no means fully realised. Notwithstanding this, however, blooms were contributed from Great Gearies, Oxford, and Slough which amply maintained the credit of their respective growers both in substance, form, and refinement. Loose or weak examples were observable in nearly every stand; but the leading exhibits in all the chief classes were highly satisfactory, and have, perhaps, been seldom surpassed. Mr. J. Douglas was very successful, but the honours were nearly equally shared between himself, Mr. C. Turner, and Mr. E. S. Dodwell, the competition being extremely keen between these exhibitors in several cases. The premier Carnation was, after a careful examination of the blooms, selected from the single specimen pink and purple bizzars, Mr. C. Turner's first-prize bloom of Squire Penson being the one thus honoured. The premier Picotee was found in Mr. J. Douglas's first-prize stand of twelve, a very pretty, even, and refined bloom of Mrs. Gorton.

Seedlings were not very largely shown, and amongst these Mr. J. Douglas was again the most successful exhibitor. He was awarded two first prizes for T. Moore, jun., a brightly coloured crimson bizarre, very clean, and with the colours well defined, and for Squire Whitbourn, a purple flake of good substance and fine petal. He also secured a second prize for Robin Hood, a rose flake with a broad even petal, brightly and clearly coloured. In the latter class Mr. C. Turner was first with Jessica, a charming rose flake, large and of good colour.

CARNATIONS.

In Class A, for twenty-four blooms, not less than twelve varieties, Mr. E. S. Dodwell, Stanley Road, Oxford, took the lead with an even beautiful collection, several of the blooms of fine substance and form. The varieties were James Douglas, Mr. Carter, Robert Lord, Sybil, Master Fred, Henry Cannell, Sarah Payne, Samuel Brown, J. Merryweather, Delicata, John Keet, J. McIntosh, Tim Bobbin, Edward Adams, and Rifleman. Mr. C. Turner, Slough, was second with a handsome collection, including fine blooms of Rob Roy, Squire Llewellyn, Sporting Tom, John Bull, and Sarah Payne. Mr. Douglas, gardener to F. Whitbourne, Esq., Great Gearies, Ilford, was awarded an equal second prize for substantial blooms; Sybil, Sarah Payne, Admiral Curzon, John Keet, and Squire Llewellyn being very noticeable. Mr. H. Hooper, Widcomb Hill, Bath, was third; and Mr. J. Hines, 81, Bramford Road, Ipswich, was fourth.

In Class B, for twelve, Mr. Dodwell was again to the fore with neat examples of Sarah Payne, P.F., E. S. Dodwell, James Douglas, Master Fred, Robert Lord, Samuel Brown, J. McIntosh, Sybil, Admiral Curzon, Sarah Payne, P.P.B., Florence Nightingale, and Mrs. Matthews. Mr. Douglas was a close second. J. Laeken, Esq., Temple Cowley, Oxford, was third; Mr. Gibson, gardener to J. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, fourth; Mr. J. Hines fifth; and Mr. J. Buxton, 27, Manor Street, Clapham, sixth. Seven entries.

In Class C, for six Carnations, there were three competitors, Master Stanley Dodwell, St. Mary's Road, Oxford, taking the first prize, followed by M. Rowan, Esq., Manor Street, Clapham, and Mr. W. Maddick, 7, Hampton Row, Bath.

SINGLE SPECIMENS.—*Scarlet Bizzars*.—Mr. C. Turner first with Phillip Thomas, Mr. Douglas second, third, and fourth with Admiral Curzon, and Mr. E. S. Dodwell fifth with James McIntosh.

Crimson Bizzars.—Mr. C. Turner first and second with E. S. Dodwell, and fourth with Rifleman. Mr. E. S. Dodwell third with J. D. Hextall.

Pink Bizzars.—Mr. C. Turner first with Squire Penson; Mr. Douglas second and fourth with Sarah Payne; and Mr. E. S. Dodwell third with Sir Garnet Wolseley and fifth with Sarah Payne.

Purple Flakes.—Mr. Douglas first with J. Douglas, third with a seedling, and fourth with Florence Nightingale; Mr. E. S. Dodwell was second with James Douglas.

Scarlet Flakes.—Mr. C. Turner was first with Clipper; Mr. Douglas second, third, and fifth with Sportsman; Mr. E. S. Dodwell being fourth with a seedling.

Rose Flakes.—Mr. E. S. Dodwell first with Sybil, Mr. C. Turner second and fifth with Rob Roy, Mr. Douglas being third with John Keets and fourth with Sybil.

PICOTEEES.

In Class E, for twenty-four Picotees, twelve dissimilar, Mr. C. Turner was the most successful exhibitor, taking the chief position with handsome blooms of Clara Penson, Constance Heron, Mrs. Bower, Daisy, Mrs. Norman, Mr. Tutton, Dr. Abercrombie, Cynthia, Henry, Louisa, Monarch, Lucy, Princess Dagmar, Picturata, Empress Eugénie, Dr. Epps, and Her Majesty. Mr. Douglas was a close second, the best flowers being Princess of Wales, J. B. Bryant, Edith D'Ombra, Mrs. Bower, and Jessie. Mr. Dodwell was third, Mr. H. Hooper fourth, and Mr. J. Hines fifth.

In Class F, for twelve Picotees, Mr. Douglas won chief honours with a fresh even collection, comprising fine blooms of Mrs. Bower, Mrs. Payne, Mrs. Chancellor, J. B. Bryant, Mrs. Gorton, Ethel, Her Majesty, Constance Heron, Nymph, Princess of Wales, Zerlina, and Mrs. Allcroft. Mr. Dodwell took the second place, John Smith, Novelty, Miss Gorton, and Edith D'Ombra being notable. Mr. J. Hines was third, and Mr. J. Buxton fourth, with much smaller and rougher examples. For six Picotees the prizetakers were Master Dodwell, Mr. J. Laeken, Mr. Gibson, and Mr. M. Rowan.

In Class I, for twenty-four Fancy Picotees, Mr. C. Turner had the best collection, an extremely bright and diversified collection, comprising the following varieties—Rufus, Enchantress, Duchess of Connaught, Matador, Lady Cathcart, Robert Lord, Janira, Arthur Medhurst, Edith, Elegante, Rosa Bonheur, Whipper In, W. P. Milner, Thos. Moore, Jessica, Conqueror, and Egyptian. Mr. J. Laeken followed also with beautiful flowers very richly coloured, Brilliant, Ernest Wilkins, Lord Wolseley, William IV., Crimson King, and Sarah Payne were especially fine. Mr. H. Hooper was third, and Mr. H. Catley, Claverton Buildings, Bath, fourth. Mr. J. Douglas was awarded an equal third prize for a charming collection, including several handsome blooms, The Bride, Sportsman, Sybil, Julia, Florence, Juno, and Snow Queen being the most noteworthy. For twelve Fancy Picotees Messrs. E. S. Dodwell and Stanley Dodwell were the prizetakers in that order.

SINGLE SPECIMEN.—*Red Heavy Edge.*—Mr. C. Turner first and second with Picturata, Mr. C. Turner third with Dr. Abercrombie, and Mr. J. Douglas fourth and fifth with John Smith and Princess of Wales.

Red Light Edge.—Mr. E. S. Dodwell first with Mrs. Gorton, Mr. C. Turner second with Clara, third and fourth with Mrs. Bower, and Mr. Douglas fifth with Mrs. Gorton.

Purple Heavy Edge.—Mr. J. Douglas first, second, and fourth with Mrs. H. Chancellor, and fifth with Norfolk Beauty; Mr. C. Turner third with Zerlina.

Purple Light Edge.—Mr. C. Turner first with Ann Lord, third with Evelyn; Mr. Douglas second and fourth with Baroness Burdett Coutts, and fifth with Nymph.

Heavy Rose Edge.—Mr. C. Turner first and second with Mrs. Payne, fourth with Louisa; Mr. Douglas third with Mrs. Payne; and Mr. E. S. Dodwell fifth with Edith D'Ombra.

Light Rose Edge.—Mr. C. Turner first, second, and fourth with Lucy; Mr. Douglas third with Mrs. Allcroft; and Mr. E. S. Dodwell fifth with L'Elegante.

Yellow Grounds.—Mr. Douglas first, second, and fifth with Prince of Orange; Mr. C. Turner third and fourth with Janira.

In Class L for twelve blooms, yellow-ground Picotees, Mr. C. Turner was first with neat blooms of Jessica, Coronation, Lady Biddulph, Bullion, Lady Mary Lascelles, Grandis, Plato, and Flavius. Mr. H. Hooper was second and Mr. H. Catley third.

Plants were not very largely shown, but were well flowered and attractive, all of them being shown without the paper collars to the blooms as is usually the case. Mr. C. Turner had the best nine specimens—Dr. Abercrombie (Picotee), Guardsman, Duchess of Connaught, Miss Erskine Nightingale, Lady Cathcart, Miss E. Wemyss, Her Majesty (Picotee), Jupiter, and Dr. Cronin. Mr. Douglas took the second position with good examples of Sarah Payne, The Bride, The Queen, and Florence amongst Carnations, and Norfolk Beauty amongst the Picotees.

Messrs. J. Veitch & Sons, Chelsea, exhibited eight boxes of Carnations and Picotee blooms, including a large number of varieties, many of which were enumerated last week. The collection was highly commended. Mr. H. G. Smyth, 21, Goldsmith Street, Drury Lane, showed a box of three dozen blooms of his handsome self Carnation Mary Morris, the fine clear rose tint being particularly bright.

First-class certificates were awarded to Messrs. J. Veitch & Sons for Carnations.

Sir Beauchamp Seymour.—A noble fancy bizarre variety, with a peculiar combination of scarlet and buff. Very effective and distinct, the blooms large, and of great substance.

Royal Purple.—A grand self variety, with magnificent blooms of an extremely rich deep purple hue. Very free, and useful for borders.

YELLOW COMPOSITES.

PERENNIAL SUNFLOWERS.

AMONGST Rudbeckias, Heleniums, Heliopsis, and Helianthus there is abundance of material from which to select yellow Composites for autumn flowering. The name Sunflower is no longer associated only with those handsome and huge yellow annuals most commonly known in gardens. Of these, indeed, there are now many forms and varieties, some of them exceedingly handsome where room can be found for them. I have this year, besides the bright golden double flowers, some of a pale lemon colour, which have been much admired. There is another annual which I have grown this year for the first time, called *Helianthus cuneifolius*, with flowers of the size of those of an Ox-eye Daisy, and a central disc of the deepest black—a very handsome kind. But I am going to speak now of the perennials of the genus *Helianthus*, which I grow in my garden at Cheshire. Some of them I have been unable to identify with certainty, and in the case of others I can discover no characteristic distinctions either in the flower or the leaf, and yet when grown side by side the plants seem different; but when some botanists tell us that the limits of the species *H. tuberosus*, commonly known as the Jerusalem Artichoke, are so indefinite as to include some ornamental and free-flowering garden varieties, I may be excused for expressing some uncertainty about the name. *H. rigidus* is the earliest, and perhaps the best, of the genus, and is known also by the names *Harpalum rigidum* and *Pascalia glauca*, though I suspect that the latter name more properly belongs to a

different plant, which I have never seen. The only objection to this Sunflower is its erratic habit. The runners should be detached as soon as they show themselves above ground, and planted close to their parent, as they sometimes appear at a distance of 3 or 4 feet.

The next to come into flower is generally *H. doronicoides*—I give the name with some doubt. It is a slender very floriferous plant, with large rough leaves and large elegant flowers, with long rays and a small centre; the stalks grow 6 feet high. *H. pubescens* is one which flowers later, which I can hardly distinguish from the kind last described, which probably includes several varieties. Both the kinds flower so well, increase so fast, and are so accommodating about soil and situation, that they will be an acquisition to any garden not already possessing them.

H. decapetalus comes into flower with me about the end of August. According to the name it ought to have ten petals, but it generally has from eleven to fifteen. It is about 5 feet high. The flowers are pale yellow, nearly 3 inches across, and produced from the top of the stalk to within 2 feet of the ground. It is a very useful plant.

H. giganteus is the tallest of all, growing with me in some situations to a height of 10 feet. The species is rather variable, but the flowers are very neat, having long, slender, pointed rays, enclosing a dark centre, and making an elegant curve upwards from their base. It has no fault as a garden flower except its great height, which makes it better to plant it as far back as convenient.

H. Maximiliani bears a strong resemblance to the last-named, but has a thicker stalk, and though of rather coarser growth is not so tall. The two plants are quite distinct when grown side by side, but might be mistaken for one another. I now come to the most ornamental as well as the most generally grown of the later Sunflowers, *H. multiflorus*. This is thought to be a garden species, and an improvement from some less showy wild form. As might be expected in such a case, it varies much. Three forms are recognised in nursery catalogues, two single, one distinguished as major, and a double-flowered kind. It is not uncommon to see double and single flowers growing apparently on the same plant. That which is called *multiflorus major* bears flowers 6 inches across, and so arranged as to display them to great advantage, as they are seldom either crowded or hidden. The double kind is the only perennial Sunflower I have ever seen with double flowers, and keeps up a long succession, the individual flowers being very durable.

H. lætiflorus is a tall kind, 7 or 8 feet high, with small flowers, smaller than but resembling those of *H. decapetalus*. The typical plant has handsome broad leaves and black stalks, though there is an inferior variety with green stalks, differing but little in other ways, though it bears rather larger flowers.

H. divaricatus has flowers not unlike those of *H. doronicoides*, to which the whole plant bears considerable resemblance. It flowers later, and though evidently distinct from it is inferior to it as an ornamental plant.

H. angustifolius has narrow leaves like those of a Willow. It flowers so late that in backward summers the flowers are usually destroyed by frost before they are over. It is a low-growing kind, not exceeding 4 feet in height, and from its lateness suited only for warm forward gardens.

H. orgyalis is grown more for its foliage than its flowers, which are small and poor. The plant is very tall, and bears a curious tuft of leaves at the top like a small Palm tree.

The Sunflowers are desirable for the great ease with which most of them may be cultivated, and for their freedom of flowering. They increase rapidly, and should be adjusted every spring as soon as the tufts appear above ground, in order to make them flower in compact masses. Though they vary little in colour they have many forms and sizes, and as they last long in water are very useful for mixing with cut flowers of other colours. Warm sunny positions suit them best.—C. W. DOD.

THE CHRYSANTHEMUM.

[A paper read before the Sheffield Floral and Horticultural Society, June 6th, 1883, by Mr. J. Udale, gardener to J. Watson, Esq., Shirecliffe Hall, Sheffield.]

The genus *Chrysanthemum* is included in the natural order Compositæ, an order which is represented in all parts of the world, and contains between 9000 and 10,000 known species, the medicinal qualities of which are chiefly tonic, stimulant, bitter, aromatic, or narcotic; whilst from a floricultural point of view we are also indebted to the same order for many of our most beautiful garden flowers. Besides the *Chrysanthemum* there are the *Ageratum*, *Eupatorium*, *Michaelmas Daisy* (*Aster*), *China Aster* (*Callistephus*), *Golden Rod* (*Solidago*), *Zinnias*, *Gazanias*, *Sunflowers* (*Helianthemum*), *Helichrysums*, *Dahlias*, and others of a less showy character; but for diversity of form, delicacy of tint, and harmonious colouring the *Chrysanthemum* is unexcelled.

Which of the foregoing will equal the purity of the common Ox-eye Daisy (*C. leucanthemum*)? or the pearly whiteness of some of the exotic forms, such as *White Venus*, *Mrs. Rundle*, *Elaine*, and *Fleur de Marie*? the

primrose of Golden Empress, the golden hue of Mrs. Dixon and Mr. Bunn, or the delicate tints of Princess Teck and Princess of Wales? the rich pinks of Hero of Stoke Newington and James Salter, the glowing crimson of The Cossack, or the deep claret colour of Refulgens? though, perhaps, the next most varied and beautifully coloured flower is its near ally, the Dahlia. The single forms of it are very beautiful indeed, *D. imperialis* and *D. coccinea* especially so; but the *Chrysanthemum* is with us in its most exalted type, forming the last link in the floral chain that begins with the *H. patiens*, Snowdrops, Crocus, Hyacinths, and Tulips, passes on through Roses, Lilies, to Asters and Dahlias, the immediate precursors of the *Chrysanthemum*.

There has been some difference of opinion as to the botanical limits of *Chrysanthemum*, *Pyrethrum*, and *Matricaria*. Sweet, in his "Hortus Britannicus," places *C. indicum* and *C. sinense* under the genus *Pyrethrum*; but the only distinction between *Pyrethrum* and *Chrysanthemum* is that the seed vessels of the latter are more prominently ribbed than those of the former; and Mr. Bentham, being of opinion that the distinction in question is not of sufficient importance to constitute a distinct genus, relegates *Pyrethrum* to a section of *Chrysanthemum*. The genus so constituted comprises a large number of species, some annual and others perennial.

It may be desirable to mention a few of these relatives of our cultivated Chinese *Chrysanthemums*, as they are of more or less interest to all horticulturists. No one will deny the beauty of our own herbaceous Ox-eye Daisy, *C. leucanthemum*—the purity of its white petals and its striking yellow disc; or the brilliancy of our annual Corn Marigold (*C. segetum*). Then we have the pretty single and double varieties of *C. coronarium* from Sicily, and *C. carinatum* from Barbary, which are all favourite garden annuals. Under the name of *C. roseum* are included the many forms of the *Pyrethrum* of gardens, with their finely cut foliage and gay flower heads—a native of the Caucasus. There are one or two fine hardy perennials which ought to be mentioned in this connection, such as *C. lacustre*, very like our common Ox-eye Daisy but with thicker and more fleshy leaves, and *C. uliginosum* from Hungary.

The Paris Daisies or Marguerites, of which the French and many English of cultivated tastes are so fond, is a variety of *Chrysanthemum frutescens*, a native of the Canary Islands, which was introduced as far back as 1699. Of several varieties now in cultivation, the best for greenhouse culture are *Halleri maxima*, *Comte de Chambord*, *Etoile d'Or*, *frutescens*, and *miniatum*. *Etoile d'Or* is a beautiful sulphur-yellow colour, and was in cultivation as long ago as 1844, and was raised from seed from the ordinary white variety by M. Gontant in the south of France.

We have next the Golden Feather, commonly called *Pyrethrum aureum*, which is really a variety of *Chrysanthemum Parthenium*, also a native of this country. The Golden Feather is a natural golden variety of the foregoing, and was picked up by a gardener named Ebenezer Seward in his own cottage garden whilst gardener to Rev. G. Pindar of Harford, and who suggested that he should dispose of it to Messrs. Henderson, by whom it was distributed, and is now to be found in almost every garden throughout the kingdom. Though it is the fashion to pick the flowers off, yet their small, white circular discs are probably familiar to everyone present, and I wish especially to draw attention to them, because it is said the flowers of the original wild plants of *C. indicum* and *C. sinense* are similar in size and form. What a contrast to the gigantic globular flowers of the present cultivated forms of Chinese *Chrysanthemums*! This brings us to the principal part of our subject—viz., to the flower that brightens our greenhouses during the dullest months of the year, that is cultivated and admired by all classes. It has drawn the public by tens of thousands to the Temple Gardens, and more recently, through the wisdom of the authorities, to the public parks of the metropolis, amongst which Finsbury Park stands pre-eminent for *Chrysanthemums*. Exhibitions have been established within the past fifteen years in almost every large town in the kingdom, whereas previous to 1868 the number of places holding *Chrysanthemum* shows could in all probability have been counted on the fingers of one hand.

The history of the Chinese and Japanese forms has been frequently referred to, but it may be mentioned that the present races seem to have descended from *C. sinense* or *C. indicum*, or from the crosses between these species. *Chrysanthemum sinense*, a native of Japan and China, has glaucous leaves and white flowers, while *C. indicum* has green leaves and yellow flowers. Japanese and Chinese horticulturists have exercised their skill, perhaps for centuries, on these forms, and their efforts, seconded by the Europeans, have made the *Chrysanthemum* what it now is.

The introduction of the Chinese varieties into European gardens is attributed to M. Blanchard of Marseilles, who in 1789 introduced three varieties, white, purple, and violet, into France, though before that time—viz., in 1764, a plant of the small yellow-flowered variety, *C. indicum*, was in cultivation in the physic garden at Chelsea. Of all the varieties nearest to the original type is the small-flowered variety known as the "Chusan Daisy," introduced from China by Mr. Fortune in 1846, a variety which, from its small size, met with little favour here, but which was more highly thought of in France, where it became the origin of all the Pompon varieties now in cultivation. Mr. Fortune was also instrumental in introducing the fantastic yet beautiful Japanese forms at a more recent date, several plants of which fell into the hands of the late Mr. Salter of Hammersmith, who, perhaps, did more than any other man in this country to improve upon the first varieties introduced. The late Mr. John Gould Veitch sent home some plants of the Japanese section in 1861, and these, as compared with the best Japanese of the present day, show a marked difference in favour of the latter.

Though we are greatly indebted to hybridisers in general and the late Mr. Salter in particular for many of our most beautiful winter-flowering *Chrysanthemums*, yet some of our very best kinds are sports from slightly inferior—if I may use the term—kinds, though of the same blood and character, some of the best being Golden Empress, Golden Queen of England, Mr. Bunn, George Glenny, Mrs. Dixon, Jardin des Plantes, Venus, Lord Wolseley, Golden Beverley, Angelina, Emily Dale, and Mr. Corbay, and the Japanese section produce varieties in the same way quite as freely.

It would not be safe to say how many varieties there are in cultivation at the present time, but in 1808 there were ten varieties, which increased to over forty in 1827, the numbers increasing so rapidly afterwards that in 1860 there were no less than 750 varieties of all kinds growing in a single garden. The Rev. G. Henslow in his lecture on the *Chrysanthemum* at South Kensington, Nov. 16th, 1880, says:—"With regard to the origin of the variations

(that is from the single forms), they are due to changes undergone by the disc or centre florets, naturally tubular with a regular border, for the wild original forms were not larger than a sixpence, and with 'ray' and 'disc.' When a disc floret becomes like a 'ray' floret it not only enlarges but suppresses two petals, and splits all the way down, so that the 'ligulate' or strap-shaped florets have only three petals. When they are rather broad they give rise to the incurved and reflexed forms, according as they show the under or upper side of the florets. When they are narrow the flower resembles the Japanese original form with slender tapering petals. On the other hand, if the tube elongates without much splitting we get the tasselled, quilled, and dragon forms. In the first the tube splits only for a short distance into a broad flat piece at the end, in the second the border is reduced, but in the third it is enormously enlarged, with the teeth increased in number. This last resembles the ray florets of the Cornflower, which is much enlarged under cultivation, and has its teeth increased in number also."

Classification of the Chinese and Japanese Forms.—In arranging the large-flowered Chinese varieties it is difficult to decide what to admit and what to exclude; but generally they are classed as incurved, reflexed, Anemone-flowered, Pompon, and Anemone-flowered Pompons.

Section 1 consists of those having their florets incurved and their tips meeting in, or pointing towards, the centre, the flowers varying from hemispheres to complete spheres; Mrs. Rundle, Princess of Wales, Venus, Beverley, Empress of India, Lady Harding, and Prince Alfred being types of this section.

Section 2 comprises those having flowers which reflex, and although seldom seen on the exhibition table (not being admissible in incurved stands), they are some of the most profuse-flowering and brightest-coloured of the whole genus. Amongst others are Julie Lagravère, Crimson Velvet, Dr. Sharp, Chevalier Domage, and Progne, all being excellent varieties for conservatory decoration.

Section 3.—The Japanese.—As a rule these are very readily distinguished from any other kind; but of late, varieties have been introduced which, to say the least, are doubtful. This section may be divided into sub-sections, as many have distinctive characters—for instance, Elaine has decidedly reflexed and flat petals, Peter the Great and Bismarck incurved, the former having long and narrow petals, the latter short and broad; James Salter and Fair Maid of Guernsey curl and twist, and eventually resemble balls of paper shavings; Bouquet Fait, The Cossack, and Meg Merrilees have petals long and slightly twisted.

In section 4 I place the Anemone-flowered varieties. These are very beautiful flowers, possessing brighter colours than any other section—simple in outline, having only an outer fringe of broad flat florets and a centre of closely arranged quilled florets approaching to nearly a hemisphere in form. This section is well represented by Fleur de Marie, King of Anemones Gluck, and Princess Louise.

The Pompon is placed in section 5, and needs no description; but the true Pompon is small and something like a double Daisy; Snowdrop, Bob, Drin-Drin, and Pablo being good examples.

Section 6 is composed of the Anemone-flowered Pompons. Mr. James Douglas says, "This is probably a break from the true Pompon, and the flowers are very distinct as a class. They differ from the corresponding large-flowered section in having in most instances a double or treble fringe of outer florets. The centre florets should form a half sphere, as in the other section. A good example of an Anemone Pompon is to be found in Antonius. *Cedo Nulli* and its varieties are hybrids. At one time all the foregoing sections used to be represented at exhibitions, classes being provided for them in the schedules. Some of the Societies, such as the Borough of Hackney, do so now, and it is very desirable that all the classes should be maintained in their integrity. Each has its admirers, and it is a pity to allow of their standing still for want of someone to improve each class or section by raising seedlings.

The seventh section is the summer-and-autumn-flowering one, but which really belongs to the class for Pompons. They are very precocious, profuse, and persistent in their blooming habits, flowering all through the late summer and autumn months: are very useful for massing in beds or for furnishing boxes for windows and balconies. *Precocité*, *Chromatella*, *Frederick Pelé*, *Cassy*, *Golden Button*, and *Scarlet Gem* are a few of the best.

(To be continued.)

HARDY PLANTS AT TEDMORE.

The charming garden belonging to the Rev. F. M. Bulkley Owen of Tedmore, is within easy distance of Rednal station on the Great Western main line *via* Shrewsbury from London. Most delightfully situated is Tedmore, and particularly so Mr. Owen's residence. Looking from the building towards the south and south-west are the towering Welsh mountains clad with a most peculiar light in some parts, and on all sides as far as the eye can scan is the most pleasing scenery. There is a most natural taste in the garden arrangement; nearly everything of a formal nature is deprecated, and, with the exception of a few beds in the front of the house, such arrangement is entirely absent. Great encouragement is given to herbaceous plants; in fact perhaps more attention is given to them than anything else, unless it be hardy shrubs, of which there is a very rich and large collection, many of which have occupied their happy situations, while novelties and rarer subjects are being constantly added. It will be utterly impossible for us to notice even a tithe of what is good in this garden.

Starting with the herbaceous and alpine plants, the first thing to strike one is the absence of any rule in the form, size, and arrangement of the beds and borders, these varying materially in every respect, and the whole are happily associated with shrubs, which at times greatly enliven the surrounding with the charming if not always attractive flowers. Natural effect, with a good distribution of colour to secure that end, seems to be the chief desideratum at Tedmore, and most happily is the idea carried out. Thus everywhere are masses of *Delphiniums*, some of which are 7 or 8 feet or even more in height; *Spiræas*, *Mule Pinks*, *Lilies*, *Fox-*

gloves, Canterbury Bells, Sweet Williams, and a host of similar flowers while the intermediate spaces are occupied with a multitudinous collection of species and varieties far too numerous to mention, but some of the more useful and effective I will describe.

Lathyrus Drummondii is without doubt one of the showiest perennial Peas, of vigorous growth and crowded with red flowers. In large masses it is most conspicuous, and valuable alike for cutting and prominent display. It is very rarely seen, but there is no reason why it should not be more frequently seen, as it is readily increased from seed.

Spiraea Aruncus, although a very old inhabitant of our gardens, is not half so abundant as it should be. The whole horticultural world would fall in love with it if seen at the present at Tedmore—in large masses with immense plumes of white flowers; and if arranged with a dark background, or between masses of Delphiniums, how charming is the effect! What can surpass it?

Creeping about a Rhododendron bed most copiously is the beautiful *Tropaeolum polyphyllum*, with its trailing shoots covered with glaucous foliage and deep yellow flowers—a most desirable and showy plant; and hard by is its more fastidious congener *T. speciosum*, scrambling over shrubs with its pleasing green foliage and scarlet flowers in such profusion. Mr. Owen told me how difficult it was to establish, but he added, "It is getting quite a nuisance." So we have heard from others, but it does not make itself so familiar with everybody.

Dictamnus Fraxinella is represented by a specimen quite a yard through, thickly set with its most distinct-looking and scented flowers. This and the white variety are most handsome plants. Fuchsia procumbens was happily trailing on a small rockery and is quite hardy with Mr. Owen, coming up every season. Near by was the pretty *Houstonia cœrulea*, verily quite a pale blue, which in my experience is very unusual; and indeed I remember Mr. Curtis making a point of this when it was figured in an early volume of the "Botanical Magazine." He says, "The colour scarcely warrants the term cœrulea," or something having the same meaning. It delights in a cool situation in peat, leaf soil, and sand.

Primula obconica, recently introduced by Messrs. Veitch, is quite hardy in a sheltered shady spot among the hardy Ferns. It is a very pretty plant, well represented by an engraving in the Journal, vol. vi., page 10.

Cortusa grandiflora is perhaps a large form of the old *C. Matthiola*. It produces large downy leaves and tall scapes of pendulous flowers of a deep reddish pink colour; evidently very floriferous, and at least quite hardy at Tedmore. I think it was introduced by Dr. Regel of St. Petersburg to the notice of British plant-growers.

A mass quite a yard across of *Geranium armenum* thickly covered with its large purple-red flowers was particularly striking, and convinced us that it is one of if not the best border Cranesbills known in our collections. A near neighbour to it was as large a mass of *Mertensia sibirica* with its multitude of drooping porcelain-blue bells—a most meritorious hardy plant, coming into beauty much later than the grand old Virginian Lungwort, *M. virginica*.

Digitalis grandiflora is very abundant, distinct, and showy, and withal perennial, producing large terminal spikes of dull yellow flowers with or minus brownish spots. There were two Rhenns very striking—viz., *R. palmatum taughetiense* and *R. officinale*, both of which are extremely effective when arranged amongst shrubs, the towering panicles of flowers revealing a differentiation most desirable.

A very noble-looking plant, too, is *Ligularia macrophylla*, from Eastern Asia I believe, or it may be from *A. minor*, with large oblong leaves and tall dense spikes of bright yellow flowers, and regarded as a solar or floral ornament it is well worth having.

Numerous Lilliums were in excellent form. The old *L. croceum* with large broad heads of orange-yellow flowers. *L. Szovitzianum* has evidently established itself, one stem being particularly strong and nearly 6 feet high and proportionately stout, with an immense head of bright yellow flowers quite free from spots, a peculiarity it has assumed since its stay at Tedmore, as when first planted five or six years since it was freely spotted. I have never known a bulb of this Lily to exist so long without splitting up or dying. Undoubtedly the soil has something to do with the life period of this as well as many other Lillies. *L. Martagon* and its white variety were evidently at home. The white form was particularly interesting, and a most attractive plant it is, although comparatively rare.

L. auratum are coming up well. Some of the bulbs have been planted for several years. Many are very healthy-looking, but others are diseased; or the ailment may not be a disease at all, as I am inclined to think it is caused by sudden outbursts of bright sunshine, especially after showers. Many of mine have gone just in the same way without any apparent cause whatever.

Iris ochroleuca is a very distinct and showy species, growing 3 feet or more high. Standards white, about 3 inches long; falls rather longer, reflexed, and broader, white, with a very large yellow blotch on each.

Glossocoma ovata is a pretty Campannoid, with pendulous bell-shaped flowers rather more than an inch long, of a very pale blue colour. It is quite perennial and hardy at Tedmore, although I have known it to succumb in ordinary winters elsewhere.

Thalictrum aquilegifolium is a very robust species, with large Columbine-like foliage and terminal corymbs of pure white flowers. *T. flavum* grows quite 6 feet high, with large heads of sulphur-yellow flowers. Both good plants for the back part of the border or for massing among shrubs. The Welsh Poppy (*Meconopsis cambrica*) was plentiful everywhere; seedlings of it self-raised lit up the borders with their rich yellow flowers.

Spiraea marylandica is similar to *S. Aruncus*, but perhaps more slender

in growth, producing plumose heads of white flowers. *S. Pallasii* Mr. Owen regards as the handsomest. It is very rare, but was not quite out. The individual flowers are comparatively large and pure white. *S. trifoliata* is a very chaste subject, with trifoliate leaves and solitary, pure white, irregularly shaped flowers.

Several *Brodiaeus* were very showy, *B. coccinea* being perhaps the handsomest with its deep scarlet tubular flowers, the limb-segments of which are green. This is quite hardy, having been undisturbed for some years, and it looks extremely pretty mixed with *B. congesta* and *B. lactea*, the former purple and the latter white. These are all excellent border plants. Among many ornamental Grasses special mention must be made of the annual

Hordeum jubatum with its elegant purple-tinged feathery spikes. This seeds freely, and annual colonies appear without any trouble whatever; and it is astonishing what a pretty effect it and the following presents among flowering plants. *Briza maxima* also comes up after the same fashion, and I never saw it finer. *Carex riparia variegata* is a very handsome white variegated Sedge, of dwarf dense growth and very serviceable.

The collection of hardy Ferns is rather extensive: a great assemblage of species and varieties in excellent condition, some of them, especially the forms of the Lady Fern (*Athyrium Filix-fœmina*), developed to an unusual extent. One variety of it particularly struck me as being very distinct; it was named pulcherrima, and was collected upon Cador Idris. It is certainly distinct from the ordinary pulcherrima, being more dwarf and dense and not so finely divided. The Ostrich Fern (*Struthiopteris germanica*) is very finely developed.

From the numerous notes made upon hardy shrubs I can only transcribe a few.

Escallonia philippensis is quite hardy here, have stood for some years unprotected. It is a lovely shrub, with gracefully arching branches thickly studded with pure white flowers about one-third of an inch across, the unexpanded buds being pink, which materially adds to the beauty of the spring. This is one of the prettiest shrubs I have ever met with.

Aralia Mawimoniezii has a bold appearance, of dense growth with shining digitate leaves—quite hardy. *A. papyracea*, *A. japonica*, *A. californica*, and others are well represented. *Rosa rugosa*, an unusually deep-coloured variety, was covered with fine flowers, and the lovely variety alba was just coming into character. What a beautiful subject this is! The yellow Austrian Briar was well in bloom, also the good old York-and-Lancaster Rose, so very rarely seen in our gardens now-a-days, although it richly deserves attention.

Acanthopanax variegata, a shrub usually coddled up in artificial heat, but good specimens exist, and have been fully exposed for three years, and it is one of the finest variegated shrubs extant. Several varieties of Japanese Maples are planted out, which in time will no doubt make a fine feature. *Lonicera tomentella*, crowded with a multitude of small, white, tubular, pendulous flowers, the whole shrub presenting a very elegant appearance. A species of *Abelia*, hard by which, I think, was *A. triflora*, was also showy with terminal clusters of white flowers. The elegant *Spiraea arifolia*, thickly covered with its drooping panicles, is very striking. *Rubus odoratus* forms a dense mass of bold foliage, and produces reddish pink flowers about 1½ inch across, very rarely succeeded with large fruits. *Crataegus orientalis* is a very distinct with ashy-grey foliage and calyces. *Salix argentea* is very effective when planted with copper-foliage trees, the narrow silvery white leaves bearing a striking contrast to the latter, and indeed the whole tree is very charming in any position. I have only to add that the hospitality of Mr. Owen made the visit to Tedmore one of the most enjoyable days ever spent in a garden.

—RAMBLER.



HARDY FRUIT GARDEN.

PEACHES AND NECTARINES.—*Healthy Foliage*.—Trees that suffered from blister in spring ought now to be entirely free from it, and be well clothed with clean healthy foliage, for without healthy leaves the swelling fruit cannot come to perfection either of size, colour, or flavour, nor can the wood growth be either so vigorous or its buds so well developed as they ought. Red spider is apt to attack crowded foliage now, and much harm be done if it is not promptly got rid of by careful syringing with clean water, taking especial care to force the water well among the foliage so as to thoroughly wash both sides of it. This requires more than ordinary time and care, and we recently overcame objections taken to the extra amount of pains insisted upon, by having only a couple of trees done daily till the whole of them were gone over and the pest destroyed.

PEARS.—*Early Fruit*.—The fruit upon the upper branches of Citron des Carmes and Summer Doyenné is fast ripening, and should be closely watched, for its duration in perfection is so brief that it is spoilt in a day or two. The condition of the fruit upon the lower branches or the bottoms of cordons is therefore not a safe guide, but the upper fruit must

be examined and picked at once when the stalk parts readily from the branch as the fruit is lifted. Care in this matter affords a nice succession of several dishes of fruit from a cordon, it not being uncommon for the last dish from the bottom spurs to be a fortnight later than the first from the top.

STRAWBERRIES.—*Planting.*—Due care must be given to the selection of suitable positions for the new beds—a sunny gently sloping bank for the early sorts, an airy open part of a garden square for the intermediate or main crop, and a north border for the late ones. To render the supply of fruit unbroken, plant a few rows of an intermediate sort in a warm place near the early beds, and some of the late sorts fully exposed to the sun, so as to accelerate the ripening and insure a supply of each sort before that which it follows is exhausted. For treatment of the soil and distances for planting see our note published a fortnight ago.

Varieties.—In purchasing plants for a new garden do not confine yourself to, say, three sorts—early, intermediate, and late, but rather try several of proved merit, and watch closely how they answer, so as to ascertain which are best suited for your particular soil. If we were choosing for ourselves we would take Keen's Seedling, Sir Joseph Paxton, James Veitch, and Helène Gloede for our main successional crops, with Black Prince for very early fruit, Dr. Hogg for special treats, and Cockscomb for some sensational fruit. To these excellent sorts add for trial Vicomtesse de Thury, President, Lucas, Sir Charles Napier, Samuel Bradley, and Loxford Hall Seedling.

FRUIT-FORCING.

FIGS.—*Second Crop on Early-forced Trees.*—Trees from which the first crop were gathered in May will now be ripening their second crops, and will need to have free ventilation and full exposure to sun and air. If the weather be dull and wet a little artificial heat will be necessary to insure a circulation of air—in fact, a circulation of rather dry warm air is essential to the perfect ripening of the fruit. If the trees are in pots the surface must be mulched and well supplied with water, as syringing to keep down red spider is practically useless if the soil is allowed to become dry. Fig trees in pots should be plunged to the rim, and surface roots encouraged by placing turf grass side downwards round the rim and top of the pots, interspersing it with some well-decayed manure and old mortar rubbish, for lime is imperative in the cultivation of the Fig.

Trees in Borders.—Trees planted out are less liable to suffer from sudden checks than trees in pots, yet they must be kept well mulched and be copiously watered to insure full crops of fine fruits. Trees that are planted against the walls, as also those planted in front and trained to trellises beneath the roof, should have turves placed at the collar, and be supplied daily with liquid manure.

Late Houses.—Attend regularly to stopping, thinning, and tying out in late houses, being careful not to overcrowd, as it is important that advancing crops have the full benefit of sun and light, and the border must be well mulched with manure. Syringe forcibly twice a day, and close the house with sun heat at 80° to 85°.

Very Early Houses.—If the weather be bright and hot the moveable lights may be drawn off, and when the second crop is gathered the trees may be allowed to gradually rest, only giving sufficient water to keep them clean and healthy. If there be any doubt as to the ripeness of the wood the lights should be continued over the trees until this is thoroughly effected, which is best done by a free circulation of air, and moderate moisture only both at the roots and in the atmosphere. If the trees are infested with scale it must be removed by washing the trees with an insecticide applied with a brush or sponge.

Trees in Pots for Early Forcing.—Young trees that have been grown on in a warm house to induce them to ripen early may, when the growth is completed and the wood become firm, be placed outdoors in a warm place, as that in front of a south wall, where they will ripen off and go to rest. For growing under glass there are no Figs that equal the Brown Turkey, yet Negro Largo is very fine, and equally eligible, especially for pots.

MELONS.—*Watering.*—Plants having their roots in a comparatively small space, and are now swelling off their crops, should have copious supplies of weak liquid manure two or three times a week, and if the plants are in pits or frames it must be done without wetting the foliage or fruit more than can be helped. Be careful not to water too near the stem of the plants, as this is liable to cause canker. Should this appear rub quicklime well into the affected parts. Directly after applying liquid manure to plants in frames sprinkle over the foliage with clean water through a rose watering pot.

Training.—Train the growths regularly over the allotted space, not stopping the leading shoots until they have grown two-thirds of the limit, and rub off every alternate lateral when quite young, which is essential to prevent overcrowding, and do not have the main shoots closer than 18 inches. Stop one joint beyond the fruit at the time of impregnation, which should be daily attended to as the blossoms expand, and keep subsequent growths closely stopped to one joint, and thin out where necessary so as to insure the free access of light and air to the principal foliage.

Fruit Ripening.—Where Melons are ripening increase the ventilation with a gradual decrease of atmospheric moisture, and water only at the roots to prevent flagging. Should the weather prove dull a little fire heat will be necessary to insure the perfect ripening of the fruit.

Succession Crops.—In the case of plants that have set their fruit too

thickly thin them out to three for weakly plants, four for the moderately vigorous, and five or six for the luxuriant plants, which should be done as soon as it can be ascertained which fruit takes the lead in swelling, making selection of the best shaped fruits, distributing them as evenly over the plant as possible. Fruit on trellises will need to have supports before becoming very heavy, whilst those in frames or pits should have some pieces of slates placed under them in a slanting direction to keep them clear of the soil.

Atmospheric Moisture.—Damp the houses in which Melons are swelling off their fruit twice a day during bright weather, closing early in the afternoon at from 3 to 4 P.M., according to the weather, and at the same time syringe the plants overhead moderately, watering those in pits or frames through a fine-rose watering pot.

Late Crops.—Where fruit is required late another planting may now be made, but it must be in a light structure, where there is command of both bottom and top heat by means of hot-water pipes.

CUCUMBERS.—*Stopping and Thinning.*—In order to insure continuity of bearing it is necessary that stopping and thinning be attended to frequently, otherwise the plants soon become a thicket of wood, which wastes the energies of the plants and renders them unfruitful, as much of it must necessarily be cut away, and some time must elapse before they are again in a fruitful condition. Plants judiciously stopped, the old wood where practicable cut out, and young growth trained in its place, can be kept continuously bearing over a very lengthened period, it being a great mistake to allow the foliage to become too crowded, and equally disastrous is overbearing. It is also essential to encourage surface roots by top-dressing with good loam and thoroughly decayed manure, along with occasional copious supplies of liquid manure, alternating with water, which at this season will be required two or three times a week, or it may be daily if the plants are in pots or in very limited borders.

PLANT HOUSES.

Allamandas.—These should now be growing vigorously, also flowering profusely, and liberal supplies of water and stimulants will be needed almost daily. Plants trained under the roof of stoves will require considerable attention in keeping the shoots tied as they extend, or they soon reach the glass and become injured. Side shoots will also be freely produced, and these must be freely thinned out or the roof will become too crowded and injure the plants growing beneath. To maintain an even and regular supply of flowers some of these side shoots must be judiciously selected and tied along the trellis in order to produce flowers near the base of the plants. This is easily accomplished by constantly thinning-out and laying in fresh shoots. Do not overshadow these plants, or the growths, instead of being short and flowering freely, will run to a great length before flowers are produced. A little shade only is beneficial for a few hours during the hottest part of the day. Plants in pots trained upon trellises may be gradually hardened and used for the decoration of the conservatory for a time. While in this position watering must be carefully performed, or the plants will soon discontinue flowering and become unhealthy.

Stephanotis floribunda.—Plants that flowered early and have made a good vigorous growth in a moist rather close atmosphere will need attention in order to bring the growth made to a thoroughly ripened condition, or else the next season's supply of flowers will be limited. If shade has been employed gradually reduce it until the plants bear full light and sunshine; also maintain a drier atmosphere and give more air, which is essential to ripen the wood sufficiently to produce flowers in abundance. If the shoots trained to wires or small cord are crowded thin them out, or, better still, dispose them evenly and thinly over the roof, so that every possible chance will be given for the proper maturation of the wood. Nothing is gained by crowding plants of this description; but, on the contrary, more flowers will be produced from the same space where the roof is moderately covered with good wood than would be the case from a densely crowded plant covering double the space. Liberal feeding should be resorted to if the plants are in any way confined at their roots, but care must be taken that they are not saturated, or injury will soon result.

Clerodendron Balfourianum.—The remarks given above apply with equal force to this plant—in fact, those that have flowered and are making or near the completion of their growth. Thorough ripened wood is the secret of success, and this accomplished under the influence of light, air, and a drier atmosphere. If prematurely ripened, as is too often the case, by allowing the plants to become dust dry, they suffer in consequence. Plants ripened under such adverse conditions either fail to start into growth when wanted, the wood dies back, or the plant flowers imperfectly.

All plants in active growth must have every encouragement to ripen their wood as early as possible, especially those required for early forcing. Those still in flower should afterwards be pushed forward rapidly, as it is impossible to ripen the wood well when the days are short and the sun but little power.

Achimenes.—Root another batch of cuttings in 4 or 5-inch pots, which will come in most useful for decoration. Feed those now flowering in the conservatory with weak stimulants every time watering is needed, which will help them wonderfully and prolong their season of flowering. Plants produced from cuttings rooted early in the season are still compact balls of flower, and are superior in every way to those grown without being topped from the dried tubers. This system has much to recommend it, and in future whether the plants are to be

grown in pots, pans, or baskets, will all be produced by means of cuttings. The plants from cuttings are dwarf, and flower more profusely than those produced in the ordinary way.

Isolepis gracilis.—This is most useful for various purposes of decoration, either for using in the dwelling-house or for the edge of the stove or greenhouse stage. To have them in fresh and good condition abundance of water is needed in all stages, and they must be divided and repotted frequently. This is a good time to prepare a batch by dividing a number and repotting them in 4-inch pots, which will under cool treatment take the place of those now doing duty, which by autumn will have become unsightly. By dividing a number of plants three times during the year a supply of healthy plants will be maintained; but this can be done more frequently if the demand is great.

THE FLOWER GARDEN AND PLEASURE GROUND.

Lawns and Walks.—These if kept trim and neat, as they should be, add to the appearance of and contribute greatly to the enjoyment of a place by its proprietor and friends. The lawns should be mown and the edges cut at least once a week, and if there are any "bents" or flower stalks of weeds or grasses which the machine will not cut, these should be cut with a scythe. Where the grass is thin the collecting box may with advantage be left off the mowing machine. Gravel walks should not be hoed, but all coarse weeds are best pulled up, and if there are many small weeds appearing one of the simplest methods of getting rid of them is to dress the walks with rough salt obtained from manure dealers. This should be applied during hot sunny weather, and in sufficient quantities to just whiten the surface. Crude carbolic acid used at the rate of one ounce to a gallon of water and liberally applied with a rose watering pot, is both a cheap and effective remedy. Whatever destructive agent be employed, care must be taken not to let it touch either the roots and tops of Box and other edgings, nor the lawn grass.

Clipping Hedges.—The summer trimming of the hedges of Box, Yews, and other Conifers should at once be completed. If delayed later the young growth following will not have time to become sufficiently hardened before the winter. This summer cutting is essential in many prominent positions, otherwise it is advisable to cut the hedges once only during the year, and that during the late winter or early spring months. Treated in this manner they are hardier and retain their vigour longer than those more frequently clipped. Banks of Laurels should not be closely cut at this time, but all strong irregular growths may be shortened back or removed with the knife. For cutting the broad Yew and Box edges which form part of the flower gardens arranged in the Italian style, Ridgway's hedge-clippers prove to be of great service, as with these they may be cut very quickly and neatly.

Propagating Roses by Cuttings.—In all gardens not exceptionally cold and heavy Roses succeed best on their own roots. The Hybrid Perpetuals especially are easily struck both during the late summer months and again in the autumn months. Cuttings may be made of shoots that have just flowered, taking these off with a heel or thin slice of old wood attached, and dibbling in either singly in 3-inch pots or thinly in larger pots. The soil employed should consist principally of loam and a little leaf mould, to which sand or road grit has been freely added. The cuttings should be fixed firmly, be placed in a cold frame, and shaded for about three weeks, when they will have callused, and ought then to be placed in a mild bottom heat to root. They ought never to become dry at the roots, neither should they be saturated. When rooted, those in single pots may either be given a small shift or hardened off. Those struck in large pots should be potted off singly and returned to the frame till established, then gradually hardened and placed in a cold frame or pit for the winter. Later on strong well-ripened lengths of Hybrid Perpetuals may be rooted in the open ground, but in the case of the more delicate Teas, Noisettes, China, and Bourbon Roses the above method of striking in heat is the best method of propagating by cuttings.

Layering Roses.—Many will have bought the set of Bennett's new Hybrid Teas, and doubtless will be anxious to increase the stock. In most cases the plants will have been received with long and fairly strong flowerless shoots. If not already done, turn them out of the nursery pots, carefully pick off any sour unoccupied soil, and shift into larger pots, the soil employed to be loamy and gritty. Plunge the pots in a bed of good firm soil. Slice off the bark lengthways under every other bud, and peg these down firmly into the soil. Cover with a frame. Keep the plants watered, and when rooted detach the young plants and pot-off singly as in the case of the other sorts.

sections finished I returned it, and since then on examining the hive I discovered foul brood in it, which has been very prevalent in the district this year. I shall feel greatly obliged if any of your able apianian correspondents would tell me if it is curable, and if so how I can cure it. All my stocks are very strong, and I would not like to destroy them if there is any way to save them. I trust some kind apianian will be able to help—A YOUNG BEE-KEEPER.

OVERSTOCKING.

THE range of the honey bees' flight is limited. The number of honey-producing flowers within that range is also limited as well as the capacity of the flowers to secrete honey. Granting these assertions, overstocking becomes a possibility. Does this possibility ever become a fact? Let us examine the subject a little. First, how far do bees fly? Not what is the extent of their flight under peculiarly favourable circumstances, as, for instance, when they are following a receding honey flow on higher land, but how far do they fly on the average profitably in quest of surplus honey? If we permit those of most ample experience to answer, they will tell us that forage must be within two miles of the hive in order to secure much gain in the surplus apartments of the same, and that it will be most profitable to have it within one and a half mile. Then we may place our apiaries three miles apart, giving to each one the pasturage of nine square miles, or about 6000 acres. I believe Mr. Quinby preferred to place his yards no nearer than this, and thought about sixty colonies in each apiary gave the best results. Mr. C. Root places a still smaller number in many of his yards. Mr. Adam Grimm noticed that when as many as 100 stocks were kept in a place there was a diminution in the number of swarms, and that surplus honey was made per colony. He concludes by saying that "if not more than fifty colonies are kept in a place and the yards are placed three miles apart there will be no danger of overstocking in ordinary seasons." These are spring numbers, and it will be remembered that all the authorities quoted were in good localities.

If fifty stocks are kept in a place and the number doubled it will require 2500 lbs. of honey for their winter stores; nearly double this or 5000 lbs. for brood-rearing and summer consumption. Therefore about 4 tons of honey will have to be gathered before any surplus can be stored. A yield of 25 lbs. surplus per swarm, old and young, will require 2500 lbs. more, or a total of 10,000 lbs. This is on the supposition that the comb is already built in which to store the honey. If comb foundation is furnished instead, we will consent to call it one-half more, or a total of 11,000½ lbs. If the bees have to construct the whole comb, unless the hives contain too small a quantity of old bees in proportion to young, we shall have to double the first amount, making a total of 12,250 for a surplus of 25 lbs. of comb honey per hive. In the above I have purposely made a liberal estimate of honey consumed in the hive, but even then it figures up but little over 2 lbs. of ripened honey per acre; while many an acre will not contribute a pound of honey it may still be granted that in the average season many more pounds will be produced than gathered. What is the objection, then, to stocking heavier and permitting less to go to waste? The period of greatest scarcity in most sections is in the spring. A honey dearth then is detrimental to brood-rearing, and is felt through the whole season. Feeding may be resorted to, but it was demonstrated last spring that nothing but natural resources or fresh honey and pollen from the flowers will stimulate sufficiently. I do not refer to early feeding, now abandoned by most beekeepers, but to stimulating after the first brood hatches, when brood should be reared most abundantly. Again, if the field be overstocked in the fall, brood-rearing ceases too early, and it is the belief of many that this is one drawback to successful wintering. It is very certain that artificial feed at this season of the year will not take the place of natural supplies for securing brood. Then, again, when crowded on a range, even in flush times, bees lose much time in searching for honey from flower to flower when they have already been emptied, and they will even condescend at such times to gather honey before it is sufficiently ripened in the flowers as well as other poor honey, including aphid honey and honeydew, all of which injures the quality of surplus and winter stores, making it almost impossible to winter bees under such conditions.

It may be asked what proof we have that bees gather too thin a honey and such is not sufficiently evaporated in the hive after being gathered. I answer that the proof is found in honey gathered in wet seasons, which is still thin after being sealed. Sugar may be substituted for honey in wintering, but it is a Herculean task to extract and feed after honey-gathering ceases, and after a little experience in feeding with grape sugar, white earth, and the other adulterants of sugar, it may be concluded that poor honey is even safer than this. It will be found that a guarantee of purity does not always imply purity. This last winter I observed bees to drop down by the quart as if poisoned in a few sugar-fed swarms, and I noticed in the fall that it took much less water to melt some sugar guaranteed to be pure than it did of another brand containing no such guarantee. It is certain that grape sugar takes little water to melt it. We may, therefore, reasonably conclude that it is easy to overstock a range, and that overstocking often means not only the loss of surplus honey, but also the loss of the bees as well.—P. H. ELWOOD (in *The American Apiculturist*).

THE BEE-KEEPER.

FOUL BROOD.

I HAVE some hives of bees which have done remarkably well, especially one hive which has given me twenty-six 1½-lb. sections, and has thirty-five more on it almost complete. It is an ordinary Woodbury hive, and threw off a very large swarm; but being anxious to have all the

TRADE CATALOGUES RECEIVED.

Isaac Bunting, Creekside Nurseries, Yokohama, Japan.—*List of Lilies and Orchids.*

W. Lovell & Son, Driffield, Yorkshire.—*List of Strawberry Plants.*
 L. Späth, Berlin.—*List of Bulbs.*
 E. H. Krelage & Son, Haarlem.—*Wholesale Catalogue of Bulbous Plants.*



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

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

Seedling Raspberry (*John Coombe*).—Your seedling Raspberry is a very good one, large and prolific, but it does not surpass some other varieties already in cultivation, such as Carter's Prolific and Northumberland Fillbasket.

The Parsley-leaved Bramble (*J. N.*).—We think you will find all the information you require in the interesting article of "W. K. W." in another column of the present issue. If you need any further particulars we will endeavour to supply them if you state your requirements. We are very glad to hear from you. No one need apologise for seeking information.

Dismissal of Gardener (*Sussex*).—The case you mention where one month's notice is required for the dismissal of a gardener occupying a cottage on the premises refers to one in which a yearly hiring existed. In the case of a weekly hiring and weekly payment only a week's notice is required.

Garden Register (*C. L.*).—We have no work published under the above title, nor do we know exactly what you mean, or we might perhaps be able to assist you in procuring what you want.

Storing Bulbs (*J. B. W.*).—Bulbs stored in such large quantities as your letter indicates cannot be considered safe, the Crocuses especially. Large dealers spread them 2 or 3 inches thick on shelves tier above tier, and even then find it necessary to move them occasionally for keeping them in a sound state over the longest period.

Echinocactus, Echinocereus, and Echinopsis (*Trike*).—The most easily observed characters which will enable you to distinguish these genera is the position of the flowers, those in Echinocactus rising from the crown of the globular fleshy stem, while in the other two genera the flowers are produced from the side of the stem. Echinocereus is distinguished by the short flower tube as compared with Cereus, the first bearing at its summit the persistent remains of the flower, and the seeds are rough. In Echinopsis the flowers have a very long tube, covered with bristles or hairy scales. All have thick globular or rounded fleshy stems, and with the Melocactus are readily recognised at a glance as compared with the majority of allied plants. The genus Cotyledon has flowers with five sepals, a tubular five-cleft corolla, and ten stamens, while Crassula has all the parts in fives, sepals, petals, and stamens. Articles upon the subject you name will shortly appear in these pages.

Ivy on Trees (*Sussex*).—There is no question but that Ivy is injurious to trees against which it grows, as is evidenced by the diminished vigour of the trees as compared with those that are not mantled with Ivy; but there is no disputing the fact that when trees have been long and so much covered with it as to be very much enfeebled thereby, that the removal of the Ivy acts prejudicially by exposing the long-protected bark to the direct influence of the atmosphere. Ivy ought never to be allowed to grow on trees that are intended for profit, but should be cut or removed before it has made much headway. Trees covered with Ivy in a young state will never make profitable timber, and aged trees are better felled when covered with it, unless it be desired to retain them as ornaments.

Clematis Shoots Dying (*A. M.*).—There is nothing on the leaves and stems sent indicative of disease. The growth is evidently very weak, as may be anticipated from the second growth, the first having been destroyed when 6 or 8 feet long. The "white place on the stems about 3 inches from the base" is no doubt the cause of the mischief, and is, we think, caused by slugs eating off the bark, which prevents the flow of the sap, and causes the shoots to collapse for want of nutriment. Dust around the collar of the plant with quicklime, and search for the pests after dark with a lantern, particularly in moist weather.

Zonal Pelargoniums not Thriving (*C. A. L.*).—We do not know that any kind of cement is injurious to plants, but the floor is probably formed of concrete—i.e., asphalt, into which gas tar enters largely, and the effluvia given out during "hot sunny weather, and in winter when artificial heat" is employed, is highly injurious to plant life, especially plants that have hairs on the leaves, such as Pelargoniums, Gloxinias, Achimenes, &c., and will

cause the leaves and flowers of Fuchsias to drop. We should remove the floor if there is tar in it, and replace it with stone, which is certainly quite as economical in your locality as cement. We have had houses with cement floors, and they have never caused any injury to the plants. What are the hot-water pipes coated with? Is there anything in the painting of the wood-work calculated to give off offensive effluvia?

Tree Carnations—Lifting Roses (*J. F.*).—We have frequently grown tree Carnations for two years and more, selecting healthy sturdy plants, shifting such as could be conveniently placed in larger pots, removing a portion of the soil from the others, and adding fresh rich compost. During the summer they were plunged in ashes in the open air, and accorded generally the same treatment as Chrysanthemums as to syringing and watering. Many plants that have been much drawn under glass during the winter are of little further use; and as a rule young plants raised early from stout cuttings and grown generously through the summer, produce the finest blooms over the longest period. But everything depends on the skill of the cultivator, and a person growing these Carnations for the first time would not act prudently by throwing away all his old plants before he had young plants thriving satisfactorily. You must not disturb the Tea Roses now, but take them up and pot them in the autumn.

Soil for Fruit Trees (*Idem*).—Healthy and fruitful trees and excellent crops of Strawberries are grown in soil much inferior to that of which you have sent us a sample. Assuming that water passes freely through it, and that there is not a stagnant subsoil, we fail to see that anything beyond ordinary farmyard manure is needed for growing Strawberries, and surface-dressings for fruit trees. A good Strawberry for your purpose is Sir Joseph Paxton.

Disbudding Vines—Ventilating (*H. S.*).—Usually there are far too many growths left on Vines, whether they are grown on the long-rod or short-spur system. On young rods 18 inches apart the laterals ought to be thinned to at least that distance asunder along each side of the cane. This should be done immediately the bunches are visible in the spring, removing the superfluous growths by degrees until the requisite number having the best bunches alone are left. Your question on ventilating cannot be answered categorically, the direction and force of the wind and the state of the weather must always be taken into account. The top ventilators may be left open from 2 to 6 inches provided rain is not admitted and the temperature of the house does not fall lower than 65°. The front lights may be opened an inch or two on calm nights when the Grapes are colouring.

Vines Unhealthy (*W. P., Somerset*).—We have the satisfaction of informing you that the condition of the Vine you have sent is not the result of phylloxera. Two causes appear to have contributed to its unsatisfactory state. First, the interior of the ball of soil was as dry as dust, and by no ordinary watering could it be made moist. This is the result of shifting when the soil in the pot from which the Vine was removed was too dry. That is one cause of the evil. The other is mixing too much of the fertiliser you name in the soil and poisoning the roots. Where we found those in the interior as dry as wool and most of those near the sides of the pot corroded, we were surprised that the Vine did not succumb before and more completely. If you have other Vines showing the same symptoms of collapse you had better immerse the pots in a pond for an hour or two, and cut the canes down to a healthy lateral; they may then perhaps make a fresh start and produce useful rods.

Carnations for Winter—Tuberose (*L. I. K.*).—Unless the plants make strong and healthy growth during the summer they will not flower satisfactorily in the winter. They are better in a frame or even outdoors at this season of the year than in a greenhouse, where they almost inevitably become drawn, making thin growth and leaves. Old plants which crowd the pots with roots require much water and weak liquid manure once or twice a week; young plants must have the soil always moist, but not saturated. As a rule plants that have not filled the pots with roots have too much water, while those that are root-bound do not have sufficient. If your plants are too large for a frame stand them outdoors in a shaded place for a week or ten days, but not under trees, then assign them a more sunny position. They perhaps need fresh soil. See our remarks to another correspondent. Tuberose may be potted as soon as you can obtain bulbs in the autumn. It is a good plan to bury them in cocoa-nut fibre refuse, like Hyacinths, until they commence growing; but they require more heat than Hyacinths afterwards, and a very light position. Your letter has been forwarded.

Names of Fruit (*J. M. C.*).—Owing to imperfect packing, the fruits not being made firm, they were perfectly unrecognisable. We can only say that the foliage of the Strawberry resembles Dr. Hogg. Try it another year, the weather in your district may have been unfavourable for this variety this season.

Names of Plants (*J. P.*).—*Lonicera sempervirens* Brownii. (*W. Cranswick*).—1, *Festuca duriuscula*; 2, *Alopecurus pratensis*; 3, *Cynosurus cristatus*; 5, *Melica uniflora*; 6, *Lysimachia Nummularia*. Miss Plue's work, "British Grasses," published by Lovell, Reeve, & Co., may perhaps suit you. (*F. T.*)—*Populus tremuloides*; 2, *Thuja orientalis*; 3, *Abies canadensis*. (*L. B.*)—*Sweet Sultan* (*Centaurea moschata*). (*W. E. B.*)—1, *Tradescantia virginica*; 2, *Potentilla argrophylla*; 3, *Doronicum pardalianches*; 4, flowers all faded; 5, *Astrantia major*. (*J. McN.*)—1 and 3, *Sedum album*; 2, *Sedum spurium*. (*E. C., Birmingham*).—1, *Campanula Trachelium*; 2, *C. rapunculoides*; 3, *C. glomerata*; other specimen insufficient. (*E. Kenrick*).—1, *Salix aurita*, the Eared Sallow; 2, *Salix argentea*, the Silvery Willow; the bud-like formations are the cases of insects that feed upon Willows, and are very general; 3, *Trientalis europæa*, Chickweed Winter Green, a very rare and most interesting plant, and the only British species that belongs to the seventh class (Heptandria) of the Linnean arrangement of botany. We see no reason why the Sundew should not be found in Aberdeenshire, for the plants are generally distributed and grown among sphagnum from the sea level to 1000 feet or more high. The specimens arrived in very bad condition, and you may consider yourself fortunate in having them identified. Plants for naming should not remain in the post office over Sunday, but should be posted early in the week. (*A. F., Bedale*).—*Phlomis fruticosa*.

Jars for Honey (G. C.).—Mr. Blow's address is Welwyn, Herts, and he will no doubt give you the information you need.

Bees Ejecting Brood (A Notice).—We answered the same question under the same signature four years ago as follows:—It is not an uncommon thing for bees in continued bad weather to east out brood such as you describe. Drone brood is usually first got rid of. It is a sign of pauperism; and we fear that your experience will be found to be no uncommon one this year. Mr. Pettigrew, in his "Handy Book on Bees," says:—"Bees that are kept on the point of starvation wisely refuse to set eggs. Their combs become empty of brood; their numbers decrease; their bankruptcy blights them for a month, if not for a whole season." Feeding immediately with syrup is the obvious remedy. A pound of refined sugar boiled in a pint of water makes good food for starving bees.

COVENT GARDEN MARKET.—JULY 25TH.

TRADE heavy. Prices of soft fruit inclined to give way.

FRUIT.

	s. d.	s. d.	s. d.	s. d.	s. d.
Apples	½ sieve	0 0	to 0 0	Grapes	lb. 1 3 to 3 6
"	per barrel	0 0	0 0	Lemons	case 10 0 20 0
Apricots	box	2 0	2 6	Melons	each 2 0 3 6
Cherries	½ sieve	4 0	10 0	Nectarines	dozen 6 0 10 0
Chestnuts	bushel	0 0	0 0	Oranges	100 6 0 10 0
Currants, Black ..	½ sieve	3 6	4 0	Peaches	dozen 6 0 12 0
"	½ sieve	3 0	5 0	Pears, kitchen ..	dozen 0 0 0 0
Figs	dozen	2 0	3 0	"	dozen 0 0 0 0
Filberts	lb.	0 0	0 0	Pine Apples, English ..	lb. 2 0 3 6
Cobs	100 lb.	0 0	0 0	Raspberries	lb. 0 3 0 5
Gooseberries	½ sieve	2 6	3 0	Strawberries	lb. 0 3 0 9

VEGETABLES.

	s. d.	s. d.	s. d.	s. d.	s. d.	
Artichokes	dozen	2 0	to 4 0	Mushrooms	punnet 1 0 to 1 6	
Asparagus, English	bundle	0 0	0 0	Mustard and Cress	punnet 0 2 0 3	
Asparagus, French	bundle	0 0	0 0	Onions	bunch 0 0 0 4	
Beans, Kidney	lb	0 3	0 4	Parsley	dozen bunches 3 0 4 0	
Beet, Red	dozen	1 0	2 0	Parsnips	dozen 1 0 2 0	
Broccoli	bundle	0 9	1 0	Peas	quart 0 9 1 0	
Cabbage	dozen	0 6	1 0	Potatoes	ewt. 4 0 5 0	
Capsicums	100	1 6	2 0	"	Kidney	ewt. 4 0 5 0
Carrots	bunch	0 4	0 0	Radishes	dozen bunches 1 0 0 0	
Cauliflowers	dozen	2 0	3 0	Rhubarb	bundle 0 4 0 0	
Celery	bundle	1 6	2 0	Salsafy	bundle 1 0 0 0	
Coleworts	doz. bunches	2 0	4 0	Scorzoneria	bundle 1 6 0 0	
Cucumbers	each	0 4	0 6	Seakale	basket 0 0 0 0	
Endive	dozen	1 0	2 0	Shallots	lb. 0 3 0 0	
Fennel	bunch	0 3	0 0	Spinach	bushel 2 6 3 0	
Herbs	bunch	0 2	0 0	Tomatoes	lb. 0 6 0 9	
Leeks	bunch	0 3	0 4	Taruips	bunch 0 0 0 4	
Lettuce	score	1 0	1 6			

time of exhibition only about four years and a half old, was in her prime.

This style and type of the Sussex breed is extremely well adapted for breeding, not only show animals, but animals for working purposes, because the large and muscular frame is eminently adapted for the power required in the tillage of the land, and instead of using four or six animals in drawing the plough, two only may be used in summer and four in the winter. They should, however, be kept up and in full condition, instead of being poor and grazed only upon inferior grass land. When well bred and well kept, instead of being sold away for fattening into other districts, about eighteen or twenty weeks' good feeding in the stalls would answer the purpose of both working animals and fattening animals, and a less number are or may be kept, and effectually displacing a certain number of horses, which, so far as working and the capital required to maintain, are a dead weight upon the resources of the farm. The two bulls for use in Mr. Hodgson's herd were two sons of the Royal Oxford Champion bull, and both of great substance. Young Oxford, first at the Bath and West of England Show, and second at the "Royal" Shows; and the other, Lord Oxford second, famous in the calf class in the year of exhibition.

The herd of the Right Hon. The Speaker is well worth our attention, and has been well described by Mr. William Housman, from which we have obtained important information respecting this herd, which has been in existence since the year 1858, when it was founded at Glynde in Sussex, a district rendered famous by the improvement effected in the Sussex or Southdown sheep many years ago by Mr. Ellman. Mr. Housman says—"The poor rushy field, flat and exposed, in which the cows and heifers are scraping up their living, looks a most miserable pasture on a November day. If cattle can live on that they can live on anything. But the well-furnished backs and ribs of the cows and heifers here met with bear evidence that Sussex cattle can more than live, they can thrive on such land. There is no pampering except, of course, the usual extra feeding of cows prepared for show. Of course it is not pretended that Glynde cattle grow fat on rushes, but the fields in which the first lots of cows, heifers, and steers are seen is not untrue index to the general character of the farm in hand; but as the proprietor's object is to maintain a pure bred and high-class herd of the distinctive breed of the county, the breeding cattle were introduced and retained under disadvantages already mentioned. This herd has from the first been, and to the present time is, under the management of the Speaker's agent, Mr. T. Colgate, and of his son, Mr. T. Colgate, jun. Most of the original cows were purchased from the herds of Messrs. Henry Catt of Firlie, and Jenner of Framfield. The principal bulls first used, Garibaldi (106), calved in 1860, bred from the stock of the Rev. J. Gould and Mr. J. Noaks, and latterly Stanford (367) has been in service. This bull was bred in 1877 by the Messrs. E. and A. Stanford, whose prize-winning herd has been noticed. The number of cows in the Glynde herd—that is to say, grown-up breeding cows, alone is about twenty; the full muster of all ages is about forty three, and the best cows, amongst which was "Gentle," descends remotely from the stock of Mr. Catt, crossed with one of Mr. G. Berry's bulls. "Polly Jones" was one of the noblest-looking cows in the herd, and also "Julia II." a handsomer, or, for beef-production, a more useful sort of stock cow is not often to be found. These cows exhibited at the Tunbridge Wells Show in 1881 were greatly admired as fine specimens of hardy, sound breeding, and rent-paying animals.

We cannot in this good company fail to notice the very successful prize-winning herd of Mr. A. Agate of Broomhall, Horsham, whose herd now stands very high in the estimation of approvers in Sussex cattle. As an instance of early maturity we will notice Mr. Agate's first-prize bull "Frankenstein II.," which took the first prize for the best bull over one and under two years old, which we so much admired when we viewed him at the late Royal Counties Show at Winchester last June, and being aged only one year, nine months, one week, and six days, we were induced to estimate his dead weight if slaughtered. In making this estimate we could not refrain from making a comparison with his weight had he been castrated and shown as a steer at that age, and we thought that although he weighed in the showyard a dead weight of 140 stone (of 8 lbs.), that he would not have exceeded 150 stone had he been steered. To our mind this idea is worth the notice of the rent-paying farmer, because in raising baby beef we ask, Is it worth while castrating any of the male animals when, at two years old and under although they are as well fed, and kept in boxes separately they will not weigh so much as entire animals by 10 stone? And, again, in a prize-winning herd, if all the male animals are allowed to remain entire and exempted from stud service until



THE SUSSEX BREED OF CATTLE.

(Continued from page 64.)

MR. HODGSON'S herd, of Lythe Hill, near Haselmere in Surrey, was only founded in 1878, but as Mr. Purkis the steward does nothing by half measures, but proceeds upon the system of what is worth doing is worth doing well; and both the land in hand and the cattle upon it bear evidence of the will and skill of the manager. Although this herd has been so lately commenced it was the very next year winning showyard honours, including the championship of the Sussex bull classes at Kilburn. The best animals which could be purchased were obtained for laying the foundation of the herd. The system adopted is to keep the stock generously, partly for the sake of the animals, and partly from the benefit to be derived by the land, as the cake consumed fattens the land as well as the cattle. One practice is worth notice—namely, that the calves are generally suckled longer than the usual period in Sussex herds, and the stock of the future derives much benefit, enabling them to make more size, weight, and completeness of form.

The first cow in the herd deserving the chief notice is a very grand animal bred by Mr. S. Clifford Gibbons, and exhibited by him in the extraordinary cow class in the Bath and West of England Show at Tunbridge Wells named "Ruby." She is large, broad built, and massive, and in some points seldom surpassed. She has a big midrib, yet none of the hollowness behind the shoulder blades so often found where ribs and shoulder are especially good and well covered; in fact there are great cushions of flesh packed in behind the blades. Altogether she is a cow of great substance, and being at the

twenty or twenty-four months old, there will be a better opportunity for selection of stock or stud animals, because it is quite impossible, other than by blood and parentage, that the best stud animals can be selected for certainty at the early age of castration. We have consulted many first-rate business men, both as butchers and dealers, and they have confirmed our estimate of difference in weight of the steer or entire animal, and at the same time they have alluded to the fact of consumers complaining that baby beef is flavoured too much like veal, whereas by raising and fattening the entire animal the meat would be flavoured more like that of a ripe ox of full age.

We cannot refuse to notice Mr. Agate's beautiful cow taking the first prize at the Royal Counties Winchester Meeting, called Daisy 4th, aged four years, five months, and two days. This we considered one of the handsomest cows we had ever seen of any herd, so even in all her points, large and lengthy, with one of the handsomest head and horns of a style quite peculiar to the Sussex breed, but absent in the same requirements in the second-prize cow belonging to Messrs. E. & A. Stanford, although as a type of early beef-making animal the latter could not be exceeded, although her head and horn denoted anything but beauty. At the Royal Show at York on 16th of this month, however, Mr. Agate's first-prize cow only took third prize, Mr. Hodgson's, Laura the 5th, not noticed at Winchester, being placed first by the Judges at York; but there is no accounting for taste and judgment, although this important decision does not meet our approval. We note that Messrs. Stanford's celebrated bull "Goldsmith" took the first prize at the Royal York Meeting, thus completing his victories, having been first at the Royal Derby Meeting as well as at Reading last year. Two more first-class breeders of Sussex cattle only remain to be noticed—namely, Mr. T. Vickness of Slinfold, and Captain P. Green of Lamberhurst. Both of these breeders were successful in obtaining prizes at the meeting of the Royal Agricultural Society of England held at York, July 16th, 1883.

WORK ON THE HOME FARM.

Horse Labour.—Horses are still employed in carting hay, the produce of the late low-lying meadows; but in various districts in the midland and northern counties the cutting of grass in the pastures has only for a short time been commenced. Some horses will be employed by working the mowing machine, tedding machine, and horse rake, and also in working the elevator at the rick's side—a most important adjunct to the farm labour, as it removes the severest labour the men have previously had to undergo. We note that in our own case the Trifolium crop has lasted out well this year for horse and cattle-feeding at the stables and stalls, and was only finished as a food supply through the effect of sowing both early and late varieties on the 18th of the present month. This land will now be in cultivation for about ten days, and will be prepared for Turnip-seeding by being raftered or half ploughed, and then scarified across the rafters, which will effectually comb out the couch left in the land by neglect of the outgoing tenant last Michaelmas, and in consequence it may even require a cross ploughing before the ridging or last ploughing, seeding, and manuring is done simultaneously. In cases where the land will be required for cropping with grain after a green crop is ploughed-in, the Turnip seed and manure may both be sown broadcast, for it is not desirable to produce large bulbs, for these are maintained and perfected by manure and fertility existing in and abstracted from the soil, whereas if the Turnips are sown broadcast either alone or in admixture with Cole seed (not dwarf Rape), these will plough in readily without the labour of grinding or chopping the bulbs, and will also have been produced chiefly from nitrogen supplied by air and rain, which gives a clear gain to the land to a greater extent than a root crop allowed to come to full maturity. We have now an instance of this on a farm we have in hand. The previous tenant having a very foul Wheat eddish fallowed it, and sowed Turnip and Rape seed with a light dressing of artificial manure. The roots were never hoed and were a poor crop. After ploughing in this weak and light crop the land was, as fast as ploughed, sown with Morton's red-strawed white Wheat in December, and where the Wheat came up a full plant, an extraordinary crop both in bulk and size of ear is now advancing towards harvest most satisfactorily; and in some parts where the plant is hardly thick enough, yet the deep green and luxuriant growth is very remarkable, considering the land being previously in a low condition from bad farming, proves that the green crop which was ploughed-in is the only cause of the fine and satisfactory Wheat crop, now so much admired by all those who have seen it. We shall, therefore, during the early part of the harvest, instead of putting the teammen to harvest work, employ the horses daily in ploughing and sowing Turnips as fast as the corn is cut, and where the land is free from couch, the Turnips and Coleseed may now be sown with advantage, and ploughed-in early in the spring ready for seeding with white Oats of an early variety, or otherwise dredge, in order that the fullest crop possible may be obtained for sale or feeding farm horses. If for sale the white Waterloo Oats and Barley mixed will prove a more valuable produce than Barley alone, especially when sown after green crops ploughed-in, as the crop becomes too bulky and injures the sample of grain for malting purposes.

Hand Labour, where the hay crop has been stacked and thatched, will now consist of hoeing the root crops and singling, in which work the women and lads can assist; preparations and anticipating the harvest should now prevail. Hedge-trimming and border-cutting should always be finished before the harvest commences, couching and burning on the land, as fallows for Wheat will employ the odd horse and some hands; and if the weather should prove unfavourable for the burning couch in small heaps, it is best to cart it away to large heaps for stifle-burning; the land will then be ready for the next ploughing without delay, and the ashes produced may be of considerable bulk, and valuable for laying out as a sufficient dressing for the Wheat crop, as far as they will go, at the rate of about 300 bushels per acre. All the carts, waggons, implements for reaping, should now be overhauled in order that they may be equal to accomplish the heavy work of securing the grain crops during the harvest. If it is intended to hire steam power for work in cultivating the land after the grain or pulse crops are removed, it is well to bespeak the power required beforehand, otherwise delay, which may be serious, will occur and prevent the steam power being of the benefit required.

Live Stock.—Sheep are still extremely dear, and this reminds us that the great Hampshire fair for the Hants and Wilts down breeds of sheep is being held while we are writing (July 18th), and with the present prospect for roots and grass, of which the greatest abundance either prevails or is promised by appearances, must yet tend to keep up a price for sheep which can give little profit to the grazier. There is, however, some advantage in this state of things to the hill farmers who breed and sell their sheep at these fairs; but we have a word of caution to say to these farmers, for if they get a high price for their stock they must examine their accounts at the end of the year, and if commercial profits are absent they must not be deluded into the idea that sheep even on the hills are a necessity, and that stock is the only means whereby a commercial benefit can be obtained. Again, this may be the case if the old system is retained, and to see farming matters in a true and profitable light the sheep system should be compared with other projects which are recommended in farming; for it is by comparison only that we can ascertain the true value of anything in connection with farming, and we close these notes with a truth, that thousands of sheep farmers have succumbed to the times.

YORKSHIRE FARMS.—We are informed that the whole of the prizes, value £300 (and commendations), given by the Royal Agricultural Society at their annual meeting last week for the best cultivated farms in Yorkshire, were awarded to customers of Messrs. Webb & Sons, the Queen's seedsmen, Wordsley, Stourbridge. Class 1.—For grazing or dairy farms above 150 acres in extent, with at least two-thirds in permanent grass, first prize, £75, Mr. R. E. Turnbull, Twyers Wood, Hedon, Hull; second prize, £25, Mr. W. H. Davies, Holme House, Gargrave; commended, Mr. H. Holden, Halton East, Skipton. Class 2.—For arable farms above 150 acres in extent, with less than two-thirds in permanent grass, first prize, £75, Mr. T. H. Hutchinson, Manor House, Catterick; second prize, £25, Mr. J. Watson, Wood House, Brough; commended, Mr. W. Coverdale, Lund Cote, Kirby Moorside. Class 3.—For farms under 150 acres in extent, first prize, £75, Mr. B. Beevers, Clay Shed Farm, Escrick; second prize, £25, Mr. Joseph Horner, Morton, Bingley.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.											
July.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.		In.	
Sunday	15	29.863	53.2	48.9	W.	58.9	63.3	43.2	115.4	41.5	0.72
Monday	16	30.145	61.4	53.4	N.W.	58.9	63.8	42.1	105.3	38.6	—
Tuesday	17	30.068	60.2	54.6	S.W.	58.7	65.4	53.7	91.6	50.7	—
Wednesday ..	18	29.955	59.0	53.3	W.	58.3	64.3	49.0	104.3	45.3	—
Thursday	19	29.804	59.7	52.6	N.W.	58.7	67.2	46.1	116.5	40.6	—
Friday	20	29.769	60.3	55.8	E.	59.0	64.3	47.7	80.6	43.2	0.210
Saturday	21	29.603	58.5	53.5	W.	58.5	63.5	52.2	107.6	48.4	0.265
		29.887	59.2	53.2		58.9	64.6	48.1	103.0	44.0	0.547

REMARKS.

- 15th.—Cool and showery; thunder in afternoon.
 16th.—Cool and dull.
 17th.—Windy, dull, and cool; fine in evening; moonlight night.
 18th.—Dull greater part of the day; fine evening.
 19th.—Bright and fine morning and evening, overcast in afternoon.
 20th.—Cloudy and cool; rain in afternoon, heavy shower in evening.
 21st.—Bright early; cold, dull, showery day.

Cooler than any week since the middle of May, and just equal to that usual in the last week of September. On July 16th, usually one of the hottest days of the year, the thermometer on grass went down to 38.1°, and it is probable that an extra sensitive one laid on a little wool upon a grass plot would have gone below freezing point.—G. J. SIMONS.



COMING EVENTS

2	TH	
3	F	
4	S	Southampton and Liverpool Shows (two days).
5	SUN	11TH SUNDAY AFTER TRINITY.
6	M	BANK HOLIDAY.
7	TU	
8	W	

PHYLLOXERA IN ROSSENDALE.

ASSUMING that individual experience of the phylloxera on the Vine may be interesting to gardeners as well as their employers, I shall without further apology, with your permission, trouble your readers with our experience in the Rossendale Valley, in the hope that it may waken up others who, like us in this "cold unfertile region," may have been sadly vexed in trying to find out what ailed their Vines.

The Rossendale Valley, a thriving manufacturing glen in N.E. Lancashire, describes a half-circle to the north and west of Manchester, and may roughly be said to run from Summerseat (a short distance from Bury) to Bacup. The soil, with slight exceptions, is of that adhesive nature which forms a good material for puddle. It is also strongly impregnated with iron. The bottom is for the most part grit rock or shale, and numerous quarries and coalpits with the cotton and woollen mills form the staple industries. We have as a matter of course the usual amount of smoke and cloud inseparable from Lancashire. About six years ago when I came here I was told by neighbouring gardeners some of their difficulties, the principal of which under glass was the Vine weevil, which attacked the Vine roots, Azaleas, Primulas, and other plants. The first spring I had abundant proof of the presence of the weevil in the maggot and perfect state. Looking at the Vine border I could see on the surface bare snags of roots, having no connection with the soil, the points having decayed and looking as if burnt. Those below the surface were found much the same, having no fibres, but running along black and naked, the bark decayed, and in numerous places eaten half through into the wood. The Vines in most cases started weakly, but towards setting time became moderately strong, and continued healthy till the stoning process commenced. Then the large leaves began to show warts thickly—a dark green at first, changing to brown; the few young shoots appeared to be riddled with yellow spots, as if half-eaten through. I say the few young shoots, because one stopping of the Vine is sufficient here. The fruit was under-sized in bunch and berry, and much given to shanking. At this period the red spider commences to increase vigorously, and to keep it in check it is often necessary to continue syringing.

All this has been known for something like fifteen years, and has been laid to the charge of the Vine weevil, and to an indefinable "something in the soil." A few of us, seeing there was abundance of oxide of iron in the soil, thought it might have caused canker, especially as the roots presented a similar appearance to those of the Rose, Cherry, and Plum outside. Acting on that conviction, several gardeners have obtained soil from the limestone quarries at Clitheroe, a distance of twenty miles; but in the case of one of those who renewed his border in the end of last year, and who replanted his old Vines between the young ones, I find the same symptoms on the leaves, and as far as could be seen on the roots. The Vines are of course more robust, and what is here considered a fair crop has been taken off. Our experience here is that

Vines in newly made borders do moderately well till four or five years old, the foregoing symptoms appearing early. Some Vines have been renewed twice in seven years, others are from nine to twenty years old, the crops from poor to moderate, all having the same symptoms.

A few weeks ago a statement appeared in a Manchester paper announcing the presence of phylloxera in a gentleman's garden at Accrington, six miles from here. Never having seen the pest I went over there for that purpose. In a large span-roofed house used as a vinery, with inside border, I could see something was wrong. I told the gardener the object of my visit, adding that I hoped I was not too late. "No," said he, "we have pulled out the Vines, but have lots of roots yet." He showed me some of them. "Why your roots look the same as ours in Rossendale," I said, "but it is the weevil we have." "Oh, yes," he replied, "we have the weevil too, but we've summat else you'll see presently." With a lens we examined a few roots, and I was rewarded with the first sight of the dreaded phylloxera—the small lemon-coloured insect was there in nests and of all ages. As I retraced my steps I felt convinced our Vines had the same complaint, and after submitting specimens to a gentleman, a naturalist in Rawtenstall, this was found to be certainly the case.

Now, there are six gardens in my immediate neighbourhood infested by the phylloxera, and there are as many more which I have reasonable grounds for believing have it also. What I wish to point out to your readers is the fact that the phylloxera has been in this valley for fifteen years at least, and that there appear to be but few places clear of it, yet if it had not been for this case at Accrington being published there is no saying when it would have been discovered. I am firmly convinced there are scores of people who have had it in their vineries for years, and who like us have been fighting the wrong "animal," and calumniating the poor weevil. To such I would say, If you find warts on the under surface of the large leaves, if the young leaves of the laterals are dotted with light spots partially eaten through, then raise a few roots, apply a strong glass, and look carefully along the surface while the root is damp. If you find the lemon colour with the oval form you have the phylloxera; and upon closer examination you will find lines running lengthwise and across, giving the insect the appearance of being tuberculated.

As I am not at present prepared to say what we shall do with the Vines, I must leave the "curing process" to others; but if your readers feel interested in this phylloxera-stricken district, I may at some future time let you know what measures have been adopted.—J. S., *Newchurch-in-Rossendale, Manchester.*

[We shall be very glad indeed to know what measures have been adopted in this phylloxera-infested district, and especially to learn of any means that have proved successful in banishing this great and much-dreaded enemy of the Vine. Since it seems probable, if not certain, that many Vines must be destroyed, the opportunity does not seem unfavourable for making a few experiments, in the hope that something perchance may be found that will destroy the insect without injuring the Vines; and even if these should be killed in the experiments no great loss will be involved, for if the insects cannot be extirpated the sooner the Vines and border are removed the better.

As we remarked a few weeks ago, a nobleman's gardener saturated a phylloxera-infested border with ammoniacal liquor from gas-works in almost the full expectation that it would kill the Vines. It did not kill them, but killed the phylloxera, and the Vines have since borne many fine crops of Grapes. This liquor, we may remark, should be diluted with from four to six times its volume with water. We are not aware that petroleum has yet been tried as a remedy against the phylloxera, and we think it worth trying. It may be fairly mixed in soapsuds in which a little soda is dissolved. An ounce of oil dissolved in a gallon of water

has been applied to Onions, Lettuces, and Kidney Beans without injury to the plants, but resulting in the death of all insects with which it came in contact. On page 332 of our issue of April 28th, 1881, Mr. Witherspoon enforces the value of hellebore as an insecticide, and suggests that it be tried on phylloxera-infested Vines, firmly believing it would prove effectual, as he observes that "in soil saturated with hellebore no insect can live, and yet plants are not injured." The method of using it is to dissolve 2 ozs. of the powder in a gallon of water, but first mixing a small portion in a little hot water to the consistency of cream, then adding the quantity of cold water required. This is worth trying, as also doubtless will be several other preparations that will suggest themselves to those specially interested in the matter.

There is little doubt that while many persons whose Vines do not flourish are needlessly alarmed by the supposed presence of the phylloxera, there are yet other Vines seriously attacked with this destructive pest, of the existence of which the owners are ignorant. Gardeners and amateurs should as far as possible make themselves acquainted with the appearance of the root and leaves when attacked, and this they may do by referring to the illustrations on page 167, vol. i., of this Journal, the issue of August 19th, 1880. The attacked specimens were taken from the vineries at Norris Green; and on page 413, vol. ii., the issue of May 19th, 1881, Mr. Bardney detailed the method he adopted in clearing the borders from this terrible scourge of the Vine. By an attentive perusal of the articles referred to we think few persons will fail to determine whether their Vines are attacked with the phylloxera or not. One thing is certain—namely, that it is too plentiful in this country, and quite recently Vine roots from three districts have been sent to us seriously attacked with this destructive insect.]

TOMATO CULTURE.

I HAVE of late observed many inquiries in the pages of the *Journal of Horticulture* on the subject of Tomato culture, and as I think my experience in the matter may be of some service to many who grow that most valuable fruit, I am tempted to place it at your disposal, and more especially because I have proved in years gone by that what applies to the Tomato applies exactly in the same way to the far more important Potato.

I this year planted a row of Tomatoes in the centre of a newly planted vinery 180 feet long. One half were planted in loam and horse droppings prepared for a Mushroom bed, the other half in the same pure maiden loam, with no nitrogenous manure of any kind. I used a manure rich in phosphates and potash. The former grew far more rapidly than the latter, but when both came to fruit the latter produced the most splendid crop of the finest fruit I ever saw—some 1 lb. in weight; one was 21 ozs. The former produced much inferior fruit both in size and quality, and all are attacked by the *Peronospora infestans*, while not one of those that received the phosphates and potash have been attacked. I send you samples of both, and I think you will agree with me that the case is proved against farmyard manure as a manure for Tomatoes.

I in the same manner and as conclusively proved last year that exactly the same results followed a similar experiment with Potatoes. No farmyard manure should ever be used for growing any of the *Solanaceæ*. I might add much more, but have said enough to lead others to make similar experiments, which I am certain, if fairly carried out, will confirm mine.—
W. THOMSON, *Clovenferls*.

[The large fruits are grand, large, smooth, and spotless; the small fruits are miserable and blotched with disease; the quality of the former, too, is far superior to the latter. The result of the two methods of culture is very striking, and the experience recorded valuable.]

GARDEN CHEMISTRY.

(Continued from page 68.)

THE SOURCES AND USE OF NITROGEN.

WHILE plants must have nitrogen in the soil or fail to thrive, it contains no store naturally, nor yet will it retain one long, though artificially supplied. True, all fertile soils contain it in the form of nitrates, ammonia, or in the remains of organic matter; but there can

be little doubt that this has all originally been derived from the atmosphere. Every lightning flash produces some hydric nitrate; and though in our country the amount thus produced is not great, in tropical countries, where thunderstorms are not only much more frequent but much more violent, considerable quantities are thus formed and washed into the earth by the descending rain. Ammonia, again, is largely present in the gases discharged from volcanoes; and though the annual amount thus thrown into the atmosphere is not great, the quantity after long centuries, and even thousands of years of accumulation in the soil, will form no inconsiderable supply; for, though under our methods of cultivation nitrogen is lost from our fields and gardens, vegetation under natural conditions prevents this loss.

The amount of nitrogen which the soil gains from the air under ordinary circumstances is by no means inconsiderable. At Rothamstead, according to the authorities there, the soil gains nearly 7 lbs. of combined nitrogen from the air, being washed thence by rain. This is chiefly in the form of ammonia, but about a ninth is in the form of nitric acid. In some districts more is thus gained by the soil, and in others less. In "Air and Rain," by Angus Smith, it is stated that in the rain water at Glasgow there are 9.1 parts of ammonia and 2.436 of nitric acid in 1,000,000 parts of water. In the rain water of Manchester the proportions are considerably less, and in London very much so. At Valencia, on the coast of Kerry, where the air is very pure, it is very small. The following table will serve to illustrate the varying amounts. Taking Valencia (county Kerry) as a standard and representing one part, the other figures will show how much nitrogen exists in the air in the vicinity of towns, and especially manufacturing ones:—

	Ammonia.	Nitric acid.
Valencia (Ireland)	1.00	1.00
Inland parts of England	5.94	2.02
Sea-coast places in Scotland	1.10	1.01
London	19.17	2.27
Manchester	35.94	2.79
Glasgow	50.55	6.72

On the Continent it has been estimated that the soil at Kuschen (Posen) benefits to the amount of nearly 2 lbs. per acre, but at Proskau (Silesia) the gain is calculated to be over 20 lbs.

Nitrogen exists to a greater or lesser extent in what we have named "garden manures," but it is only in manures that contain much pure droppings, and which have been carefully made and protected, that it exists to any extent worth mentioning. Even good leaf soil seldom contains a quarter per cent. of nitrogen, and an ordinary sample of farmyard manure gives something like a half per cent. When properly made and cared for, manure containing even more than the usual quantity of straw will often contain 1½ per cent., or even more, and is, of course, three times the value of that only containing half per cent. Stableyard manure from stables where horses are "hard fed," and where abundance of straw is used, when thrown together in a heap heats with extreme violence, and this causes "firing," or "fire-fanging" as it is called in different parts of the country. This excessive heat drives off the ammonia as fast as it forms into the air, and the residue is of very little value. That which gave it its value is gone; "its spirit has fled." When, on the other hand, the heap is made thoroughly moist, but not wet, with urine preferably, and occasionally turned to prevent it heating too much, the ammonia formed is absorbed by the mass, and in time becomes converted into nitric acid. Even when this is done it is frequently lost. During the fermentation organic acids (humic, ulmic, carbonic, &c.) are formed and combine with the ammonia. The resulting salts are very soluble and are easily washed away. Indeed, there are few even well-cared-for manure heaps from which a rich brown liquid may not be seen draining away. This liquid is largely impregnated with the valuable nitrogen in different forms. Heaps of manure spread thinly, especially in wet districts, frequently have all that is worth retaining washed out of them by rain. Careful building will reduce this waste to a minimum, but thatching, covering with soil placed ridge fashion, or, placing under cover, is better still. Manure so managed is at least worth double that which is first "fired" and then "washed."

Urine is especially rich in nitrogen. Of course the bulk of urine is water, but when pure a ton of it is worth from two to three times as much as an equal amount of ordinary manure, even though it is deficient in phosphoric anhydride. The nitrogen in urine is present in the form of urea, which is a substance as valuable as ammonia. It is soluble in water, cannot be precipitated by ordinary means, and can be utilised at once by plants instead of requiring to be converted into nitric acid, as ammonia has, although it also assumes that form. It is a very different substance from ammonia, but is readily converted into it by fermentation. Its composition will be easily understood from the following arrangements of their constituent elements. Ammonia has this formula— NH_3 ; urea $\text{CH}_4\text{N}_2\text{O}$. To those not

well up in chemistry this looks as if the difference were considerable ;

but rearranged this way the similarity is seen:— $\left. \begin{array}{c} \text{H} \\ \text{H} \end{array} \right\} \text{N}$ is one

molecule of ammonia, or $\left. \begin{array}{c} \text{HH} \\ \text{HH} \end{array} \right\} \text{N}$ is a double molecule. Each of these

atoms of hydrogen may be replaced by a variety of elements and so form many differing compounds. In the case of urica CO replaces

HH, and we have $\left. \begin{array}{c} \text{HH} \\ \text{CO} \end{array} \right\} \text{N} = \text{urea}$, which is thus seen to be as rich

in nitrogen as is ammonia. Of this highly nitrogenous manure horse urine contains 3.1 per cent., and that of the cow 1.8 when the animals are well fed ; but something depends on the feeding, exercise, and amount of liquid consumed. Urine is best employed for moistening manure heaps or for making manure water. For the latter purpose it is especially valuable, needing no preparation except dilution with water. Applied to wet soils six parts of water to one of urine will be sufficiently weak to be safe, but for pot plants, for application to dry soil, or for watering overhead, as must be done in the case of application to lawns or other grass plots, eight or nine parts of water is not too much. It is always best to err on the safe side with such a powerful manure. For starting plants that are fairly rooted, for feeding stunted crops in poor soil, for stimulating pot plants, helping overloaded trees to finish their crops, or for instantaneously renovating poverty-stricken lawns, such manure is invaluable.

Fowl, pigeon, rook, and such manures are very rich in nitrogen, containing from 1 to 4 per cent. of ammonia (nitrogen equal to) per cent. in the fresh state, and resembling guano when dried. Very much the same may be said of night soil. All these are also rich in phosphates.

Being very concentrated and apt to clog into adhesive lumps, dried loam or clay should always be used in the cots, coops, closets, &c., where these are deposited. This will keep the air sweet, for no better disinfectant or deodoriser exists. It will prevent the nitrogen escaping, and will produce an easily pulverised manure, which can be distributed thinly and evenly where its presence will tell very beneficially when applied to gross-feeding crops.

The superiority of bone dust over coprolites or other phosphates is that nitrogen equal to from $3\frac{1}{2}$ to $4\frac{1}{2}$ per cent. is present in fresh bones. When boiled the amount is generally from $2\frac{1}{2}$ to 3 per cent., but rather less in steamed bones. As steamed bones can be ground to a finer powder than fresh or even boiled bones, the effect is often equal or even superior to the more nitrogenous bone meal.

As a source of nitrogen gardeners have drawn on guano perhaps as much as anything. For making manure water it has been used very largely, and with reason, for it is rich in not only nitrogen but in every other plant food, notably phosphates. Not that a real liquid manure can contain phosphates to any appreciable extent, but few gardeners have hitherto distinguished sufficiently between waters containing matter in solution only, and that containing matter in suspension as well. Indeed, most desire water containing solids—something that can be seen. Because of this, guano which has not only much nitrogen easily dissolved, but also fine matter easily suspended, has been a favourite.

There are many kinds of guano, but the best known and the most reliable is that termed Peruvian. This is found in several small islands off the coast of Peru, and is the remains of vast deposits of the droppings of sea-fowls. In some places beds 100 feet thick are found, and in some years as much as 200,000 tons have been imported into the United Kingdom. Although the supplies are exhausted in some of the islands enormous quantities still remain. In ancient times the aboriginal Peruvians used this manure largely, and set so high a value on it that they punished with death those who were found disturbing the birds whose excrement it is.

It is only in hot and rainless (or nearly so) countries that deposits of highly nitrogenous guano are possible. These conditions exist in the latitude and longitude of Peru, and as the guano is only dried excrement from which ammonia has not been driven nor nitrates washed, it is rich in nitrogen. Average samples should contain about 12 per cent. of ammonia (nitrogen equal to) ; but as these guanos are less uniform in quality than what they were formerly, it is well not to purchase largely without a satisfactory guarantee, for few articles have been so much "doctored" as guano. Ordinary samples should contain not under 25 to 27 of calcic phosphate. Dissolved Peruvian guano has been largely used of late years. In ordinary guano part of the nitrogen exists combined in guanine. This is insoluble. But when guano is treated with sulphuric anhydride this is rendered soluble, as well as are the phosphates, while the ammonia is "fixed" by being converted into the sulphate. Dissolved guano (known also as ammonia-fixed guano) is wonderfully constant in composition. Sometimes, however, the ammonia present

is barely over 8 per cent., and sometimes it is as high as 12. This makes a great deal of difference in the values of the samples.

Ichaboc guano frequently contains 13 per cent. of ammonia, but only 11 of phosphates. On the other hand, Mejillones contains only 0.75 per cent. of ammonia, but 71.16 of calcic phosphates. It is a capital article for treating with vitriol in the making of super-phosphate, but may be used alone, being of easy distribution. Sometimes it is sold mixed with nitrate of soda.—SINGLE-HANDED.

(To be continued.)

DISHONEST SHOWING.

WHAT a pity it is that the pleasure of flower shows should be marred by such disgraceful incidents as that recorded in your last week's impression as having occurred at the Sheffield Rose Show. An exhibitor who has toiled late and early for weeks to bring his exhibits up to the requisite standard of perfection is often sorely disappointed when fairly defeated ; but it must be galling indeed to suspect that they have been imposed upon, and still be powerless to prove it, as is the case many a time. Managers of shows should use every means in their power to prevent honest exhibitors from being driven out of the field by men whose pleasure in gaining prizes may be compared to those experienced by a clever burglar upon getting clear off with his booty. I think a little more publicity would have a healthy effect. If the names of both the exhibitors implicated in the Sheffield affair had been published, would it not have been more effectual in preventing others from trying the same? One of the best means of stamping out dishonest exhibitors would be for all societies to take action together, and establish a "black list," by publishing the names of those who have been found guilty of dishonesty in either showing what they have not grown or supplying others with plants or flowers for that purpose. With such a published list of offenders, and combined action on the part of managers of shows in so framing their rules as to be able to prevent those exhibiting who have been disqualified at home or elsewhere, I think some little check would be given to this degrading practice.

For several years I have taken much interest in local shows in the neighbourhood in which I have resided, and during those years so many little things came to my knowledge in the way of begging, borrowing—not to say stealing—that I had to considerably alter my opinion as to the amount of good done by the promotion of flower shows in the mining districts of the north of England. I could give not a few instances of how societies have been imposed upon, and honest men deprived of prizes which they were worthy of receiving and honestly entitled to. I will only refer to one. Some years ago I was one of the committee of a good local show. We had a "thorn in the side" in the shape of a local amateur, who often carried off first honours with plants which we suspected he did not honestly grow. The bone of contention was a prize for six stove and greenhouse plants in bloom. It was resolved to put him under the supervision of a visiting committee, for which the rules of the Society provided. After this we found he could not do quite as well, and sometimes failed to make up a six at all. This occurred on the occasion I am about to refer. About ten days after the date of our local show a friend and I were starting on a journey to Carlisle to see the International held there in 1877—memorable for the unpropitious state of the weather ; and on drawing up at a certain station our attention was attracted by a well-bloomed plant of *Clerodendron Thomsonii* on the platform, which was promptly placed in the van by a gardener living close by, well known to us both. Ere the train reached its destination we had occasion to change, and we had the curiosity to peep into the van, and found this plant addressed to our friend the amateur at the next station. From this we concluded it was intended for a local show which was to come off next day some forty miles distant. The day after our return from Carlisle the daily paper was eagerly scanned, when we found that our enterprising amateur had shown "sixteen plants in bloom" in three classes and obtained a prize in each class ! We were also a little surprised to find that the gardener—a gentleman's gardener, to his shame be it said—who placed the plant referred to in the van acted as one of the judges on this occasion.

These are bare facts which need not be enlarged upon. I would fain hope that such cases are rare, and that the great majority who take their productions to the exhibition table do so honestly. There are few pursuits from which a greater amount of pleasure can be had than in cultivating plants, flowers, and fruits with the ultimate object of comparing them at a flower show with the produce of our neighbours, and I think it is not right that a few "black sheep" should be allowed to spoil that pleasure.—A WORKING GARDENER.

FRUIT AND CHOLERA.—I am sorry to find that in connection with the alarm of an approach of cholera (for which there seems little foundation) a variety of very ridiculous assertions are now getting current amongst the public, which may prove prejudicial to the interests of market gardeners. People are being cautioned against eating vegetables and fruit generally, and some kinds are specially denounced with no show of reason. We all know that stale vegetables, and unripe or over-ripe fruit, are bad at any time ; but there is really no evidence that a renunciation of these "fruits of the earth" wards off any epidemic ; in fact, a moderate use of them in the form of the customary mixed diet, is rather beneficial than other

wise, and it cannot be wise in endeavouring to get up a "cholera scare."
—J. R. S. C.

DISBUDDING CHRYSANTHEMUMS.

CHRYSANTHEMUM-GROWERS—those at least who have been accustomed to win prizes for the grand flowers they have produced and are hoping to win more—will now begin to watch their plants intently with the object of "taking" the buds. Other growers who have not yet been successful at exhibitions, but who are strenuously endeavouring to produce blooms of the first exhibition quality, are similarly watching for signs of the coming flowers, but not with that equanimity peculiar to the veterans, who know what to do under certain circumstances, while the young growers have to feel their way, and are often greatly in doubt as to how to proceed in the work in question. Not a few persons who are giving special attention to Chrysanthemum culture for the first time this year not only do not know which buds to take and when to take them, but the very terms employed by the cognoscenti are more or less enigmatical. In the interests of those, then, who are seeking knowledge, it will be well at the outset to explain the terms that are employed in this question, and especially to endeavour to show what a "crown" bud is and why it is so called,

crown bud also. If breaks, mostly three, push from around it, it certainly comes under that designation. If breaks issue from the base of a bud that bud is a crown bud, because it crowns the shoot surrounded by other breaks for continuing the growth of the plant.

A "terminal" bud is so termed because the growth of the plant terminates in it—that is to say, no other breaks or growths issue from it, but other flower buds cluster round it. Terminal buds are therefore always later than the crown buds, and the blooms produced by the former are rarely so large as those perfected by the latter—the crowns.

Let us now look at the illustrations. Fig. 17 represents the shoot of a Chrysanthemum with the crown bud not "taken"—i.e., not fixed, hence it is abortive, the three breaks having appropriated the strength of the plant, the crown bud, which might have made a good flower, being of no use.

Fig. 18 represents a terminal shoot—that is, the end of what one of the three "breaks" above mentioned produce usually, if not invariably. The bud at the extremity is larger than the others, and if these smaller buds are removed the end one, the true terminal, often forms a good, solid, and compact bloom suitable for the front row of a stand.

Fig. 19 represents a crown bud "taken"—that is to say, the three breaks in fig. 17 were timely removed and the strength of the plant

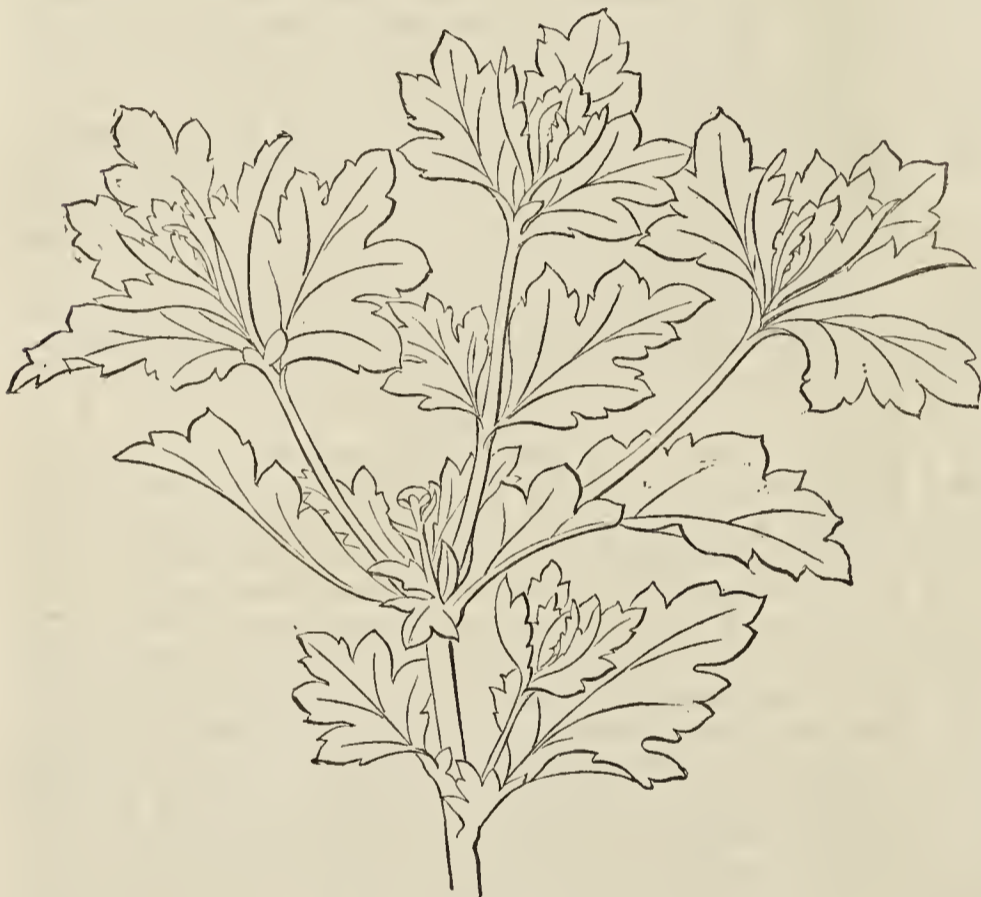


Fig. 17.—Natural Growth of Chrysanthemum with Breaks, and Crown Bud not set.



Fig. 18.—Terminal Growth of Chrysanthemum not Disbudded.

and what a "terminal" bud is and the reason for its designation. Even to some experienced growers information on this matter will not be unacceptable, for it is undoubtedly a fact that in one district, if not more than one, what are really crown buds are regarded as terminals, and *vice versa*.

The technical terms to be made clear on the subject under notice are "taking" the buds, "crown" buds, "terminal" buds, and "breaks."

The term "taking" has here a meaning the direct opposite of that often conveyed by the word. Instead of taking a bud off the plant, it means leaving it on. The bud which is intended to develop into a flower is taken possession of, secured, fixed. In this sense the term is not a misnomer. If the bud were left unaided to take its chance it will either dwindle away or form an imperfect flower; whereas by being taken in hand by the cultivator, all other buds and growths being removed from the stem, it develops under favourable circumstances into a magnificent flower.

A "crown" bud means the first bud that forms in the end of the growth of a Chrysanthemum, but does not terminate that growth. The bud forms in the crown of the shoot, but if left alone, not "taken," the plant will still extend by producing "breaks"—young shoots breaking away just below the bud for continuing the growth. When the crown bud forms early and is not taken the second bud may be a

concentrated in the bud, which has increased as shown, instead of being deprived of support by the surrounding breaks and left, as it appears in the centre of the growths, worthless; or in other words, if the crown bud had not been taken it would appear as in fig. 17; but, being taken, it is in the condition shown in fig. 19, and on the way for making a grand bloom.

Having made the question of buds clearer than it was before, the time and method of taking them may be described. It may be stated as a rule that blooms from crown buds are larger than those produced by terminals. Nearly all the grandest blooms exhibited are from crown buds, but unfortunately the crown buds of some varieties appear too early and terminal buds have to be taken. The system of cutting down the plants as lately described has the effect of retarding the appearance of the crown buds of the earlier varieties and bringing them at the right time for taking, say about the second week in August. If such varieties as Mrs. Rundle, Mrs. Dixon, George Glenny, Prince Alfred, Mr. Bunn, Prince of Wales, White Globe, the Beverleys, Lord Derby, St. Patrick, Beethoven, Lord Wolseley—indeed all that flower naturally early, form their crown at the end of July or the first week in August, and these buds are taken, the flowers are almost certain to be too early; and it is a good plan to push on the plants to the terminal buds and take them—that is, remove the others from them, towards the end of the month.

Except the earliest varieties it will be, in ordinary seasons, safe to take the buds of Chrysanthemums towards the end of the first week in August, and if they are crown buds so much the better. From the 7th to the end of August, then, the work should be completed, taking the late sorts first, leaving the earlies, especially the Mrs. Rundlc type, until the last.

The method of taking the buds is deserving of attention. It is a question if injury has not been done to many flowers by the operator searching into the points of the shoots, crushing the leaves, and injuring the flower stem by removing the incipient growths from the crown buds and the superfluous buds round the terminals too soon. The slightest injury to the stem of the bud taken, or the bud itself, results in a malformed flower.

In taking crown buds great care and judgment are required. The shoots formed around the bud, which, as before said, are usually three in number, should not be removed until an inch in length, then removing two only at the first, leaving the other shoot for a week, or sometimes a fortnight, according to the strength of the bud, the object



Fig. 19.—Crown Bud of Chrysanthemum "set."

being not to remove this shoot until the bud is as large as a small Pea. By this time it will be easy to discern whether the bud is well formed or not; and if not, the bud should be removed, allowing the shoot that was left of the three to extend and produce a terminal bud. This is a safe plan for beginners, and old practitioners need no instructions. When terminal buds are taken a steady hand is required in removing the small buds that are formed round the central one that is intended to produce a flower. A very small sharp-pointed penknife should be used, but not too soon, or the stem invariably becomes crippled, causing the bud to curl, and consequently the flower does not come to maturity. A good time for taking buds is early in the morning before the dew has dried from the plants. When removing them the stem of the plant should not be touched with the knife, but leave, if possible, a portion of the stem of the flower attaching to it. It is quite as well to leave some of the back shoots until the buds attain a good size, which will be about three weeks after they are taken. Then all should be removed to throw all possible strength into the bud for producing the flower.

The subject is by no means exhausted, and any information on special points and varieties communicated by old growers cannot fail

to be acceptable to those young cultivators who are endeavouring to become proficient in the production of this grand autumn flower.

THE COLOURING OF GRAPES.

EARLY Grapes are ripe and eaten, midseason fruit is now in, but the autumn and winter supplies are yet to ripen and colour; and as all who aim at the highest excellence are anxious to put on the thickest bloom on the finished fruit the experience of some of your more successful contributors on two opposite practices may be of service. I am told that one grower, the intense colour of whose black Grapes is the admiration of all who see them, puts himself to much trouble to keep the air of his vineries moist while the Grapes are finishing, and that shading is resorted to in sunny weather. Now in most calendars and in the best books a dry atmosphere is recommended. The grower in question does not live in either an arid or sunny locality, but in one inclining to the opposite, and it is not a question of mitigating extreme dryness or excessive sunshine.

But it is only the black Grapes that are thus brought to perfection. White Grapes are never of the golden tint we wish to see. Not far off in the same locality is another grower, by no means even a fair one, whose black Grapes are never more than rusty, but (and this point is worth noticing) his inferior Muscats—inferior, that is, as a crop and in bunch and berry—are generally beautifully golden. He practises extreme dryness. Now we have personally always had the finest-coloured blacks in wet almost sunless seasons, but the worst whites. When dryness and bright sunshine prevailed the whites were better and the blacks worse. Sunshine and dryness spoil black Grapes, shade and moistness white.

If this be so, then the dry air and borders aimed at in finishing black Grapes is a mistake, and the sooner this is understood the better. Personally we have found it so. Even in a damp dull climate the attempt to secure dry air we have found not good for black Grapes, and we suppose it must be worse in dry climates. But what do the majority say? Messrs. Thomson, Johnstone, McIndoe, Dickson, Taylor, and others too numerous to mention could doubtless throw some light on the matter.—DUNEDIN.

THE HERBACEOUS BORDER.

ON page 5 of this volume your able correspondent, Mr. Abbey, enumerates a list of some flowering plants suitable for the herbaceous border. I think it has been generally acknowledged in your columns that this part of the garden has been much neglected during the last twelve or fifteen years, the geometric and showy style of bedding having replaced it, but there are not wanting many signs that herbaceous plants will be sought after quite as much as in years gone by. It is quite certain that Pelargoniums and carpet beds, good though they are, will not supply cut flowers for decoration and bouquets, and many of our nurserymen, notably Mr. Ware of the Hale Farm Nurseries, Tottenham, deserve great praise in their endeavour to keep and collect these old occupants of the garden. To Mr. Abbey's list I would like to name a few others that no gardener, if he has them, need regret having planted.

Chelone barbata.—This grows 3 or 4 feet in height, having numerous Pentstemon-like spikes of bloom of a reddish-orange colour, very suitable for cutting, and is easily raised from seed or division in the spring.

Acanthus candelabrum.—A very handsome plant with dark green shining foliage, the spikes of pink flowers rising well above the foliage. Even if the plant were flowerless it would be worth a place in any garden on account of its handsome foliage.

Oenothera macrocarpa, *O. fruticosa*.—These two North American plants are well worth a place in the herbaceous border on account of their continuous flowering. Although both have yellow flowers they are very distinct. The first-named has a dwarf procumbent habit, and should be planted near the edge or in the front row. The flowers of it are large and of a beautiful primrose colour. It is often called the Evening Primrose. *O. fruticosa* grows 2 feet high or more, and the flowers are produced more abundantly. Both these kinds are very suitable for the rock garden.

Veratrum nigrum, often called Black Hellebore, but quite distinct from the Hellebore family. It is a very conspicuous and unique plant, the spike of nearly black flowers rising 3 to 6 feet high. A good soil and open position suits it best, and good isolated clumps of it on the grass look very well.

Aconitum versicolor.—Very much the habit and style of *A. napellus*, but the flowers are showy and pretty, of a blue and white colour, the white predominating. A good middle or back-row plant.

Coreopsis lanceolata.—A good hardy perennial, growing 2 feet high or more; large yellow Daisy-looking flowers, very acceptable for cutting on account of their long stalks. Should be

in every collection. *C. Drummondii* and *C. tinctoria* are annuals, but from their free and continuous flowering should also find a place where cut flowers are wanted.

Linum flavum, *L. perenne*, *L. perenne album*, *L. grandiflorum rubrum*.—The last named is annual, but one of the very best. Its rich red colour, and produced in such quantity, makes it very showy. Plants should be raised from seed in April and well thinned out. *L. perenne*, blue, and *L. perenne album*, white, are also very graceful and showy. *L. flavum* has yellow flowers, and, like the preceding kinds, produce them in great abundance. In the four named *Linums* we have four distinct colours—yellow, white, red, and blue, a circumstance not met with in every genus of plants. I have them all four in bloom at the present time in clumps on a rockery, and their well-formed flowers, though single, are objects of attraction and admiration. A soil of a lightish tendency suits *Linums* best.

Centranthus ruber.—This plant should find a place in every border where herbaceous plants are grown. Its red flowers, lasting as they do for several weeks, make it very desirable to cut from. It grows from 1 to 2 feet in height, is readily increased by cuttings or seeds, and will grow well on rockeries or old ruins, I have lately seen a quantity of it a foot in height growing on the top and out of the sides of an old wall. A British plant.

Delphinium formosum.—One of the grandest of plants for the border. It will produce flowers for three months in the year—July, August, and September. For the latter date young seedling plants should be used; or another way I have had them is to cut down an old plant in May when the young stalks are about a foot in height; the following shoots will produce late flowers. It will grow 5 and 6 feet in height if the soil is deep and rich, and as a border plant with blue flowers it has few equals. There are numerous varieties of *Delphiniums* with different shades of blue flowers. One of the best is *D. Hendersonii*, with large flowers of a pale Cambridge blue colour.

Lychnis chalcidonica, *L. Flos-Jovis*, *L. dioica rubra plena*.—These three are easily cultivated. The first-named is a very old occupant of gardens, and was introduced from Japan in the sixteenth century. It likes a rich soil, and the plants come much finer if the stools are divided every third year. It is very hardy, and its bright scarlet flowers are very attractive in July. *L. Flos-Jovis* is a little more tender. The hard winter of 1880 damaged my stock of it very much, but as it seeds freely it is a good plan to save a little every year in case the plants get killed. The stems and foliage have a downy or silvery appearance, and when in bloom, with its pink flowers about a foot in height, it is one of the most attractive plants that can be seen. A native of Italy. *L. dioica rubra plena* is the double form of our British species, and well worth a place in gardens.

Papaver cambricum (syn. *Meconopsis cambrica*).—This is the Welsh Poppy, and its bright canary-yellow flowers, produced in such profusion, about 9 inches in height, render it one of the best of border plants. It is easily increased by seeds or division.

Polemonium caeruleum.—A British plant which is not grown so much as it deserves to be. The foliage and flowers are neat, the stalks rise well above the foliage to about 18 inches high, and its blue flowers are produced in profusion. There is a variegated form of this plant, very pretty for employing with carpet-bedding plants. A few years ago I remember seeing it used in one of the London parks, and with very good effect. A rather dry and well-drained situation is best for it.—A. HARDING.

CELERY AND ITS CULTURE.

THERE is, perhaps, no vegetable to which a larger breadth of ground is devoted than Celery. A good crop of Potatoes may be more profitable to the poor man, and during the summer months Peas occupy more space in the gardens of the opulent; but as the autumn advances Celery begins to show itself, and we are all alike friendly to its successful cultivation; and as the time has now arrived when it ought to be planted in good quantity for winter use, a few general remarks on that subject may not be out of place, especially as the late dry weather renders it necessary for all who suffer from the want of moisture to take due care and be prepared to plant out their crops when rain does set in; and Celery especially likes the ground prepared for it some time before planting.

I may here observe that the old-fashioned mode of planting or growing Celery, by digging a deep trench and adding raw dung, to be dug up with the subsoil to be planted upon imme-

diately, was certainly bad in principle as well as in practice, more especially in such soils as had not previously been trenched pretty deep, and that recently; for it must be borne in mind that all soils require a certain amount of exposure to the open air before they are in a condition fit to receive the various crops they are to be sown or planted with, otherwise for a time the progress they make in growth is very slow. Hence the impropriety of planting Celery in a medium so much at variance with its well-being. In fact, the digging of deep trenches for Celery ought to be abandoned in all cases where there is not a deep and good soil to work upon; neither ought manure in a raw state to be used for this crop, for its action is expected to be immediate; consequently the mixture in which its roots are to ramify ought to be at once good and suitable for them; and where necessity or the taste of the cultivator insists on Celery being planted at the bottom of a deep ditch, let that ditch be made at least 10 inches or a foot deeper than is wanted, and that space filled up with the good surface soil mixed with fine well-decomposed dung, and on this plant your Celery in single rows about 8 inches apart, or still wider if very large heads are wanted; but if moderate-sized heads will do, and a greater number be requisite, then plant a little closer. The result will be in most cases more satisfactory; for although very large Celery is certainly noble-looking, there is a rule in many private families of reducing it to a certain size, by which means very large Celery is no better than medium-sized.

The time of planting Celery varies much with the latitude of the place, local advantages or disadvantages, as well as the season, more especially that part of it in prospect, of which we have but little foreknowledge. However, generally, July may be set down as a good month for planting the main crop, and the earlier the better for late places, and *vice versa*; only as some favoured situations have the disadvantage of suffering from drought in September, and consequently a cessation of growth takes place, there is, perhaps, as much certainty in obtaining good Celery in a cold and late situation as in a dry and early one, as it is a known fact that Lancashire and other moist counties produce the best Celery, not even excepting the vale of the Thames, both above and below London, where very excellent Celery is certainly obtained; but it is as much the result of the liberal use of manure as anything inherent in the soil or situation. One thing is certain—that the mode of managing it about London cannot well be improved upon; and as the natural habitat of the plant is in wet ditches and similar marshy places, it follows that the plant cannot well be expected to thrive and do well in a dry medium; therefore, where circumstances render it necessary to plant it in such places, let it be liberally watered at the fitting time, and this watering must be repeated at all times when wanted; not regular daily dribbling, but a sound good watering once or twice a week, and the hardened surface of the soil disturbed next day, if it had not previously been covered over with short dung or other substance that would not cake and harden at top; and as we often have very dry weather in August and September, it would be better at the setting-in of such dry periods to cover the ground by the side of each plant over with leaf mould, short dung, or a something that will allow the water to pass freely through, and at the same time arresting its evaporation, or the hardening of the ground underneath. Liquid manure may be occasionally given.

Amongst the many names we have there are, in reality, very few distinct varieties of Celery, good solid Red and White being perhaps the best and most suitable name that can be given; but there is certainly a little distinctive variety in the kinds originating in the old White Silver Celery, with its broad leaves and stalks, remarkable for their solidity, but short, and not many of them; but other kinds have their merits as well, and the amateur had better not depend on one kind alone, unless it be proved to be a good one. This, however, has been adverted to before; and it is only necessary here to say, that in planting out Celery for good, it is prudent to have all the plants in one row as nearly alike in size, &c., as possible, as there is a danger of choking up a small one where large ones have to be earthed up at each side of it. Another plantation may be made of smaller plants.

Where the ground consists of a very shallow soil, and a large quantity of Celery is wanted, and size not a particular object, it might be prudent to plant one or more broad beds, say 6 feet wide, and as long as desirable. In this the plants are to be placed in rows across, each plant occupying about a foot square, which might be done by allowing about 16 inches between the rows and 9 inches from plant to plant. This description of plantation might be on the ground surface, and earth or other material might be brought to blanch them, if sufficient cannot be had around them. The advantage of this plan is, that a

greater number of plants can be grown on the same spot of ground than by any other; and though it would be wrong to say they are individually as large as those planted in single rows, yet they are often of a nice useful size for ordinary purposes.

While on this head, I may observe, that where Celery trenches are prepared in the early part of summer, the tops of the ridges might be planted with a summer crop of some kind or other—Lettuces, Cauliflowers, or early Potatoes are all suitable—taking care, however, that they must not remain to the detriment of the Celery crop.—J. R.



“J. W. B.” writes, in reference to CLOVES IN COVENT GARDEN, that “the variety Gloire de Nancy is one of the best.” It may not be the variety the name of which was sought by a correspondent last week; but it is nevertheless worthy of culture, as the flowers are very fine, white, and deliciously perfumed.

— RELATIVE to MR. BUNYARD’S ROSES exhibited at South Kensington last week, we are informed that the Floral Committee awarded a silver Banksian medal for them, which is sufficient testimony of the excellence of the blooms. This award was not made when our reporter left the Exhibition.

— THE blooms of MABEL MORRIS CARNATION shown by Mr. H. G. Smyth, 21, Goldsmith’s Street, Drury Lane, W.C., at the last meeting of the Royal Horticultural Society, were highly commended by the Committee. They were remarkably even, fresh, and bright, fully maintaining the high character this variety has already obtained amongst cultivators.

— WE learn from the AUSTRALIAN MUSEUM REPORT for 1882, just received, that the burning of the Garden Palace caused the almost entire destruction of the Museum, which was intended to hold a similar position in the colony to the South Kensington Museum and its branches at London. The total loss is estimated at nearly £11,000. Space was obtained at the Agricultural Hall for such specimens as could be preserved, and that is being filled up for the purpose.

— A SUNDAY FLOWER SHOW may be considered as a somewhat surprising innovation in England, but that held on the 30th ult. at St. Jude’s, Whitechapel, had so much to recommend it that it might be advantageously imitated in other similar districts. The Vicar, Mr. Burnett, fully recognising the humanising and innocent pleasure that can be derived by the most humble and illiterate from contemplating bright and beautiful flowers, organised a Show to be held in the playground near the above-named church, and his efforts being well responded to by numerous friends, a pretty and effective display of fine-foliage plants and flowers was produced. The inhabitants of the district visited the Show in large numbers, all appearing to thoroughly enjoy the treat so liberally provided for them. Amongst those who contributed, the principal exhibitor was Mr. Holmes of the Frampton Park Nursery, who had some attractive groups of plants and cut flowers. No prizes were awarded.

— MR. J. GIBSON, The Gardens, Brentrey House, Westbury-on-Trym, Bristol, writes:—“I send for your inspection TWO SEEDLING DIPLADENIAS. The small flowers are from a plant which flowered last season when about 9 inches high; this season it has thrown out four shoots about 15 inches, and flowering on three of them. The plant is quite of a shrubby habit, the other is of the same habit as Amabilis, but a stronger grower.” Both are extremely beautiful varieties, and well worth preserving, as they are undoubtedly distinct. The larger flowers are very handsome, of a pale soft delicate pink shading to nearly white in the centre of the lobes, but darker in the throat. The colour of the other is bright rich rose, with quite a tinge of scarlet, the colour very evenly distributed, and the flower neat in form.

— AN amateur writes:—“As a warning to others respecting the danger of FUMIGATING VINES I may briefly describe a serious disaster I have recently experienced. A vinery containing Gros Colman and

other varieties had been occupied with miscellaneous plants until quite recently, and when these were removed it was found that aphides, red spider, and similar pests were far too abundant. We at once decided to fumigate strongly, employing a cheap and coarse tobacco paper for the purpose. Very shortly afterwards the foliage of the Gros Colman Vines was observed becoming brown, dry, and eurred, and now, after the lapse of a week, the whole of the Vines of this variety present a most discouraging aspect, and the crop, which is a good one, cannot be expected to finish satisfactorily. I suppose the fact of the variety suffering so much is due to the well-known tenderness of the foliage.”

— MR. H. W. WARD, The Gardens, Longford Castle, sends us samples of the LONGFORD CUSTARD MARROW, and observes—“It is very much appreciated here by everybody who has partaken of it, and who (gardeners among them) pronounce it as distinct from any other Marrow they had hitherto tasted. I shall therefore be glad to have your opinion of it.” The variety is an excellent one, of good flavour, and well merits notice. The fruits are not so flat as most Custard Marrows, being ellipsoid in form, of moderate size, and clear shining yellow in colour.

— IN “Notes on the Trees and Shrubs of North Europe and Asia,” by Mr. Charles Gibb of Abbotsford, Quebec, is the following respecting ELEAGNUS, THE WILD OLIVE:—

“This is a race of bright silvery-leaved trees and shrubs of great ornamental value. In the grounds of the Pomological School at Proskau we find a shrub 3 feet high, with grey silvery leaves 3 inches long and an inch or more wide. We saw it again in the Botanic Garden at Moscow apparently hardy. It was not named. This is very ornamental, and should not be lost sight of. *E. angustifolia*.—In moderate climates this grows to a large size. At Warsaw we find a tree 2 feet in diameter of trunk and 30 feet high, old, and on its decline. In the cold climate of Orel we saw a tree 35 feet in height, but I do not remember it farther north. It has long narrow leaves, white on under side, bright and pretty. Of its blossom and fruit I cannot speak. *E. longipes* of Japan we saw at Kew, a shrub 6 feet high, bearing large quantities of spotted red berries like oblong Cranberries. At Verrieres, in the garden of M. Henry de Vilmorin, we again see this plant bearing heavily; fruit red, a nice acid, fully equal to Cranberries, and as free from seed. It seems a very abundant bearer, and well worthy of culture as a fruit-bearing plant—a plant likely to yield quite as much of a fruit as good and as saleable as Cranberry. In many nurseries this is known as *E. edulis*.”

— AT the last meeting of the Royal Horticultural Society at Kensington Mr. T. S. Ware of Tottenham, exhibited specimens of this ELEAGNUS EDULIS and a preserve prepared from the fruits. This was tested by the Fruit Committee, and considered by the majority as of good flavour. It contains a slight acid, and previous to being fully ripe there is a rather unpleasant astringency that is, however, removed when more advanced.

— THE annual Exhibition of the Sandringham Cottage Garden Society was held on Thursday afternoon in the Park, and was attended by large numbers of excursionists from all parts of the country, special trains having been run for the purpose. Prince Albert Victor of Wales, accompanied by the Rev. J. F. Hervey, chaplain to the Queen and the Prince of Wales, and Mr. E. Beck, visited the Show and appeared much interested in the various displays. Besides the cottagers’ exhibits there was a tent containing some fine flowers and plants from the Royal estate. The whole of the gardens and grounds were open to the visitors.

— GARDENING APPOINTMENTS.—W. W. Brown, late foreman in the New Gardens, Whitby, has been appointed head gardener to Frederick Priestman, Esq., Elleron Lodge, Pickering. Mr. Thomas Gardiner, late of Owston Park, Doncaster, desires us to say that he is now head gardener to Sir Abraham Woodiwiss, The Pastures, Derby.

— ON Saturday afternoon Mr. Edwards, the Sanitary Officer of the Vestry of St. George, waited upon the Magistrate sitting at Southwark Police Court, with a request that he should condemn twenty boxes of AUSTRALIAN APPLES which had been found to be rotten throughout and quite unfit for food. He stated that about an hour previously he was passing through Butchers’ Row, St. George’s Market, when his attention was called to twenty boxes of Apples from which a fearful stench was issuing, and on opening the boxes he found all the fruit completely rotten. Mr. Bridge proceeded to the yard, and on his return to the bench expressed his surprise that anyone could be found to buy such fruit. The stench from them was enough to disseminate disease. A poor hard-working man came forward and stated he purchased the twenty boxes of Apples from a wholesale firm near Billingsgate. Some small Apples were shown him, and he was given to understand that the contents of the boxes were of the same character. He had no idea that

they were in such a state. Mr. Bridge condemned the Apples and ordered them to be instantly destroyed, advising the purchaser to sue the salesman for his money.

— MR. JOHN FORBES, Buccleuch Nurseries, Hawick, N.B., sends us several dozen handsome PANSY BLOOMS, chiefly varieties of the Fancy type, but including some of the ordinary Show section. All are good, but we can only name a few of the most distinct. First, however, the superb new Viola Bronze Queen deserves notice, as it is a variety of great promise, the flowers large, rich bronzy-purple in colour—a most distinct shade, with a gold eye; the flowers are borne on stout footstalks well above the foliage, and the habit is dwarf and compact. Some of the best of the Pansies were Prince of Orange, rich golden orange ground, three lower petals dark maroon edged with orange; Mrs. Barrie, clear bright yellow ground, lower petals exceedingly dark crimson-purple; Miss Berry, white or pale sulphur ground, lower petals rich violet; Rev. Robert Young, white ground, lower petals violet margined with white, upper purple; Jubilee, very distinct, violet edged with purple, large; and Conquest, bright violet, shading to light purple, edged with white.

— IN the rare and singular species, MASDEVALLIA ROEZLII, just now in flower in the Glasnevin collection, we have in the size of its flowers, quaintness of form, strange colour and texture, a rival to the aptly named *M. chimæra*, than which there are few productions more singular among the grotesques of plant life as set forth in so many species of this most interesting genus. The triangular divisions of the flowers of *M. Roezlii*, including their curious tail-like extensions, measure a span of fully 6 inches, the colour and membranous aspect being like that of a bat's wing, while the little exquisitely moulded shell-like lip is rosy-tinted. This is a recent introduction, and as yet rare even in the choicest collections.—(*Irish Farmer's Gazette*.)

— MR. T. S. WARE, Tottenham, sends us a choice selection of BORDER CARNATIONS, remarkable for the rich, delicate, and pure colours which distinguish the blooms; the floriferousness of some of the varieties is also very noticeable. Illuminator is one of the richest and brightest scarlet selfs in cultivation, free, and of good habit; Sambo is a dark crimson scarlet self, exceedingly profuse; Corsair, a lovely soft rose self; Mrs. Reeve, a pink and purple bizarre of good substance; John Allum, a very distinct and finely formed flower streaked with dark crimson on a lighter ground; Zuleika, dark scarlet with a few darker streaks, flower well formed; Cinderella, a very delicate and pretty variety, pale pink or blush dotted with crimson, bloom full; Perdita, grand colour, white margined with dark crimson in streaks and dots; Redbraes, a charming variety, a heavy purple-edged Picotee, colour bright, and flower good in substance and form. Three beautiful white varieties were also represented—namely, W. P. Milner, one of the best, pure, neat in form, and free; Gloire de Nancy, very large, full, pure and fragrant like the Clove; and White Clove, clear white, fragrant and profuse. All are admirable for borders, and furnish a most bountiful supply of blooms.

— MISS ORMEROD'S REPORT UPON THE INJURIOUS INSECTS that were particularly noticeable during the year 1882 has much of its space devoted to the wireworms (*Glater lineatus* and *obscurus*), which did considerable harm to cereals, also to Swedes, Turnips, Potatoes, and in a few instances to Hops. It is shown by various observations how important it is, after any crop has been infested, to adopt methods of cleansing and manuring the land which are likely to starve out the species, and prevent any further deposition of eggs. The Pea weevil, *Sitona lineata*, destroyed some very promising crops of Peas; and the Apple blossom weevil, *Anthonomus pomorum*, was more mischievous than usual in some districts of Kent and Middlesex. From several districts there were also reports of harm done to Apples by the caterpillars of the winter moth, *Cheimatobia brumata*; but the most damaging insect of the season seems to have been the aphid of the Hop. The report contains many interesting facts concerning other insects of our gardens.

— MR. LEO H. GRINDON gave a lecture at the Manchester Botanical Gardens last week upon POISONOUS PLANTS. Of the 100,000 known flowering plants it was stated that ten thousand might be considered deleterious, all being more or less energetic in their action, and of these probably fifty were deadly. The famous Upas Tree of Java does not affect the atmosphere as is commonly supposed, but its juice is the part which does the harm. Large tracts of land in Java are barren owing to

certain poisonous vapours rising out of the earth, and the early Dutch settlers attributed the barrenness to the influence of the Upas Tree, which was of course a mistake. The Manchineel, a plant of the West Indies, gives off a vapour which is poisonous, and in consequence is never cultivated in this country. The Dumb Cane, also of the West Indies, is very energetic in action, and will produce lockjaw on being applied to the lips. Some of the other poisonous plants described by the lecturer were Aconite, Atropa Belladonna, Veratrum viride, Ricinus communis, and Manihot utilitissima. It was incidentally mentioned by the lecturer that it was the intention of Mr. Findlay to have in the gardens a house specially set apart for poisonous and other economic plants. This would certainly be an advantage to students of botany, and a still greater advantage would be to have a museum like the one at Kew for the reception of the products of plants from various parts of the world.

— THE last issue of *L'Illustration Horticole* contains an excellent coloured plate of *DIPLADENIA PROFUSA*, a most charming variety, which it will be remembered was introduced to this country by Mr. B. S. Williams a few years since. It is regarded by some botanists as a variety of *Dipladenia splendens* or *Echites splendens* of Hooker, but is unquestionably one of the brightest-coloured and most freely flowering forms we have. In the same periodical are coloured plates of *Vriesia heliconioides*, a striking Bromeliad, with large bracts, rosy-crimson at the base and yellowish green at the upper part; and *Panax fruticosum* var. *Deleauana*, which has digitately divided leaves, and is compact and sturdy in growth.

ORNAMENTAL TREES AND SHRUBS.

Magnolia tripetala.—This is a low-growing tree, ours being about 15 feet high and evidently aged, flowering freely from the points of the current year's growth; the flowers being white, large, and deliciously scented. It is deciduous, the leaves very much resembling those of *M. grandiflora*, and is very striking from its bold foliage and conspicuous flowers, which are produced during July, when few other trees blossom. As a lawn tree of moderate proportions it is worth note.

Populus canadensis aurea Van Geerti, The Golden Canadian Poplar, has very beautiful golden foliage effective at a distance, and is amply clothed, growing quickly, soon forming a handsome specimen. It does well in moist soil, like all Poplars, but this does not preclude its growth in any good soil. The head is spreading, ours being worked standard high, which enables a better and quicker head to be formed than when worked low. It is highly probable that this, like the other Poplars, would do well in smoky districts.

Cornus siberica variegata, The Variegated Siberian Dogwood, has small acuminate leaves deeply margined with creamy white, the centre of the leaves being green gives this shrub a very striking appearance. Indeed, it is one of the most beautiful variegated plants, and being of close compact growth is very suitable for lawns, forming beautiful pyramids. It has bright yellow flowers early in spring, borne abundantly.

Cornus mascula variegata.—This has bolder foliage than the Siberian Dogwood, is even more beautifully variegated, forming really handsome pyramids, and will grow anywhere, but prefers a moist soil. Bearing pruning well, this and the preceding can be kept of any desired form without much increase of size, and are therefore suitable for positions where unrestricted trees are undesirable. Both do well in smoky districts, and are, of course, deciduous, which ought not to be any drawback to their employment, as shrubberies and lawns are now stereotyped with evergreens to the exclusion of many light, flowing, and changing forms presented by the deciduous.

Sambucus nigra aurea.—This is very much more golden than the old Gold-variegated Elder (*Sambucus nigra variegata*), being quite yellow in the matured growths, and which it retains to the close of the season. It is of very free growth, and though Elder may be common it is fit to take rank with the choicest of variegated shrubs, not the least of the merits of Elders being that of their thriving in the vitiated atmosphere of manufacturing localities, and they do well near the sea; in fact, screens of Elder are the best as screens or shelter from sea breezes for choicer plants—choicer simply because less free-growing and less common. The Silver-variegated Elder (*Sambucus nigra argentea*) is not nearly so effective as this; still it is a desirable shrub or small tree, and especially as it will grow anywhere.

Acer colchicum rubrum and *Acer virginicum rubrum*.—These are very handsome, having bold Plane-like foliage, making

vigorous growth, the young leaves being bright red, which is not confined to the spring growths only, but is equally prevalent in those made at midsummer, which give the trees a very striking appearance. They are of moderate growth, and as the trees become aged their colouring is more marked.—G. ABBEY.

NEWCASTLE SHOW.

THE Summer Show of the Durham, Northumberland, and Newcastle-on-Tyne Horticultural and Botanical Society was held in Leazes Park, Newcastle, on the 25th, 26th, and 27th ult. under circumstances anything but propitious as regards the weather. Rain poured down during the greater part of the opening day, and note-taking was utterly impossible. The second was a very fine day, but on the third the rain fell at frequent intervals. Leazes Park, which has been described in the Journal, is steadily improving each year. Band stands have been erected, increased floral decorations have recently been added, while the lakes abound in varieties of aquatic birds, that render it suitable for a flower show and equally so for the holiday maker.

The Show as regards entries was the largest the Society has ever had, while the merit of the exhibits was on the whole superior, with the exception of fruit, which showed a falling-off in quantity, although some of the exhibits were good, and Roses were considerably fewer in number than they hitherto have been. The Exhibition was held in a series of tents with the sides open, thus forming one large rectangular marquee 150 feet long by 60 broad. Thus the whole effect of the Show was seen at once when the visitors entered the tents.

OPEN PLANT CLASSES.

For eight plants in bloom, dissimilar, the first prize of £12 was won by Mr. J. Cypher of Cheltenham with an excellent group, his best plants being *Erica Parmenteriana*, 6 feet through, in prime condition and colour; *Clerodendron Balfourianum*, *Bougainvillea glabra*, *Stephanotis floribunda*, *Anthurium Schertzerianum*, *Dracophyllum gracile*, and *Erica Shannoniana*, all in good condition. Mr. E. H. Letts, gardener to the Earl of Zetland, Aske Hall, Richmond, was a good second, his best specimens being *Allamanda Hendersonii*, *Erica Shannoniana*, *æmula insignis*, and *ampullacea*, *Ixora Williamsii*, and *Stactis profusa*, all fit competitors for those in the first-prize collection. Mr. W. R. Armstrong, nurseryman, New Bridge Street, Newcastle, was third, showing an excellent *Rondeletia speciosa* major large in truss; his other best plants were *Erica opulenta* and *Bougainvillea glabra*. There were four collections, which filled one side of the tent.

Fine-foliage plants were, as usual, very good. Mr. Hammond, gardener to Sir Wilfrid Lawson, Bart., M.P., Brayton Hall, Carlisle, was first. *Macrozamia Fraseri*, *Crotons majesticus* and *Weismannii*, *Bonaparteia juncea filamentosa*, *Cycas revoluta*, *Phoenix dactylifera*, and *Latania horbonica* were all fine and had an imposing appearance. Mr. Nohle, gardener to Theodore Fry, Esq., Woodside, Darlington, was second with, among others, a fine *Croton Veitchii*, *Dasylyrium serratifolia*, *Cycas revoluta*, and *Seaforthia elegans*. There were two other collections in the class.

For a group of miscellaneous plants 20 feet by 10 feet there were five competitors, all of which produced creditable groups, any one of which would easily have been placed first at Newcastle a few years ago. Mr. McIntyre, gardener to J. Pease, Esq., Darlington, was first with a graceful arrangement of foliage and flowering plants, all effectively carpeted with Ferns. *Dracænas*, *Crotons*, *Pandanuses*, *Dieffenbachias* were also tastefully employed, the latter with telling effect. Mr. Hammond was second with a good group, in which *Acalyphas* and *Eulalias* were employed most effectively. Messrs. Clarke Bros., nurserymen, Carlisle, were third; Mr. Jas. Nohle was fourth; and Mr. Neil Black, gardener to the Misses Pease, Southend Park, Darlington, was awarded an extra prize.

For six Orchids Mr. J. Cypher was first with *Saccolabium Blumei majus* Dayi, five spikes, very fine; *Odontoglossum vexillarum roseum*, eight flowers; *Cattleya Gaskelliana*, two blooms; *Aerides Lohii*, *Dendrobium Dearii*, and *Dendrochilum filiforme*. Orchids were not largely shown. For six exotic Ferns Mr. Henry Johnson, gardener to J. B. Hodgson, Esq., Darlington, was first. He had a good *Davallia Mooreana*, six flowers; *Gleichenia Speluncæ*, *Adiantum farleyense*, *Gleichenia Mendeli*, and *Microlepia hirta cristata*, all good. Mr. Hammond was placed second with excellent plants. For three *Crotons* Mr. Hammond was first with very fine-coloured specimens, Mr. Neil Black being second with larger plants, but lacked that fine rich colour so essential to a good *Croton*.

For three *Dracænas* Mr. J. Nohle was first, Mr. J. Hammond second, and Mr. J. McIntyre third. For the six tuberous-rooted *Begonias* Messrs. Little & Ballantyne, nurserymen, Carlisle, were first with two-year-old plants, having good foliage and very large flowers. For four *Ericas* the competition was good. Mr. J. Cypher was first with *Erica Parmenteriana rosea*, *E. Dawsoniana*, *E. obhata*, and *E. Hingstoni*. Mr. E. H. Letts second with good plants; and Mr. H. Bulmer, gardener to W. Watson, Esq., Lintz Green, third. In this division bedding plants, alpine and hardy succulent plants were well and largely represented. Messrs. Clark Bros. were disqualified for showing *Echeveria metallica sanguinea* and *Pachyphyton Browni* amongst the hardy succulents.

CUT FLOWERS AND TABLE DECORATIONS.

For forty-eight Roses, dissimilar, E. R. Whitwell, Esq., Barton Hall, the popular northern amateur, added to his former triumphs by being placed first. Very fine in his stand were *La France*, *Madame Hippolyte Jamain*, *Annie Wood*, *Alfred Colomb*, *Baronne de Rothschild*, *Mr. Jowitt*, very good; *Duc de Rohan*, *Etienne Levet*, *Elic Morel*, very large; *Duchesse de Morny*, *Madame Charles Wood*, *Horace Vernet*, *Prince Camille de Rohan*, *Charles Lefebvre*, and *Duke of Wellington*. Messrs. Cranston, nurserymen, Hereford, were second, but much behind the northern grower, Countess of Rosebery being very fine in this stand. Messrs. Mack and Son, Caterick, Darlington, were third. Their best blooms were *Etienne Levet*, *Comtesse de Nadaillac*, *Bartholomew Joubert*, *Comtesse de Serenyi*, *Marie Finger*. For thirty-six Roses Mr. Whitwell was again first with

very fine blooms; and Messrs. Cranston second, showing a superior lot than in the forty-eights. For twelve yellow Roses and twelve Roses of any colour Messrs. Mack & Son were first in the latter class with fine blooms of *Alfred Colomb*. This firm was also first for Tea-scented Roses.

Herbaceous plants were well shown by Mr. Thos. Battersby, Axwell Park. He had *Delphiniums* *Hermine Stenger*, hybridum and azureum, *Sida malvacea*, *Erigeron speciosum*, *Spiræa Filipendula*, and *Verbascum nigrum*. This stand was very effectively arranged.

Table plants were as usual largely shown. Mr. J. McIntyre was first with six even plants, consisting of *Cocos Weddelliana* and *Aralia Veitchii*, *Croton picturatus*, *Aralias elegantissima* and *gracilis*, and *Dracæna gracilis*. Mr. Irvine was second, and Mr. Whiting, 126, Rye Hill, third. There were six lots staged. Table epergnes were very fine. Mr. J. Cypher was awarded the first prize with a charming arrangement of Orchids, stove plants, and Ferns. Mr. Irvine was second, and Mr. Webster third. Mr. Cypher was first for both bridal and hand bouquets. The bridal bouquet was a magnificent example of the bouquetist's art; it combined *Stephanotis*, white *Lapageria*, *Eucharis*, *Pancratium*, all gracefully draped with *Adiantum cuneatum*. Mr. Hutchinson, Toward Road, Sunderland, was a good second. Mr. John Embleton was first amongst a number of competitors for a buttonhole bouquet, in which *Bouvardias* and *Forget-me-not* were most effectively used.

FRUIT.

For a collection of fruit, eight dishes, Mr. J. Edmonds, gardener to the Duke of St. Albans, Brestwood Lodge, Notts, was a superior first. He had a good Queen Pine nearly 4 lbs., Muscat of Alexandria and Black Hamburgh Grapes, splendid Royal George Peaches, much admired for their fine colour, Elruge Nectarines, Brown Turkey Figs, and Eastnor Castle Melon. Mr. Neil Black was second with a small Queen Pine, good Black Hamburgh and Muscat Grapes, a Banana, and Hero of Lockinge Melon. Mr. Edmonds was also first in the collection of fruit, Pines excluded, with excellent produce. Mr. Lawson, gardener to Rev. H. Williamson, Whickham, was second, Royal George Peaches and McIndoe's Melon being very good, and Mr. McIntyre third. For a Vine bearing in pot, Mr. J. Pringle, Benton Hall, was first with Foster's Seedling. For bunches of Grapes, not less than two varieties, Mr. Edmonds was first with Muscat of Alexandria and Madresfield Court; second, Mr. R. Westcott, Rahy Castle, with the same varieties; Mr. G. Douglas, gardener to Mr. J. Harvey, Cockermonth, having the third prize. Melons, green and scarlet flesh, were well and numerous represented. For Peaches Mr. Edmond took the first prize, Mr. N. Black having a similar award for Nectarines. Strawberries were very good, Mr. Lawson, gardener to Sir J. Ianson, Brough Hall, was first with President. Very good Golden Queen Grapes were shown by Mr. Westcott.

DIVISION B, OPEN TO ALL EXCEPT NURSERYMEN.

In the class for six plants in bloom Mr. Edward Adams, Swalwell, was first, *Ericas*, *Stactis profusa*, and *Phœnocomma prolifera* being very large and finely bloomed. This gentleman is a licensed victualler and a well-known amateur. Mr. Methven, gardener to E. Lange, Esq., Heathfield House, Low Fell, was second, his best plant being *Erica Exquisite*, which was very good. For six foliage plants Mr. E. H. Letts was awarded premier honours with *Dasylyrium acrotichum*, *Croton Johannis elegans* and *majesticum*, all finely coloured, *Encephalartos villosus*, and *Seaforthia elegans*. Mr. J. Hammond was a good second, and Mr. Neil Black third. For six Ferns Mr. Johnston was first with *Dicksonia antarctica*, *Gleichenia Mendeli*, *Goniophlebium subauriculatum* fine, *Gleichenia rupestris*, and *Adiantum excisum*. Mr. J. Nohle was second with creditable plants. For table plants Mr. McIntyre was first with superior examples. *Coleuses*, *Fuchsias*, and hardy Ferns were extensively shown in this division and of very good quality.

For twenty-four Roses in the same division Mr. Whitwell was again first; Mr. Burrell, another well-known northern amateur, being second with Roses fine but smaller than the first. For twelve Mr. Burrell secured the first prize. For six bunches of cut flowers Mr. Bollow, gardener to Sir H. A. Clavering, Axwell Park, was first with *Stanhopea insignis*, *Bougainvillea glabra*, *Allamandas*, *Ixoras*, and the old *Pentas carnea*. For an epergne Mr. E. H. Bradley was the premier exhibitor; he was also first for the bridal bouquet amongst eight exhibits.

Not for competition was a large stand of stove and greenhouse plants from Messrs. Ireland & Thompson, Edinburgh: these were much admired. In the collection we noticed *Nepenthes Mastersiana*, the pitchers being 11½ inches long by 9 in circumference. *Nepenthes Harryana* was also striking, and *Anthurium Veitchii* had leaves 4 feet long; and in fine condition were *Phyllotæium Lindeni*, *Bertolonia superbissima*, *Calanthes mascula*, *Odontoglossum Roczii*, and *Adiantum Luddemannianum*. Messrs. Fell & Co., nurserymen, Hexham, showed a grand stand of hardy *Coniferæ* suitable for the district. Mr. J. Watson, nurseryman, Fenham, Newcastle, showed also a similar stand to the above. Messrs. Little & Ballantyne, Knowfield, Carlisle, exhibited a collection of stove and greenhouse plants, conspicuous amongst which were a fine lot of double Ivy-leaved *Pelargoniums* and *Begonia Moonlight*, the latter not much known in the north.

The Committee and their Secretary, Mr. Gillespie, were indefatigable in their exertions to make the Show a success, and it is very much to be regretted that the weather militated so much against their efforts. After the Show the Committee and Judges dined together, the President of the Society, Mr. Hodgkins, presiding, supported by the Treasurer, Councillor Thomas Grey, and the great rosarian, the Rev. H. D'Ombrian. Loyal patriotic toasts and the welfare of the Society were given and received with much enthusiasm. Mr. D'Ombrian made a humorous and pleasing speech, which was much applauded.—B. C.

POULTRY AND PIGEONS IN GARDENS.—Seeing a complaint from Mr. T. B. Dolly in the last issue of your Journal respecting the Pigeon nuisance, I enclose an extract bearing on the subject:—"A farmer need not so fence his field that a neighbour's poultry cannot get into it. It is the duty of the owner of the poultry to fence them up, so that they cannot trespass on other people's land. If the farmer finds your fowls on his land he can sue you for trespass as often as they actually

do trespass; but if he stones them, or traps them, or lays down poisoned grain for them on his own land, he becomes the offender, and can be prosecuted therefor. If you can prove that he places the poisoned grain on his own land you need not wait until some of your fowls eat it and die, the offence is completed as soon as the grain is laid on the ground, and he can be summarily convicted for so doing by the magistrates in petty sessions and fined £10."—W. GALLINAGH.

NOTES ON PROPAGATING.

THE beginning of August is generally looked upon as the orthodox period to commence propagating bedding plants as stock for the following summer's use. Those who are in a position to take cuttings from Pelargoniums now or at an earlier period, have every advantage in securing strong well-rooted plants capable of passing in safety those few weeks in midwinter so trying to plants which have been coddled. Cuttings taken at present root quite freely under very ordinary conditions. Nothing suits them better than to dibble them in light soil out of doors, to be afterwards lifted and potted or boxed in time to be established before winter. I cannot cut from beds until September, consequently propagation is not so simply managed. But just now we like to insert cuttings of Verbenas, Konigas, Iresines, &c.; boxes are preferred for these. A layer of coal cinders is placed for drainage, then a sound compost of loam and manure, and on the surface a slight layer of sea sand. Beginners must note that all these ought to be planted directly they are removed from the parent plants, and then transferred to the frame before they have time to flag or droop. It may also be pointed out that large cuttings are not so good as those which are smaller and healthy. Growing points $1\frac{1}{2}$ to 2 inches in length make very good cuttings. They are not given to droop under the same conditions as do those which are longer. Moreover, they strike root more quickly and grow more rapidly afterwards. A cold frame kept close and moist is a very good place in which to root the cuttings. Later, I have found it necessary to place them where a little heat could be given. A little air during the night will help to prevent mildew appearing; shading from bright sunshine is, of course, very necessary. Where it seems to me that most failures arise with such plants as Lobelias and Verbenas is not so much at the time of rooting as in keeping the plants healthy after they are rooted. Over-dryness is specially to be guarded against; a slightly moist state of the soil all through autumn and winter, and a temperature during the latter period sufficient to keep the plants growing, is the treatment they like. Pentstemons make fine bedding plants, but in order to get them large enough to produce a good display not a day should be lost in striking the cuttings; July is the better month. We dibble the cuttings out in a cold frame and afterwards pot them thereafter, plunging the pots deeply among ashes, and protecting with a cold frame during cold weather. Mrs. Sutherland Walker is one of the best bedding kinds.

When the Pelargonium cuttings are taken in September, instead of selecting small points, as with Verbenas, strong and large growths are selected. At that time the beds require thinning in order to keep damp away and procure a late bloom, should the autumn prove warm and dry. Consequently the plants are carefully thinned. These thinnings are then made into plants for the next year's supply. As the men who thin out the shoots cut each carefully beneath a leaf joint, all that requires to be done in preparation is to remove a few leaves and any flower trusses that are showing. I have found it of great advantage to allow the cuttings to lie for a day or two on the floor of a shed before placing them into the cutting boxes. I always have old sashes ready to place over the boxes should wet weather set in, and during winter I do not object to keeping the plants growing slightly.

As regards Violas, for the last few years I have dispensed with cuttings altogether. Plants divided into pieces with roots in spring make very good stock; but what I like is to lift a sufficient number of plants in October or later—when the Calceolarias are inserted is a good time. These plants are then divided into single shoots with a few roots attached, and are planted in leaf soil with an underlayer of horse droppings to root into. These can be lifted in the following March.

Calceolarias do well in the same material. I have never lifted better plants than those of last season. Without pricking out they were lifted from the place they were put in as cuttings in April, and in the end of June were well in bloom. I saw a number of plants during the summer, most of which had died. Their treatment had been a little very sandy soil to root in, and consequently nothing like a ball to lift with. The hot dry summer very soon killed them. September is a good time to strike cuttings of herbaceous plants. These do well in the open ground with a sash over them for protection.—B.

SETTING AND STOPPING CUCUMBERS.

NOTING Mr. Taylor's remarks on page 44, I emphatically say now, as at page 530 last volume, that the cause of my failure in Cucumbers was too much moisture in the air and too little in the soil. I, however, should like to define what I mean by setting. I may be wrong, but certainly I do not call setting fertilisation. My Cucumbers in the same house with a west aspect to which my remarks refer are now a pleasant sight, a prettier lot of fruit I would not wish to see, but I did not fertilise one; how could I when I carefully remove all male blooms before they expand? If I am correct, a fruit, either Cucumber or Grape, will set and grow without

fertilising. In the case of the Cucumber I have good useful fruit for market purposes, quickly grown, but never so large as the fertilised fruit. It is the same with the Grape. Strong growths ahead of the fruit will starve the embryo Cucumbers and cause them to damp off at the ends, which I say is not setting.

I must tell you all I know now I am writing. I have found it a very good plan to rub the laterals out at the fruit joint. This prevents much overcrowding, and I am sure strengthens the fruit. I have noticed beforetimes in many cases after stopping, the side or sub-laterals rob the fruit and cause some to go off. Mr. Taylor is correct in stating the benefit of non-fertilising, the crop being much larger. What, however, I want to know is this—a fruit grows, it cannot be fertilised for the reason stated, therefore am I correct in saying this fruit is "set?" I might state, in early work I believe the fertilising of, say, a few of the first fruits very beneficial, after then I let them please themselves. As to the question, "Do flowers exhaust plants?" I should say they do; the simple fact of having a quantity of male flowers exhaust the Cucumber plant; these would have a tendency to fertilise the fruit naturally—another exhausting process. It may not be a very great loss, which loss can be readily remedied by top-dressing or feeding. I hope I have made my case clear. I have not used the words "artificial fertilisation" until now, but this will show what I mean.—STEPHEN CASTLE, *West Lynn*.

CULTURE OF PERPETUAL STRAWBERRIES.

THE seed should be sown as soon as it is ripe. Small seed boxes answer better than pots or pans, especially if covered with glass and placed in some shaded place. Prick out the young plants as soon as they can be handled, and be careful to protect them from frost. If transplanted, a single-light frame will be a good place for them. In June or July transplant them to any part of the garden where they can be attended to until they are large enough to plant out in beds or rows, about 6 inches from plant to plant, and there they may remain until they produce fruit. Select the best and destroy all others. For more than forty years I have made a point of such as had good flavour, giving preference to those which partook more or less of the aroma of the Hautbois or Queen Pine Apple. In this I am pleased to say I am allowed, if required, to make use of the names of several gentlemen who have honoured me with their approval of the following among other varieties—1, Jet Black, flavour of the Hautbois. 2, Universal, flavour of the Pine Apple. 3, Lady Dickson, flavour of the Hautbois. 4, Canon Kingsley, very aromatic. 5, Count Mataxa, very sweet and rich Pine Apple flavour; excellent for preserving whole. 6, Countess Mataxa, the richest Pine Apple flavour of any.—W. PRESTON.

NARTHECIUM OSSIFRAGUM.

MEN like large things. "The mighty Helvellyn" is voted a toadstool by the mountaineer who has stood "the most elevated man in Great Britain" on snow-capped Ben Nevis, and the bens are regarded as molehills by him after he has tried to climb Mont Blanc. Some people will even despise the Alps after having seen, perhaps from afar, the cloud-piercing peaks of India or America. Large empires, armies, navies, down to large oxen, babies, and the proverbial big Gooseberries have their charms for most. Into the very domain of horticulture we carry the idea of having something large, and grow large-bunching varieties of Grapes that are confessedly inferior; Cabbages that make exhibition visitors gape, but which cannot be eaten without dyspepsia; and large Potatoes that the very pigs despise. The cube contents of the Roses and Dahlias which win prizes have much to do with determining their position, and in the north they cannot tell you whether a Pansy is fit to look at or not till the foot-rule and the callipers have been applied.

A few men are eccentric. With that few beauty is not so much a matter of arithmetic. Form, colouring, sweetness are what concerns them most, and if a plant is graceful, or even neat only, it can be enjoyed. If the colouring is beautiful it is admired whether big or little. To the eccentric few we commend the very beautiful, though little, Lancashire Bog Asphodel. It can only be seen in bogs. But a bog may be had anywhere, even on the window sill. For a bog only a hollow and plenty of moisture are wanted. It can be big or little according to circumstances. We once had one some 4 yards by 2. The soil was naturally stiff, and the miniature bog was made simply by taking out a few inches of the soil and filling in with very fibry turf from a peaty moor. This was turned upside down, and covered with growing sphagnum kept green and growing by the water which was spilt at the garden pump.

In that "bog" we transplanted many wildings, and none that looked more beautiful than the Asphodel. Its transference from the bog cost little trouble. A good-sized square was isolated by a hedge knife and carried off bodily. Fitted into the surface of the bed it did beautifully for many a year till the ground was wanted for a house. It will also grow on loam kept wet, but we have never seen it so good as when growing under the conditions which cause sphagnum to thrive.

Many choice plants could be grown in such artificially created swampy spots. The rather strong-growing but very beautiful *Menyanthes trifoliata* does well in such, as well as the *Myosotis palustris* and all the *Droseras*. In favoured spots *Sarracenias* thrive and many Orchids, than which few more lovely flowers exist, small though they be.

Such should always be constructed with one side sloping, so that different requirements may be met. On such slopes many of our neatest and smallest Ferns would thrive. Indeed, with a little labour and loving

skill such a spot might be made the most pleasing, because most natural and novel, spot in the garden.—WEB FEET.

SCUTICARIA DODGSONI.

SEVERAL species of *Scuticaria* are grown in collections of Orchids, but they are not very generally known, except perhaps *S. Steeli*, which is one of the standard curiosities, its long narrow terete leaves giving it a very peculiar appearance when suspended from the roof of a house. *S. Hadweni* is another species so much like the preceding that it might be readily mistaken for it, the chief difference being that the flowers of the last-named are more erect. That, however, of which a plant is shown in the woodcut, fig. 20, is not so common, though it is one of the most distinct and striking. Our engraving represents one of Mr. B. S. Williams' plants, and

I mean first or second earlies. I should feel inclined to place it in the former class. In many respects it resembles *Snowflake*, but I have found the quality superior, and with me it is ten days earlier and just a week in advance of *First Crop Kidney*, all planted the same day. *Early Vermont* and *Early Rose* run it close in maturing, but the last is inferior in quality to several others I grow. It is an enormous cropper, increasing fiftyfold.—W. J. M., *Clonmel*.

A HORTICULTURIST'S HOLIDAY.

THE old Romans used to say of any day that had been peculiarly happy and fortunate that it ought to be marked with white chalk, and I am quite sure that any of those who joined in the excursion made by the Horticultural Club on Friday last will agree with me that it ought to be marked with the very whitest of white chalk. Everything conspired to make it a success. A fine day, interesting spots to be visited, a goodly company who could appreciate the various spots of interest, and last



Fig. 20.—SCUTICARIA DODGSONI.

respecting the species he writes in the "*Orchid Growers' Manual*" as follows—"This is a very distinct and handsome species. The leaves are terete, some 12 or 15 inches long, and dark green; flower spike short, bearing two flowers; sepals and petals light brown inside, darker at the base, and blotched with light yellow; lip white, beautifully streaked with light rose and yellow." This so exactly describes the plant that it need not be supplemented, except to state that a first-class certificate was awarded for it by the Royal Horticultural Society, April 24th of the present year.

COSMOPOLITAN POTATO.—This was raised by Mr. R. Dean, and, as I saw by the *Journal* at the time, received a first-class certificate from the Royal Horticultural Society and the silver medal at Birmingham last year. It was put in commerce by Messrs. Carters, Holborn, London, and from them I obtained it. I am anxious to hear the opinion of any of your readers who may have grown it as compared with others—

but certainly not least, the presence of ladies (without whom an excursion of this kind is apt to be solemnly priggish), for it was determined that this element of enjoyment should not be wanting; and the feeling, I believe, which pervaded all, that while it was not possible to get on without eating or drinking, that yet this should not be made, as it too often is, the *raison d'être* of a picnic, and "all went merry as a marriage bell," not a hitch occurred, and I think that as the objects of interest visited were of general interest, I may, on leaving all matters connected with it personally on one side, just give a slight sketch of the day's proceedings.

The trysting place was at Slough, where between thirty and forty met, and the first spot of interest was Mr. Charles Turner's nursery, through which a rapid run was made, and where the marvellous collections of Carnations and Picotees in their full bloom was a revelation to some and an immense treat to others. To myself it was especially so, for owing to parochial engagements I knew that I should be unable to attend the great gathering of florists which is to take place on Tuesday next to do honour to the king of florists, for as such I think Mr. Turner must be looked upon; and I must confess that to me it is an infinitely greater treat to see them growing than to behold them laid out on their

cards after having endured the torture of the dresser, without whose aid it is not considered possible that they can be fit for the exhibition table. Wonderful indeed is the collection grown here. Thousands upon thousands of plants of all kinds, occupying three or four houses, and others in the open air, the grass in the perfection of health, and the varied hues of Carnation and Picotee bright and beautiful. Over the other wonders of this beautifully kept nursery there was no time to linger; a long day's work was before us, and so off we started for Dropmore, passing on our way the Burnham Beeches. As we reached these a slight shower made some of the least hopeful dread a wet day, but it only lasted a few minutes, and then cleared off for a lovely afternoon. The greater number of our friends had never seen this remarkable place (it must have been twenty years since I visited it), and need I say how its marvellous Conifers delighted them? The Araucaria and Douglas Pine, the Deodar insignis, and a host of others, of which "the grand old gardener," Mr. Frost, had many a story to tell, and on all of which he could look as his children, for he had planted them all; and while I could mark how since my last visit the Conifers had grown older and bigger, Frost himself was not a bit older in appearance and vigour than he was then. After having had a two-hours walk through these delightful woods and enjoyed the beautiful views which are to be had from various points in them, we went on to Cliveden, and probably no greater contrasts in gardening could be seen than those presented by these two places. In the one Nature's wildness, in the other the perfection of artistic arrangement. In the one the great interest centres in particular objects; at Cliveden it is the *tout ensemble* that is so delightful. Standing on the broad terrace and looking down on the great masses of bedding-out in the sward beneath, flanked by fine trees, one sees how much can be done by skilful use of materials. Here, of course, bedding-out is in place, and no one can quarrel with it. The conservatories and houses were all in excellent order, and the only regret was that we were not able to have the efficient guidance of Mr. Fleming. Some of the views of the Thames from the grounds here are perfectly enchanting; and with the slanting rays of the evening sun lighting up the woods and making the river glisten like silver, there was something very enticing about it, leading many of our party to say, "Yes, Dropmore is very lovely, but if I had my choice I should prefer Cliveden." An hour and a half was pleasantly spent here, and then we drove on to the Bear at Maidenhead. Here dinner was provided, and in the evening all returned to London.

It was impossible, perhaps, in one day to take a wider grasp of gardening than was given to us on this ever-to-be-remembered day. At Slough we had the perfection of florist-flower gardening, at Dropmore an unequalled example of forestry, while at Cliveden there was the most perfect example of modern gardening that could well be seen; and as not a hitch occurred, and the arrangements were carried out according to the plan that had been arranged, we all agreed that it was especially a *dies cretâ notanda*.—D., Deal.

AUTUMN-SOWN ONIONS.

"A LITTLE LATE" was my remark when I saw the 24th of July recommended on page 52 as "a good time to make the first sowing of Onions to come in for use in April and May next." Yet I do not say it is a bad time, for seed sown on or about that date will undoubtedly give an early and useful crop; but I have for so many years invariably obtained such excellent results from seed sown on the 15th that I am bound to say, as I have done more than once in the Journal, that then and not later should the seed be sown. To those who have sown later, now I would advise careful attention to watering to accelerate the germination of the seed and frequent stirring of the soil between the rows when the plants are visible. This particular crop merits all possible care, for it is the connecting link between spring-sown Onions, and should be so managed that the supply of winter-stored bulbs overlaps it sufficiently for the earliest "Queens" to be of a useful size when they are wanted, and for the Tripolis to be in perfection till the summer crop is ready for the store house. It may be well therefore to give briefly the few cultural details which go to insure success, and first of all comes the

Sowing.—This is done thickly upon any border that is fairly sound and rich, but no special preparation is given or required other than is usual for any similar seed bed such as Lettuce, Radish, or Cabbage. At this season of the year the garden is crowded with successional summer crops, and every piece of ground that is cleared of a crop is at once turned to account for autumn and winter crops of Celery, Cauliflowers, Broccoli, &c. It is not, therefore, often found possible to spare a large breadth of ground in July for an Onion bed. I cannot often do so, but apart from that I prefer having the seed bed in as close a compass as possible in order to facilitate watering, and a dozen rows across a narrow border afford me an ample supply of plants, which are quite ready by the time ground is available for them upon one of the squares, and then comes the

Transplanting.—This is never left till spring, but is done as soon as possible after the plants are large enough to handle. Early Potatoes or second early Peas or Cauliflowers are the crops which are exhausted or ready to be cleared from the ground by the time the Onions are ready for it. Whatever the first crop may have been its clearance is followed by an ordinary dressing of manure, which is dug in, and the surface is broken down finely for the Onions, for which trenching is never considered necessary in soil that is under thorough cultivation. The plants are lifted in the seed bed with a steel digging fork, and are replanted with a trowel, due care being taken to injure the roots as little as possible in the pro-

cess, to press the soil firmly about the plants as they are planted, and to water thoroughly at once, and so frequently afterwards as to prevent flagging, and to promote a free strong growth. The rows are a foot apart, and the plants 6 inches apart in the rows. "Queens" that are wanted early may be planted 3 inches apart in the rows, and by drawing every alternate plant for early use the remainder will attain to an average size of 4 inches in diameter, and keep good well into autumn.

Varieties.—The Queen for its valuable habit of early bulbing must be regarded as quite indispensable for every garden, and if managed as I have shown no other variety is necessary. It does not run to seed like the Tripoli, grows large enough for all practicable purposes, comes early to maturity, and may be cleared from the ground and harvested when older and later sorts are only half grown. It has frequently and erroneously been described as a useful little early variety. Why its handsome white bulbs should be termed "little" I am at a loss to understand, unless its extreme earliness has led to its being used before more than half-grown. To those who have not grown it I would say, Do not trust to it entirely at first, for soils differ, and it may not answer equally well everywhere; but give it a fair trial for two seasons alongside whichever other sort you have been accustomed to grow, and thus prove its superiority for yourself. Of other sorts I agree with "H. W. W." that Red Flat Tripoli is best, for it has repeatedly proved so here when tried with Globe Tripoli, Giant Rocca, and others.—E. LUCKHURST.

THE HANDSWORTH NURSERY.

MESSRS. FISHER, SON, & SIBRAY'S nursery, distant only about four miles from the smoke, soot, and sulphur of Sheffield, is one of the largest and most celebrated in the kingdom. Perhaps in no nursery is there a larger collection of Hollies, upwards of a hundred varieties being grown, from the common sorts to the Handsworth Silver-striped, a most beautiful variety, with a broad pure silver stripe round the edge. Among the green Hollies we also noticed a very fine large-leaved sort which is not yet in commerce. But almost unique as is their collection of Hollies, their Golden Yews and Golden Irish Yews are even more remarkable. There are a thousand or more specimen plants in one enclosure surrounded by high hedges, every one with foliage of a rich golden colour, the effect of which was heightened by the darker foliage of the trees and hedges in the neighbourhood.

Another feature of the Handsworth Nursery is the large *Stephanotis floribunda*, which is probably the finest in this country. It is growing in a house without any artificial heat, and where the temperature during the winter fell to very near the freezing point on several occasions. It is trained to wires near the glass, and covers a space of 28 feet by 11. Last year we saw it in bloom when there were 1450 expanded and unexpanded trusses on the plant, besides a large number that had been cut. It was growing in a small pit or border, 18 inches square and 18 inches deep, in a mixture of peat and loam, and top-dressed with cow manure.

The greenhouse Rhododendrons form another speciality, and many large houses are filled with a grand stock of all the leading varieties. That Roses can be satisfactorily grown, even in the neighbourhood of large towns, is abundantly apparent when at this nursery. Many acres are devoted to them, and the firm was successful in winning some of the prizes at the National Rose Show held in Sheffield a few days previous, and which appeared very little inferior to the exhibits of some of the most successful Rose-growers.

The special purpose of my visit was, however, to see the splendid collection of Pelargoniums, and I was amply rewarded for my trouble. The house contained about 1200 plants in 150 varieties. The house was 100 feet long, 10 feet wide, a path down the centre 2½ feet wide, and the stages on each side 3 feet 3 inches wide. It had recently been built by Messrs. Primrose & Co. of Sheffield, and was glazed on their new eclipse system. As the glass is fastened by small bars of prepared tin and lead, the minimum of obstruction is offered to the sun, and putty and paint are alike dispensed with.—VISITOR.

HISTORICAL JOTTINGS ON VEGETABLES.—No 6.

THE CABBAGE GROUP.

AMONGST the vegetables commonly sold in our markets and shops a place of primary importance belongs to the Cabbage and its allies. Perhaps, indeed, this has a right to be ranked above all the rest except the Potato, for there is not a month in the year when a Cabbage of some kind, large or small, may not be procured, and with the bulk of Britons, English, and Scotch, this group of vegetables is very much in favour. I is certain that Cabbages and Coleworts have been cultivated in this island from the time of the Saxons, for they called February by a name that meant "Sprout-cole," evidently because the young sprouts were not gathered then, I think, as some have supposed, but noticed to be growing upon the old stems that had stood out the long hard winter; and it is likely the garden history of these vegetables goes back to the Roman period, for the first conquerors of Britain introduced several vegetables, though they were outnumbered by the fruits previously unknown here. The Cabbage, in fact, still discoverable wild upon our coasts, is a native species that must have grown

there in the times when a race with painted skins had sole possession of Britain. Possibly the Romans cultivated and improved the wild *Brassica oleracea*, but we rather incline to the theory that they brought seeds or young plants from Italy.

Both Greeks and Romans were acquainted, as the histories show, with several varieties of the Cabbage. They allude to kinds with a compact head, and to others of a looser growth belonging to the Colewort tribe; their style of description, however, renders it difficult to identify these. The Greeks were eloquent in praise of the culinary and also the medicinal value of such vegetables, and commended them as remedies for various diseases as well as aids towards good health and longevity. To their wholesomeness the Romans do not seem to have demurred, but they were scarcely choice enough for the palates of the citizens of imperial Rome, who left them to be eaten by the freedmen and slaves. Pliny notices several kinds named from places where they chiefly grew, and one mentioned as produced in the vale of Aricia was a large Cabbage with a close heart, predecessor, it may be, to our Whiteheart Cabbage. It does not appear that the ancients were acquainted with the edible flower-heads of Broccoli and Cauliflower. This author gives his readers exact cultural directions how to obtain good Coleworts: he advises that they should be sown after the autumn equinox in ground that had been first well dug, then manured. Afterwards he suggests the judicious cutting away of part of the early sprouts, while the earth is gradually raised round the roots.

The numerous varieties of this esculent are easily classed. All those that form hearts of different degrees of compactness are properly Cabbages, an appellation said to be derived from an old French word that meant a "head" or close centre; such were certainly not much grown even in the metropolis until the times of the Stuarts. Cauliflowers and Broccoli present the second group, also deemed rarities till about the same period; they are distinguishable by the firm succulent flower head set on a short stem. The name "Cauliflower" has been explained in several ways; presumably it is merely a new spelling of Gerard's old "Cole-floury"—i.e., a Colewort with a flower-top which is conspicuous. As to "Broccoli," it is, perhaps, a corruption of *Borecole*. This, though it has a stem slightly longer, less flower-heads, and more variety of colour than the Cauliflower, differs not from it botanically, and the method by which both these types were developed out of *B. oleracea* has been forgotten, as well as the names of the men who accomplished the feat.

Then we come thirdly to what are in common parlance "Bunch Greens," "Broccoli Sprouts," Coleworts, or Kale—all varieties of the Colewort familiar to our ancestors in the middle ages and earlier. These have the leaves expanded, and mostly coloured, whatever may be their size, there being no compact heart. So greatly did the Wars of the Roses affect England, that the cultivation of even such common vegetables as the Colewort was greatly interfered with, but under the Tudors gardening speedily revived. Still for some time Cabbages continued to be brought from Holland and France as rarities; and Ben Jonson has a joke in one of his plays, which represents a character receiving intelligence from abroad in Cabbages, and possibly letters were sometimes placed in the heart of one of these vegetables for secret transmission from abroad to England.

A story which seems to have quite as much in its favour as the like traditions generally have, attributes to Sir Anthony Ashley, an official person of some importance in the reigns of Elizabeth and James I., the introduction to our garden of some close or summer Cabbage. Mr. Glasspoole thinks it not improbable there was a rivalry amongst the courtiers of Elizabeth to see who could obtain most foreign roots and plants, and as a Clerk of the Council he would be in frequent communication with the continent. Besides, there was a jest current concerning him, that he got more by Cales than he did by Kale, the allusion being to a command he once held at Cales or Cadiz, where he enriched himself unfairly. Add to this the fact that upon his monument at Winborne St. Giles, Dorsetshire, there is sculptured a round object which might be taken for a Cabbage. True, there have been those who asserted this is no Cabbage, but a cannon ball, "ornamented with reticulations," intended to keep in remembrance the knight's warlike performances, not his horticultural ones.

We are at all events certain that Gerard was the first English author who discoursed upon Coleworts and Cabbages. He grew them and studied them; was specially interested in several of the varieties, amongst these one he calls the Rapecole, having the excellent qualities both of the Colewort and the Turnip. The seed of this he had sent him from Germany, and he says the young plants received the same careful attention he gave to

Cucumbers and Melons. After comments upon several varieties he remarks, "The swollen Colewort of all others is the strangest. This I received from the worshipful London merchant Nicholas Lete, who brought the seed out of France, one who is greatly in love with rare and fair flowers and plants." Was this a kind identical with the Kohl-Rabi of the present day, which is classed amongst Broccoli, and has a stem singularly globose, but which is seldom sent to table? It does not appear that Gerard was acquainted with the cultivation of the Cauliflower or "Cole-floury." This variety is referred to by him as the best of all, the white Cabbage being next; but he would see foreign samples as Cauliflowers, were imported from the Netherlands somewhat stale, and sold early in the seventeenth century at a rate equivalent to about 3s. each as money goes now.

Whether Sir A. Ashley was the introducer of summer Cabbages, as remarked above, may be doubtful. Hartlib's evidence is tolerably positive that the Flemish emigrants who had landed in Kent, and who towards the end of the sixteenth century moved nearer to the metropolis, began to grow Cabbages and Cauliflowers for the markets, chiefly on the Surrey side of the Thames. Then under the Georges these vegetables began to be grown freely in Middlesex. "Cabbage Lane" appears here and there on old maps as the name of a byeway amongst fields of vegetables, in which such plants had a prominent place.

Scotch Kale is famous both north and south of the Tweed, and although some folks have tried to give us English the credit of having introduced it to Scotland after the Union, Kale-yards or gardens possess a longer history than that; probably they date back to the time when parties of German fishermen settled on the eastern coast. So notable a dish is "Kale-brose," that it has given Scotland a title to be called the "land o' Kale" as much as the "land o' cakes," the open Coleworts getting the preference over the close Cabbages. The thrifty Scots have been in the habit of eating what southerners reject, the stem of the Winter Cabbage, peeling off the fibrous portion and boiling the centre, called "custock."—J. R. S. C.

CARNATION AND PICOTEE SHOW AT SLOUGH.

JULY 31st.

THERE was a peculiar appropriateness in the site chosen for the supplementary Southern Show of the National Carnation and Picotee Society on Tuesday last, for the Royal Nurseries, Slough, have a history closely connected with the special objects of this Society, and extending over a period of forty years, during which time Mr. C. Turner has, together with Mr. E. S. Dodwell and later with Mr. J. Douglas, worked most assiduously to improve his favourite flowers and render them more popular. Both objects have been most satisfactorily accomplished, and since the Exhibition held at Slough in 1851 great advances have been made, especially in extending the taste for florists' flowers amongst the multitude. After a lapse of thirty years there was especial interest in a similar gathering on the same ground, affording an opportunity for a retrospect of the Society's labours, and as a signification of appreciation of the valuable assistance received from Mr. C. Turner.

As was expected a great number of visitors assembled to honour the occasion, particularly as no fees were charged for admission; and though exhibitors were not so numerous as might have been desirable, sufficient stands were entered to constitute a very pretty display, the quality of the blooms being extraordinary, especially those shown by Mr. Turner and Mr. Dodwell; indeed, some of the blooms were uncommonly fine both in size, substance, refinement, and colour. They were arranged in the large conservatory near the entrance to the nursery, being placed on the side and cross stages with a few miscellaneous plants between the lines of boxes to relieve the monotony that otherwise too frequently prevails at such shows. In addition to the blooms in competition Messrs. J. Veitch & Sons, Chelsea, contributed three boxes, representing about 120 varieties of Carnations and Picotees, forming a most interesting and valuable feature in the Exhibition. From the Slough Nurseries also six boxes of fresh and bright Roses were staged, including a great number of the best varieties in cultivation; and Mr. R. Dean, Ealing, showed some blooms of a new Clove Carnation Violet King, very rich in colour, and exceedingly free.

Several new varieties of Carnations were awarded prizes and certificates in the classes for seedlings, all those so honoured being of great merit, well deserving the distinction accorded them. Mr. Dodwell was particularly successful, securing certificates for the following four:—

Dorothy.—A charming rose flake, the blooms large, pale rose, petals broad and clear. First prize and certificate. Mr. Turner also obtained a second prize for Mrs. Bridgewater, a pretty rose flake, clear, and of good substance.

Squire Whitbourn.—A purple flake, rich clear purple, with the best-formed petals of all the varieties in this class. Certificate.

Samuel Barlow.—Crimson bizarre, very large flowers, outer petals large and shell-like; colour rich crimson, flakes broad and clear in colour. First prize and certificate.

Mrs. Anstiss.—Pink and purple bizarre, a very beautifully formed flower rich purple and deep clear purple. First prize and certificate.

New Picotees were represented by only one variety, a fine corner bloom in Mr. C. Turner's first-prize twenty-four—namely,

Mrs. Webb.—A heavy rose-edged variety, flowers very large and extremely handsome, the substance being very notable. The colour is light and delicate, but very pleasing.

After careful comparison of a number of fine blooms the premier Carnation was selected from Mr. Turner's first twenty-four, a charming example

of Robert Lord, a very even flower of rich colour. Mr. Dodwell showed the premier Picotee, Mrs. Payne, in his second-prize collection of twenty-four, an exquisite flower that was greatly admired.

CARNATIONS.

A pretty display of these was provided, the majority being of excellent quality, and Mr. Turner's blooms were especially remarkable. The principal class was for twenty-four blooms, not less than twelve varieties, first honours being secured by Mr. C. Turner, Slough, with a superb collection of blooms, large, bright, and clean, the substance remarkable. The varieties were Jessica, Matador, William Skirving, John Ball, E. S. Dodwell, Robert Lord, Mrs. Bridgewater, Rob Roy, Figaro, Thomas Moore, Juno, Mrs. Matthews, George, Sporting Lass, Master Stanley, and Sarah Payne. Mr. E. S. Dodwell, Stanley Road, Oxford, was adjudged a second position with blooms but slightly inferior to the preceding. The varieties were Sam Barlow, Mrs. Anstiss, Robert Lord, Dorothy, Henry Cannell, William Skirving, Master Fred, S. Brown, Florence Nightingale, Tim Bobbin, and Squire Llewellyn. Mr. J. Douglas, Great Gearies, Ilford, was placed third with fresh even blooms very bright in colour.

For twelve blooms, dissimilar varieties, six collections were staged, all differing but slightly in quality. Mr. E. S. Dodwell was again first with a beautiful even collection, comprising handsome blooms of Dorothy, Sam Barlow, Florence Nightingale, Henry Cannell, Sarah Payne, P.F., John Keet, Master Fred, Arthur Medhurst, E. S. Dodwell, Robert Lord, Squire Whitbourn, and Sarah Payne, P.P.B. Mr. J. Douglas was second with fine blooms of John Keet, Squire Penson, Clipper, Earl Stamford, and Sarah Payne. Mr. J. Lakin, Temple Cowley, Oxford, was third. Mr. W. Slack, Queen Street, Chesterfield, fourth. Mr. J. F. Burnaby Atkins, Halstead Place, Sevenoaks, fifth; and Mr. J. Buxton, Manor Street, Clapham, sixth.

In Class C, for six blooms of dissimilar varieties, there were also six competitors. The premier prize was obtained by Mr. T. Austin, Brill, Oxon, for fresh, bright, and clean blooms of T. Moore, Alfred Hudson, Sarah Payne, Mayor of Oxford, J. Bayley, jun., and Master Stanley. Master Stanley Dodwell was second with fine examples of James Douglas, Squire Llewellyn, Unexpected, E. Adams, Scarlet Keet, and Master Fred. Mr. W. Rowan, Manor St., Clapham, was third, a corner bloom of Arthur Medhurst being very fine. Mr. W. Meddick, 7, Hampton Row, Bath, was fourth; J. P. Sharp, Esq., Perry Bar, Birmingham, fifth; and Mr. G. Wynn sixth.

Single blooms were well shown in all the classes.

Scarlet Bizarres.—Mr. J. Douglas was first with Fred, and second with Stanley Hudson, Mr. C. Turner third and fourth with George, and Mr. E. S. Dodwell fifth with Master Stanley.

Crimson Bizarres.—Mr. E. S. Dodwell was first and second with J. D. Hextall, third with H. K. Mayer, and fourth with Rifleman; Mr. C. Turner being fifth with Rifleman.

Pink and Purple Bizarres.—Mr. E. S. Dodwell was first with Mrs. Anstiss, and third with Sarah Payne; Mr. C. Turner being second and fourth with William Skirving, and fifth with James Taylor.

Purple Flakes.—Mr. C. Turner was first and fourth with Sporting Lass, Mr. E. S. Dodwell second and fifth with Sarah Payne, and third with Squire Whitbourn.

Scarlet Flakes.—Mr. E. S. Dodwell was first and second with Henry Cannell, Mr. C. Turner third with Matador, and fourth and fifth with Matador.

Rose Flakes.—Mr. C. Turner was first and second with Jessica and fourth with Rob Roy, Mr. E. S. Dodwell third with Robin Hood and fifth with John Keet.

PICOTEEES.

Handsome blooms of great merit were included in all the leading stands, the Slough contributions being again very fine. For twenty-four blooms, not less than twelve varieties, the leading award was secured by Mr. C. Turner with magnificent examples, the size and substance being surprising. The varieties were Mrs. Webb, Mr. Tutton, Dr. Epps, Her Majesty, J. B. Bryant, Baroness Burdett Coutts, Mrs. Chancellor, Mrs. Payne, Muriel, Mrs. Bower, Monarch, Morning Star, Dr. Abercrombie, Zerlina, Edith D'Ombraim, Exhibition, Thomas Williams. Mr. E. S. Dodwell was a close second, some of his best blooms being Brunette, Clara Penson, Mrs. Payne, Mrs. Chancellor, Dr. Epps, Royal Visit, and Zerlina; and Mr. J. Douglas was third.

In the class for twelve blooms, dissimilar varieties, Mr. E. S. Dodwell took the lead with an even collection of blooms, comprising Mrs. Chancellor, Mrs. Payne, Mr. A. Medhurst, Royal Visit, Muriel, Ada Hannah, Zerlina, Mrs. Rudd, Edith D'Ombraim, Countess of Walton, Daisy, and Novelty. Mr. J. Douglas was a good second, Mr. J. F. Burnaby Atkins third, and Mr. J. Buxton fourth.

The competition was keen in the class for six blooms, six collections being staged. Master Stanley Dodwell was first with Zerlina, Mrs. Payne, Dr. Epps, Mrs. Chancellor, Morna, and Royal Visit. Mr. J. Laken was second with Clara Tinnie, Edith D'Ombraim, Brunette, Mrs. Wilson, and Medina. Mr. J. Austin was third, Mr. W. Slack fourth, Mr. W. Rowan fifth, and Mr. J. P. Sharp sixth.

Like the Carnations, the single blooms were numerous and generally good.

Red Heavy-edged.—Mr. C. Turner first with Dr. Epps, second with Dr. Abercrombie; Mr. E. S. Dodwell third with Mrs. Dodwell and fifth with Brunette; Mr. J. Douglas being fourth with J. B. Bryant.

Red Light-edged.—Mr. C. Turner was first and second with Thomas Williams; Mr. E. S. Dodwell fourth and fifth with the same variety, and third with Mrs. Gorton.

Purple Heavy-edged.—Mr. C. Turner was first, second, and third with Mrs. H. Chancellor; Mr. J. Douglas being fourth and fifth with the same.

Purple Light-edged.—Mr. C. Turner first with Mr. Tutton, third with Her Majesty, fourth with Clinthya, and fifth with Baroness Burdett Coutts, with which variety Mr. J. Douglas was also second.

Rose or Scarlet Heavy Edge.—Mr. C. Turner secured all the prizes in this class, being first and fourth with Mrs. Payne, second with Edith D'Ombraim, third with Fanny Helen, and fifth with Constance Heron.

Rose or Scarlet Light Edge.—Mr. C. Turner was first with Lucy, Mr. Dodwell securing the three following prizes with L'Elegante and the fifth with Miss Lee.

Yellow Grounds.—Mr. J. Douglas was first and third with Princess Beatrice,

Mr. C. Turner second with Bullion, and Mr. Dodwell fourth with the same variety, Mr. C. Turner being fifth with Princess Margarita.

MISCELLANEOUS.

Classes were devoted to Selfs, Fancies, and Yellow Ground Carnations and Picotees, the stands entered being very bright and telling. For twenty-four blooms (not less than twelve varieties) Mr. C. Turner was adjudged chief honours for a varied collection of Selfs and Fancies. The best were Mary Morris, Virgo, Mrs. Bridgewater, Mrs. Llewellyn, Rufus, Autolycus, Flirt, Jessica, Thomas Cathcart, Whipper-in, Field Marshall, and Albert. The second position was gained by Mr. J. Lakin, followed by Mr. J. Douglas, both of whom showed good blooms of the best varieties in cultivation.

For twelve blooms Mr. E. S. Dodwell was awarded the first prize with a charming stand, the bloom large and exceedingly bright. The varieties represented were Saturn, Mrs. Carter, Titania, E. S. Dodwell, Florence, Cardinal, Mrs. Dodwell, T. Moore, The Bride, and Florence Nightingale. Master Stanley Dodwell was the only other exhibitor in this class, being placed second with Titania, Henry Cannell, Sarah Payne, Arthur Medhurst, King of Yellows, The Bride, Clipper, Florence Nightingale, Dandie Dinmont, Mrs. Erskine Wemyss, and Hector.

A special prize of a case of silver spoons was offered by the inhabitants of Slough for a collection of six Carnations and six Picotees, open to amateurs not competing in the leading classes. Mr. J. Laken was the only exhibitor, and secured the prize with neat but small blooms of Edward Adams, Sarah Payne, P.F., J. Douglas, Friar Tuck, Mrs. Tomes, Tinnie, Mrs. Payne, John Smith, Dr. Epps, Edith D'Ombraim, and Zerlina.

During the afternoon a luncheon was held in one of the large span-roofed houses, a company of between sixty and seventy guests assembling. In the unavoidable absence of J. T. D. Llewellyn, Esq., the chair was taken by G. F. Wilson, Esq.; the vice-chair was occupied by Mr. Shirley Hibberd, side tables being taken by Messrs. E. S. Dodwell and J. Douglas. A number of toasts were proposed, the principal, in addition to the usual loyal toasts, being "The Floricultural Societies," "The Royal Horticultural Society," "Mr. C. Turner," "The Exhibitors and Judges," and "The Horticultural Press." Messrs. S. Hibberd, Barron, Turner, Hewitt, Dodwell, and Douglas responded in suitable terms, the first-named making an exceedingly humorous speech in reviewing the progress of the Carnation and Picotee Society.

The weather proved very fine in the morning, but a heavy shower in the afternoon considerably marred the pleasure of the visitors; however, they had abundant opportunity of inspecting both the Exhibition and the attractions of the nursery, which was in admirable condition both outside and under glass. Three or four large houses were filled with some thousands of vigorous and well-flowered Carnation and Picotee plants representing all the best varieties in commerce, and proving by their fine healthy appearance how well their requirements are understood. Outside, the Roses and miscellaneous hardy plants were the chief features, the Dahlias that will in a few weeks produce such a fine display being in grand condition. The meeting on the whole proved a most enjoyable one, and the visitors separated late in the afternoon well satisfied with their outing.

THE CHRYSANTHEMUM.

[A paper read before the Sheffield Floral and Horticultural Society, June 6th, 1883, by Mr. J. Udale, gardener to J. Watson, Esq., Shirecliffe Hall, Sheffield.]

(Continued from page 80.)

PROPAGATION.

THIS is effected by seeds, cuttings, layers, and division. The first method is rarely adopted, except by hybridisers or for raising the annual and sub-shrubby sections. The Chinese and Japanese kinds rarely perfect their seeds in this country, and the late Mr. John Salter used to send his seed-bearing plants to a warmer climate, from whence the seed was returned to him, and he was thus enabled to proceed successfully with the important work he had in hand.

Any of the species may be raised from seed by sowing in moderately light soil composed of loam, leaf soil, and silver sand in equal proportions, and covering the seed with one-eighth to one-quarter inch of soil, after which the soil should be gently watered by means of a fine rose and kept constantly moist. The pots, pans, or boxes in which the seed is sown should be placed in a mean temperature of 60° until the young plants appear, when they should be moved to a cooler place, kept close to the glass, and treated according to their respective kinds and the object in view.

The most general method of propagation is by cuttings. There has been much controversy amongst good cultivators as to the best time, some preferring November, others February and March; but in the case of some varieties most of us are glad to take the cuttings as soon as we can get them—at all events, it is a safe rule to secure the November cuttings, more especially where there is not proper accommodation for preserving the old stools through the winter. My practice is to commence propagating in November, and if necessary continue it even till April; but I prefer to have all cuttings in by the beginning of February. Where space can be spared it is an excellent plan to keep the old plants till the end of January, and exposed to full light and plenty of air, frost being excluded, all shoots and suckers to be thinned out to three or six according to the strength of the plant. These suckers or offsets will make the strongest plants during the coming summer, and produce first-class blooms in the autumn.

In selecting cuttings in a general way those should be chosen that are moderately strong, short-jointed, possessing good foliage, and without embryo buds at their points. Having secured them, the next step will be to prepare pots for their reception. The size most suitable are 60's, but any size may be used, and as many cuttings inserted as there is room for; but I will assume that the cultivator's object is to produce the best possible results by the best practical method, and for a definite purpose. Whether that purpose may be for the decoration of the greenhouse, for specimen plants, or for extra large flowers it is essential to make a good beginning. That being so, it is advisable to insert the cuttings singly into small pots, so that when rooted they may be transferred into larger without mutilation of the roots, which latter it is hardly possible to avoid when there is more than one plant in a pot, and it is necessary to divide them. Therefore take

as many small pots as you require, place a crock or inverted oyster shell over the hole of each, then a few smaller crocks according to their sizes, the larger at the bottom and smallest at top; over these place a little moss, cocoa-nut fibre, or the more fibry portion of loam, to prevent the fine soil being washed down and stopping up the drainage, and so prevent the free exit of superabundant water, any hindrance to which is speedily followed in all manner of cases by sourness of soil, partial, and eventually total, suspension of root-action, and consequent sickness or death of the plant. Too much stress cannot be laid upon the necessity of efficient drainage for any class of cultivated plants, more especially for those requiring copious supplies of water; and the Chrysanthemum is one of these, particularly so when the pots are filled with roots, and the plants are rapidly evaporating the moisture they contain under the combined influences of a scorching sun and parching wind of a day in July or August.

The pots being crocked they should be filled with a compost consisting of one part mellow loam, one of leaf soil, and two of silver sand or river sand. A surfacing of sand may be given, the whole pressed down to within half an inch of the rim, watered, and allowed to drain. The cutting is inserted firmly in the centre of the pot by means of a small dibber. When all the cuttings are inserted place them close to the glass in a greenhouse from which frost is excluded, never shade them, but keep the soil constantly saturated with water until the pots are nearly filled with roots, when they should be transferred to larger pots, and watering must be carried out with more care. I am aware that some good Chrysanthemum growers place the cutting pots in cold frames and leave them without further protection; but such a system does not commend itself to me for various reasons, consequently I do not recommend it to others.

Layering is generally adopted in summer and autumn, more for the purpose of obtaining miniature plants for special purposes than for increasing the stock. This is readily effected by bending the selected shoots down to the soil or pots in which it is desired to root them, and securing them therein, keeping the soil constantly moist until rooted, when they should be severed from the old plants and placed in a shady position for a few days and syringed several times a day until recovered from the check they have received, when they should be exposed to the full influences of sun and air.

Propagation by division of old stools is so simple as to require no particular instructions thereon, except that the plants in all cases should be treated similarly to rooted layers.

Having secured young plants, the next step is to decide which shall be grown for ordinary greenhouse decoration, which for specimen plants, and which for cut flowers for exhibition. In selecting for the first purpose the free-flowering varieties have precedence; for the second, quality as well as quantity is of the utmost importance; for specimen blooms size and quality must be considered.

PLANTS FOR GREENHOUSE DECORATION.

The soil for the first potting should be rather heavier and richer than for cuttings. A good compost is formed of one-third fibry loam, one-third leaf mould, and one-third sand. The pots suitable for this shift are 6-inch ones; these should be drained and the drainage secured as directed for the cutting pots. The soil in which the plants are growing should be moist at the time of potting, and the same rule applies to all subsequent operations. All being ready, place as much soil in the pot as will leave sufficient space between the surface of the old ball and the rim as will hold sufficient water to saturate the whole mass at one watering. Next fill in all around in equal proportions, and press the new soil as firmly as the old, leaving the new soil exactly level with the surface of the old ball. After potting place them in a cold frame or other structure from which frost can be excluded, keeping them near to the glass. Little ventilation should be given till root-action recommences, when more air may be given, and their leading points nipped out to enable them to develop lateral branches, the process being repeated until as many branches are obtained as desired, but in no case to be continued after the middle of June, as the growth made after that time sometimes fails to produce flowers of a satisfactory character.

About the beginning or middle of May they may be transferred to the pots in which they are to flower, those 10 inches in diameter being quite large enough. The soil should be of a strong and rich nature, three parts fibry loam, one of leaf mould, one of sand, and one part old manure. The potting should be performed as previously directed, with the addition of a sprinkling of soot over the drainage, which will serve as a stimulant and assist in keeping worms from entering. The potting should be performed as previously directed, taking care to make the new soil as firm as the old ball. The plants afterwards should be placed on a bed of ashes in an open situation, but at the same time where they may be partly sheltered from strong gales. In the case of amateurs and others who are not able to attend to the watering in the middle of the day it is a good plan to plunge the pots in coal ashes or any other suitable medium three parts of their depth, taking care to place the plants sufficiently far apart that each may be exposed to sun and air.

Water must be unsparingly applied when required, and their wants in this respect should rather be anticipated than allow them to suffer in the least degree. As growth proceeds and the pots become filled with roots weak manure water may be applied at every alternate watering, and after a hot day a sprinkling overhead is very beneficial. The Chrysanthemums should be boused the first week in October, and placed where they can have unobstructed light and a free circulation of air, with a temperature of 40° to 50°. About the end of the month the buds will commence to show their colour, and from the middle of November to middle of December will be in their full beauty. After flowering they should be cut down and kept in a cool light place until a fresh stock has been secured.

SPECIMEN PLANTS.

The general treatment of specimen plants for exhibition is very similar to that for ordinary decorative plants, but some of the details are necessarily different. Having selected from the general stock the most suitable for the purpose and the number required, as soon as they are well rooted they should have their points pinched out. This will cause them to throw out two, three, or more shoots, and as soon as these have made one or two leaves they should be transferred to 5-inch pots, using the same compost as before described, and kept growing as rapidly and robustly as possible. As soon

as the three shoots have attained sufficient size, and whilst they are pliable, they should be trained horizontally and equidistant, at the same time removing the extreme growing point. After growth has recommenced the plants should be potted into 8-inch pots, using a compost of three parts turfy loam, one of manure, one of leaf soil, and one of sand. The shoots should be kept tied outwards and downwards in order to furnish a good foundation for the future specimen, and as soon as these have made three or four joints their points should again be removed. After growth has recommenced the plants will be ready for placing into the pots in which they are to flower. These need not be larger than 12 inches in diameter (inside measure), a size in which plants measuring 5, 6, and 7 feet across may be grown.

Having drained the pots place some fibry turf over the crocks, and a handful of soot over that. Let the compost consist of four parts loam, two of decayed horse manure or old Mushroom bed, one of sand, and one of soot. Having thoroughly mixed the whole proceed with the potting, ramming the soil quite firm. When potting is completed place them in an open but moderately sheltered position on a bed of coal ashes, taking care to let each plant stand apart from its neighbour. Syringe them in the evening after a hot day, and be careful with the watering until root-action has commenced. About the second week in June let them receive their final pinching, after which the plant will be furnished with from fifty to eighty flowering shoots. As growth progresses these should be staked out at equal distances apart, or otherwise trained as the cultivator prefers. As the pots become filled with roots liquid manure may be given, and occasional waterings with weak guano water will be beneficial, but this must be used with great caution.

As the flower buds are formed they should be thinned out if fine blooms are desired. In some cases buds are developed for a considerable distance down the stems, and most of these should be removed, as it is impossible for them to develop into good flowers, and their presence is detrimental to the quality of those that remain. In all cases of disbudding the central or best-formed bud should be left, although occasionally the central bud is deformed through accidents. When that is the case the best secondary bud should be chosen. A dozen incurved varieties most suitable for specimen plants are Barbara, Beverley, Hero of Stoke Newington, Lady Harding, George Glenny, Mrs. Heale, Mrs. Dixon, Prince Alfred, Prince of Wales, Princess of Wales, Venus, and White Venus. Japanese.—Elaine, Fair Maid of Guernsey, James Salter, The Cossack, La Charmeuse, and Bouquet Fait. Pompons.—General Canrobert, St. Michael, Lady Margaret, Cedo Nulli, and Mr. Astie.

I ought to add that good specimen plants may also be grown from two-year-old plants; but unless they are exceptionally well managed the individual flowers will not be so fine, and they are more difficult to train.

(To be continued.)

EASTBOURNE SHOW.

JULY 26TH.

A MORE unfortunate day could not have been chosen for the above Show as regards the weather, but a more appropriate place than Devonsbire Park could not have been selected.

Plants were well shown. In the open class Mr. Gilbert, Springfield Nursery, was first with eight admirable specimens in bloom, the most notable being *Statice profusa*, *Kalosanthes coccinea*, *Erica Cavendishiana*, quite fresh; *E. cerinthoides*, and *Aphelaxis macrantha rosea*; Mr. Tudgey of Waltham Cross being second with *Allamanda Hendersonii*, *Anthurium Schertzerianum*, and *Erica ferruginea major*. Mr. Rann, gardener to J. Warren, Esq., Handcross Park, was third. In the amateurs' class for six Mr. Dennis, gardener to C. H. Woodroffe, Esq., Silver Hill, Hastings, was a good first, having *Anthurium Schertzerianum*, *Clerodendron Balfourianum*, *Statice profusa*, &c., in good condition; second Mr. Jupp, gardener to G. Boulton, Esq., Torfield, Eastbourne. Mr. Rann was to the fore with fine-foliage plants, having amongst others *Crotons Challenger* and *Youngi* very handsome, *Gleichenia Mendelli*, and *Pritchardia pacifica*; Mr. Tudgey being a close second, having *Croton Queen Victoria*, *C. Johannis*, *Cocos Weddelliana*, &c., in fine condition. Mr. Gilbert was third. In the amateurs' class for six Mr. Jupp was first. For eight exotic Ferns Mr. Gilbert was first, Mr. Jupp being second, Mr. James, Lower Norwood, third. Mr. Tudgey was easily first for six *Ericas*. For groups arranged for effect Mr. Jupp was placed first with a very bright effective group, well arranged, and not a bare pot to be seen. *Fuchsias*, *Achimenes*, *Begonias*, &c., were fairly shown. Messrs. J. Veitch and Sons of Chelsea exhibited an interesting and varied collection of plants not for competition, which attracted more notice and admiration than anything else in the Show; they also exhibited stands of *Roses*, *Carnations*, and *Picotees*.

Cut flowers were not in strong force. There were only two exhibitors in the open class for *Roses*, thirty-six trebles; Mr. Piper, nurseryman, Uckfield, being first and Mr. Mitchell, Piltown Nursery, Uckfield, a close second. Both these exhibitors showed well. Mr. Knight, Hailsbam Nursery, also put up a very good stand not for competition, and a bunch of flowers of *Rhus Cotinus*, which attracted attention. For twenty-four bunches of cut flowers Mr. Gilbert was first with a very good stand, Mr. James second, and Mr. Jupp third. There were other prizes for cut flowers, but these were restricted to members of the Society, and no one is eligible to become a member unless he resides within the parish of Eastbourne.

Fruit was rather sparingly shown, but some of the exhibits were good and some were otherwise. For collection of eight dishes Mr. Gore, gardener to Capt. Taylor, Glenleigh, was first, very closely pressed by Mr. Williams, gardener to C. Liddell, Esq., Peasmarsh Place, whose Grapes were excellent, the former having a little advantage in the small fruit. Mr. Williams obtained three first prizes in the classes for black Grapes, white Grapes, and single bunch of any kind, being followed closely by Mr. Booth, gardener to W. Yates, Esq., Buckham Hill, Uckfield, in black varieties, and Mr. Gore in white varieties. Buckland Sweetwater was exhibited by Mr. Williams very fine, the berries being particularly large. Mr. Jupp had very good Peaches and Nectarines, and was first with both. Mr. Booth was first for scarlet-flesh Melons, Mr. Williams first with green-flesh. All the classes for vegetables were confined to members except one, Messrs. Carter & Co.'s special prizes, and there were complaints about that, Mr. Williams being

an easy first, Mr. Rollisson, Eastbourne, being the principal prizetaker in the other classes.—J. G.

THE NEW PARCELS POST.

As the new Parcels Post, which has just come into operation, forms an epoch in the history of the Postal Service, and as there is scarcely one of our readers but who will be affected by or influenced in the new arrangement, but many who will not have the information they require at their elbow, we publish the regulations that have been issued on this important subject.

The Inland Parcels Post commenced on Wednesday the 1st of August, and parcels *not exceeding 7 lbs. in weight* are now received at any Post Office for transmission between places in the United Kingdom.

In order that a packet may go by Parcels Post, it must be tendered for transmission as a parcel, and should bear the words "Parcels Post"—which should be clearly written in the left-hand top corner.

Every Post Office will be open to the public for Parcels Post business on week days during the same hours as for general postal business. No Parcels Post business will, as a rule, be transacted in England or Ireland on Sundays, Christmas Days, and Good Fridays; nor in Scotland on Sundays and Sacramental Fast Days.

The following are the principal conditions and regulations:—

The size allowed for an Inland Postal Parcel will be—
 Greatest length 3 ft. 6 in.
 Greatest length and girth combined 6 ft. 0 in.
 For example—
 A parcel measuring 3 ft. 6 in. in its longest dimension may measure as much as 2 ft. 6 in. in girth, *i.e.*—round its thickest part; or—
 A shorter parcel may be thicker; thus—if it measure no more than 3 ft. in length, it may measure as much as 3 ft. in girth—*i.e.*, round its thickest part.

The most convenient mode of measuring will be by means of a tape 6 ft. long, having the length of 3 ft. 6 in. marked thereon. So much of the tape as is not used in measuring the length will be the measure of the maximum girth permissible. Such a tape, if provided by stationers, might conveniently be marked in one colour up to 3 ft. 6 in., and the remaining portion in another colour.

The rates of postage will be—for a parcel:—

Not exceeding 1 lb. in weight	.. .. .	3d.
Exceeding 1 lb. and not exceeding 3 lbs.	.. .. .	6d.
" 3 lbs. " " 5 lbs.	.. .. .	9d.
" 5 lbs. " " 7 lbs.	.. .. .	1s. 0d.

No parcel will be accepted which weighs more than 7 lbs., or is not sufficiently paid. The postage must, in all cases, be paid *in advance*, and by ordinary postage stamps, which must be affixed by the sender before tendering a parcel for transmission by Parcels Post at a Post Office.

Posting of Parcels.

Parcels must not be posted in a letter box, but must be taken into a Post Office and handed over the counter. Care must be taken that every parcel bears a clear address.

If a parcel be posted in a letter box it will not be forwarded by Parcels Post, but will be treated as a letter, or as a book packet if it can pass under Book Post regulations.

The address of a parcel must be clearly written, either on the outer wrapper or on a separate address label securely fastened to the parcel; and the necessary stamp or stamps to prepay the postage must in all cases be placed (as in the case of letters) close above the address.

Forbidden Articles; Treatment of Perishable and Dangerous Articles; and Parcels which must be refused.

Parcels which bear on the outside any writing or drawing of an indecent or offensive nature, or within which any contents of a like nature may be observed, and parcels containing gunpowder, cartridges, lucifer matches, or anything explosive or liable to sudden combustion, bladders containing liquid, live animals, grossly offensive or filthy matter, and anything in a condition likely to injure other parcels, or any officer of the Post Office, are prohibited.

If any such parcel be tendered for posting, it will be refused, or, if detected in transit, it will be detained.

Parcels containing fish, game, meat, eggs, &c., or razors, scissors, needles, knives, forks, or other sharp instruments, will not be accepted unless securely packed so as to guard against risk of injury to other parcels. Liquids or semi-liquids, such as jellies, pickles, paint, varnish, &c., will not be accepted unless in bottles or cans securely stoppered; nor powders unless so packed that they cannot escape in transmission. Bottles, or glass in any form, will be accepted only when so packed as to be secure from breakage. If a parcel be tendered in a damaged or insecure condition, or in a condition likely to injure other parcels or any officer of the Post Office, it will be refused. If a parcel in such condition should be observed in transit it will, if possible, be made secure and sent forward; but if it cannot be so secured it will be detained.

Parcels known to contain a letter, packet, or parcel intended for delivery at an address other than that borne on the parcel itself, are prohibited.

Parcels to and from the Channel Islands and the Isle of Man.

Parcels addressed to the Channel Islands (Jersey, Guernsey, Alderney, Sark, and the adjacent inhabited islets) will be received from the public under the same general conditions with regard to weight and size, and at the same rates of postage, as parcels for all other portions of the United Kingdom; but as the Channel Islands, in relation to the Custom laws of the United Kingdom, are subject to the same restrictions as foreign countries, such parcels will be liable to Customs examination at the port of arrival, and the sender will be required to make a declaration of contents upon a special form provided for the purpose at the office where the parcel may be posted.

Goods intended to be warehoused in the Channel Islands, or on which it is intended to claim "drawback" of duty on subsequent exportation from the Channel Islands, will not be accepted for transmission by Parcels Post.

Parcels for the Isle of Man will be treated in all respects in the same way as parcels for places in the United Kingdom generally. They will be liable to examination by the officers of Customs, but the sender is not (as in the case of the Channel Islands) called upon to furnish a declaration of contents.

The Customs Laws of the United Kingdom do not admit of the use of the Parcels Post for the introduction into Great Britain of tobacco in any form.

Parcels Addressed to a Post Office to be Called For.

To those Post Offices to which letters may be addressed to be called for, parcels may also be addressed to be called for.

There is no private box delivery of parcels; but parcels may be obtained as follows on application at a Post Office, provided the Postmaster is satisfied of the identity of the applicant:—

1. By persons having parcels addressed to a Post Office.
2. By persons not residing within a free delivery.
3. By persons residing within the free delivery of a Head Office, or of any rural post, so far as regards parcels for which there is no immediate delivery by the usual means.
4. By members of the military, naval, constabulary, and coastguard services, under the same rule as applies to the delivery of their letters.

Parcels addressed to a Post Office to be called for, or to a person residing beyond the free postal delivery, will be kept three weeks.

Parcels addressed to a ship will be kept one month.

If, however, such a parcel contains perishable matter it will be kept only forty-eight hours; and should it become offensive it may be disposed of at any time as the Postmaster General may direct.

Parcels Liable to Demurrage.

Parcels addressed to a Post Office "to be called for," and only such parcels, are liable to a demurrage (detention) charge, if not called for within a certain time, at the rate of 1d. a day after they have remained in the office one clear day, counting as a day the period during which the office is ordinarily open to the public.

Thus a parcel arriving after the opening of the office on a Monday becomes liable to demurrage if not called for before the closing of the office on Tuesday night, and if delivered on Wednesday the charge will be 1d., one penny being added for each succeeding day, or part of a day.

No charge will be made in respect of Sundays, Christmas Days, Good Fridays, or Bank Holidays in England or Ireland; nor in respect of Sundays, Bank Holidays, and Sacramental Fast-days in Scotland.

No demurrage will be charged on parcels addressed to persons residing outside the limits of the free delivery, or to persons on board ship.

Re-direction of Parcels.

On receipt of a properly signed authority a parcel may be re-directed under the following regulations:—

If the re-direction be from one place to another within the same delivery, the parcel, not having been delivered, and being re-directed by an officer of the department, is liable to no charge for re-direction; but if re-directed by any person other than an officer of the department, or to an address in another delivery, it is liable to additional postage at the full prepaid rate for each re-direction. If it has not been delivered and is re-directed by an officer of the department, prepayment for re-direction is not compulsory, but a parcel which has been delivered as addressed will not be accepted for re-transmission unless the postage for re-direction be prepaid.

Returned Parcels.

In order to facilitate the return of parcels which cannot be delivered, it is most desirable that the name and address of the sender should appear on the outside of every parcel.

If a parcel which cannot be delivered bears on the cover the name and address of the sender, a printed notice will be sent to him by post, informing him that the parcel (if not claimed in the meantime by the addressee) will be given up to him or to any person whom he may direct to call for it, or will be returned to him by post.

If the parcel should be called for by the sender or his agent, or if it should be returned to him by post, it will be liable to a charge of 1d. for each day or part of a day after the expiration of two clear days following that on which the notice has been sent.

If the sender should elect to have the parcel sent back to him by post, he must return the printed notice, with stamps sufficient to cover new postage at the full rate and also to cover any other charges to which the parcel may be liable, including the charge of 1d. a day described above. The parcel will then be forwarded to him prepaid by stamps affixed thereon.

If no reply be received within six days after the date of the notice, or if the Postmaster should have reason to believe that application is made for the parcel by a person who is neither the sender nor the addressee nor duly authorised by either, or if the sender fail to pay the charges due on the parcel, the parcel will be sent to the Returned Letter Office.

If a parcel which cannot be delivered does not bear on the cover the name and address of the sender, it will be sent to the Returned Letter Office, where it will be opened and examined.

If upon such examination the name and address of the sender are ascertained, a printed notice such as is described above will be sent to him, and the parcel will be treated in the same manner as a parcel upon the cover of which the name and address of the sender appears.

If the name and address of the sender cannot be ascertained from the examination of the parcel, the name of the addressee of such parcel, and the Post Office at which it was posted will be entered on a list, which will be exhibited in a conspicuous position at the Returned Letter Office of the District for inspection by the public.

Personal applications for parcels entered on such lists will be enter-

tained for three months from the date of entry, after which the parcels will be finally disposed of.

Parcels without Address.

Parcels found without addresses will be sent at once to the proper Returned Letter Office.

Parcels found to contain dangerous or offensive matter will be detained.

Rural Carriers Forbidden to Collect Parcels from the Public.

Rural Letter Carriers on foot are forbidden to collect parcels from the public. Mounted Rural Carriers are also forbidden to collect parcels from the public except under special authority.

Delivery of Local Parcels by Mounted Rural Carriers.

A parcel handed by the public to a Mounted Rural Carrier authorised to collect parcels, will be delivered either on his outward or inward route, provided it shall first be taken to a Sub-office in order that the stamps may be defaced.

Parcels above Weight or Size, or Insufficiently Paid.

Should a parcel exceeding the prescribed limits of weight and dimensions be accepted by a Mounted Rural Carrier or Mail Driver authorised to collect, it will be stopped at the office at which he hands it in, and returned to the sender by the person who accepted it. Should a parcel be accepted with insufficient postage, stamps for the amount of the deficient postage will be affixed to the parcel, which will be sent on to its destination, and the amount will be charged against the person who so accepted it, and who will have to collect it from the sender.

Parcels not to be Accepted near a Post Office.

Mounted Rural Carriers or Mail Drivers, even when authorised to collect, may refuse to accept parcels tendered to them close to a Post Office.

Rural Letter Carriers not to Carry Parcels on their own account.

Rural Letter Carriers or Parcels Carriers on foot are forbidden to carry parcels of any kind on their own account. In certain exceptional cases, in which special permission has been given to carry newspaper parcels, this rule will not be enforced as regards such parcels.

Newspaper Parcels carried by Horse Posts.

Mail Cart Contractors or their Drivers, and Mounted Rural Carriers may carry on their own account parcels of newly published newspapers, addressed to a news-agent, without restriction of weight, so long as the carrying of such parcels does not interfere in any way with the due performance of the Mail Service; but they are not allowed to carry on their own account parcels of any other description except in cases where they hold a special authority to do so, and such authority will in no case include parcels which are within the limit of weight prescribed for Postal Parcels.

Parcels by Passenger Conveyances.

Contractors for the carriage of Mails by passenger conveyance are not subject to any restriction as to the parcels they may convey.

Detention of Parcels under special circumstances.

The Postmaster-General has power to delay parcels when it is necessary to do so in order to secure the due despatch of the Letter Mails, or when it is expedient for the safety and protection of Parcels Mails. When, therefore, a Postmaster is satisfied that the despatch or delivery of letters would be delayed by the despatch or delivery of parcels, such parcels, or any of them, may be detained until the following despatch or delivery; or if it be necessary for the safety and protection of parcels that any of them should be forwarded or delivered by a later despatch or delivery than that for which they were intended, a Postmaster may delay such parcels, or may make some special arrangement for the despatch or delivery thereof, such as he may deem necessary or expedient in the circumstances of the case. In no case, however, must the delay exceed 24 hours.

Private Bags.

Postmasters are not prohibited from enclosing parcels in private bags, but under no circumstances will the restriction as to the weight of a private bag when empty be relaxed.

A Parcel not to be Given Back to the Sender.

The rule forbidding that a letter should be handed back to the sender applies equally to a parcel.

Bankrupts' Parcels.

The Post Office rules which apply to bankrupts' letters apply equally to bankrupts' parcels.

Deception as to Place of Posting.

Postmasters are forbidden to be parties to deceiving the addressee of a parcel in regard to the place of posting.

If a parcel reaches a Post Office under cover with a request that it may be posted, it will be endorsed according to the rule applicable to a letter similarly received. If the parcel bears the necessary postage it will be forwarded as addressed. Should the postage not be prepaid, the parcel will be sent to the Returned Letter Office.

Damaged Parcels.

A parcel found open, or in a torn or injured condition, will be refastened as carefully as possible and secured with an official seal, or by means of a label similar to those provided for securing torn letters, and initialled by the responsible Officers.

Non-Liability of Postmaster-General.

The Postmaster-General is not liable to make good any claim in respect of lost or damaged Parcels.

Gratuities.

The Post Office regulations, which apply to the solicitation of gratuities from the public by persons employed in the postal service, apply to persons engaged in parcels work.

Suggestions.

(a) Mercantile firms and others who may have to post a large number of parcels at one time, will facilitate the despatch of the Parcels by sending them to the Post Office in batches, and as early as possible.

(b) The risk of delay in the transmission of parcels will be largely obviated if senders of parcels in large quantities (whether it be the intention to post the parcels daily or at regular or irregular intervals) will so far as possible notify their intentions to the nearest Postmaster or Sub-Postmaster as early before-hand as convenient. It is not essential that the number and weight of the parcels and the frequency of posting should be specified with absolute precision: it will be sufficient if a general idea be given so that some provision over and above the ordinary means available may be arranged for in advance.

(c) The Public will greatly assist the work of the Post Office, and help towards the safe delivery of Parcels, by taking care that they are in all cases strongly and securely packed, especially those with fragile or perishable contents. It must be borne in mind, although of course every care will be taken by the Officers, that such a Parcel must be several times handled before it reaches its destination, and will probably have to be packed with many others of a different kind and shape, or more weighty and bulky.

(d) It is not intended to apply to postal parcels the practice which obtains of adding to the address, in the case of letters for the Metropolitan District, the Postal District Initials, and such initials should not be used in addressing a parcel to London or the Suburbs.

By Command of the Postmaster-General,

S. A. BLACKWOOD,

Secretary.

General Post Office,
July, 1883.



KITCHEN GARDEN.

Endive.—For autumn and winter salads there is nothing more useful than this, and now is the time to sow seed to produce plants which will come in for use from October until after the new year. Endive does not grow much after the first frosts, and it is best to have it well advanced by November at the latest, and plants which are full grown by that time may be kept good for some months afterwards. The Broad-leaved Bata-vian and French Moss-curler are excellent varieties. The seed should be sown in drills $1\frac{1}{2}$ inch deep and 1 foot apart. Thin sowing should be the rule. As soon as the plants have a few rough leaves and are large enough to handle they should be thinned out of the seed rows and be planted on the south borders, where they will have a good soil and be well exposed to the sun. If a plant is left every 6 inches or so in the seed rows these will be ready for use some time before those transplanted.

Sowing Onions.—Onions of the Rocca and Tripoli types should now be sown, and as this sowing will supply young Onions throughout the winter and many plants for transplanting and growing in the spring, they cannot have too much attention. The ground for the reception of the seed should be in good condition, and if a heavy coating of soot or a light sprinkling of salt is dug in with the manure it will prevent grubs doing damage to the plants. In market gardens where thousands of plants are wanted it is a common practice to sow broadcast, but in all private gardens we like to see them in rows, and these should be from 12 inches to 15 inches apart. The seed must not be more than 2 inches below the surface, and when it is in and covered over it may either be very firmly trodden or rolled. When the plants are showing hoe between the rows and keep them free from weeds.

Winter Cucumbers.—As yet it may appear early to speak of winter, but we can never be too well prepared for it; and in the case of many things, particularly Cucumbers, there is always much advantage in having the plants well established, strong and healthy before the weather becomes sunless and the days short. By sowing seed now the plants will be well up in a month hence, and by October they will be capable of bearing fruit. Cardiff Castle is a kind most suitable for fruiting in winter, and after this comes Telegraph. The seed should be sown singly in pots of moderately rich soil, and they may be plunged in a gentle bottom heat near the glass. Where old Cucumber plants are showing signs of exhaustion young plants had better be obtained to secure a heavy crop through the autumn.

Chicory.—Early-sown plants of this are always liable to seed prematurely and become worthless, but if seed is sown now a quantity of young roots will be produced by October, which will be of the utmost use for lifting and blanching throughout the winter as an excellent addition to our salads.

Earthing up Celery.—Much of this is ready for earthing up, but it should only be done when the leaves and soil are dry. If left too long without earthing the stems are apt to bend over and break; but there is no reason that this should happen, as it will always pay well to earth up and give timely attention in every way to it. Before the first earthing

some of the short outer leaves should be drawn off, then one person should break up the surrounding soil with a spade, and another hold one hand around the plant and with the other place the soil about the stems. In doing this care should be taken that none of the soil goes down to the centre of the plant. Where worms are plentiful a dusting of soot may be thrown over the plants before earthing begins.

Spinach.—More seed should be sown to keep up the supply in autumn. Through lifting Potatoes and clearing off other vegetables there is now plenty of empty space for such crops.

Late Peas.—Where it is seen that any of these are likely to be too early cut the tops off below the first bloom, and this will cause them to produce side shoots, which will bloom very much later than the main stems. Where a number of rows of Peas are grown a long succession may be had from them in this way, as those allowed to go on will form pods soon, and the others will follow.

Saving Seed.—Wherever any kind of vegetable seed is being saved attention must be given to the plants, as they may become too dry for the proper development of the seed, or the stems may fall over with the weight, and a check and deterioration may take place in this way. We always prefer to allow some of the very finest of the produce to mature for future stock. This is the only way to retain the true character of any variety, and it is always an advantage when seeds can be matured on the plants through the assistance of plenty of air and sunshine. Seeding plants which are pulled up and taken indoors in autumn to ripen in a green immature state will neither benefit the cultivator nor improve the race of the plant.

FRUIT-FORCING.

Vines in Early Houses.—The Vines from which the Grapes were cut in April and May must still have attention in watering and syringing, so as to preserve the foliage in a clean healthy state until all the buds are fully matured, when, if the lights are moveable, they may be taken off for a few week and painted. If it is necessary to make any alterations or additions to the border the needful compost should be prepared, so that it may be proceeded with promptly as soon as the foliage shows indications of ripening.

Vines in Pots for Early Forcing.—These will now be ripe in wood and buds plump, when they should be placed outdoors in a warm airy situation, protecting the pots from the sun by wrapping some canvas around them. Supply water moderately, and stand the pots on slates to prevent worms entering.

Ripe Grapes.—These should be kept cool and the atmosphere rather dry, but there must not be any extreme dryness at the roots, moderate moisture being essential to the health of the foliage; and great aridity in the atmosphere is not essential, but to some extent prejudicial to the keeping of the Grapes, and is absolutely so as regards the foliage, which should be maintained in good condition as long as possible. Houses of ripe Hamburgs will need slight shade over the glass to prevent loss of colour. Herring netting will be sufficient to break the force of the sun's rays, and as the netting will not exclude too much light it may remain until the Grapes are cut. Keep the laterals within bounds, though moderate extension will be beneficial, particularly in the case of weakly Vines.

Late Vines.—These now swelling off their crops will need especial attention in watering, it not being possible when the crops are heavy to give too much tepid liquid manure to the inside borders. Similar attention will need to be given the outside borders if the weather be at all dry, and a good mulching. The Vines being started early the Grapes will be well advanced, and their ripening ought not to be accelerated by sharp firing. Give air abundantly and early, and close with sufficient sun heat to raise the temperature to 90° in the early part of the afternoon, admitting a little air before nightfall at the top of the house, as also in front, a very little being sufficient to cause a circulation of air. Syringe the walls, paths, and borders every evening without wetting the Grapes, and an ammonia-charged atmosphere will be beneficial in keeping down red spider, in addition to benefiting the Vines. Perhaps there is no better means of supplying ammonia than by introducing a few pecks of fresh horse droppings at frequent intervals, spreading these on the borders thinly. The tendency of ammonia, along with proper nourishment at the roots, is to encourage a vigorous growth of leaves and laterals, and the laterals should be encouraged, only thinning and stopping so as to prevent overcrowding.

PEACHES AND NECTARINES.—*Watering.*—One of the most important elements in the treatment of late houses is the liberal employment of water alike to the roots and foliage. In properly constructed and thoroughly drained borders the Peach will take almost any amount of water, and in hot weather the inside and outside borders will need thoroughly soaking twice a week where there is no mulching; but as a mulching of well-decayed manure is essential in keeping the roots near the surface and the soil uniformly moist, all borders inside and outside should not be neglected in this matter one moment later than the trees have passed the stoning process. More failures in Peach cultivation are attributable to moderate, or partial watering, than any else, as it induces red spider, and the present crop, as well as the buds for the future, do not attain to that development they otherwise would were the supply of water adequate to the requirements of the trees, which during hot weather is very considerable from the large extent of evaporating surface of the leaves exposed to the sun.

Syringing.—Trees in late houses must be syringed twice a day, but discrimination must be made of trees which, from being gross, do not become dry between the intervals, for it is essential that the foliage do

not remain for any length of time "dripping wet." The foliage should become fairly dry before nightfall; but when this does not take place, the trees being wet in the morning, it is obvious that the morning syringing must be omitted, but instead of following this precedent the evening syringing should be discarded, and the trees syringed in the morning only. Be very particular about the water employed for syringing. It ought to be clear, soft, or rain water, or, if of necessity spring water must be used, it must be free from lime.

Training, Exposing the Fruit, and Thinning.—Keep the young shoots tied down to the trellis, train them in thinly so that the foliage will be acted on freely by sun and air, stop all laterals at one joint of growth as made, and remove or shorten back any gross shoots likely to interfere with an equal distribution of sap, and consequently vigour throughout the trees. The leaves where they overhang the fruit must be turned aside or shortened, so that the fruit will be fully exposed to the sun. Fruits on the under side of the trellis should be turned round, so that their apices face the light, keeping in position by laths placed across the wires of the trellis. If the crop when the fruit is taking the last swelling be too heavy thin it without delay, removing the smallest and worst placed. One fruit to a square foot of trellis covered by the trees is ample to have really fine highly flavoured fruit.

Gathering the Fruit.—To have Peaches of the best flavour they ought to be gathered before being dead ripe, as if allowed to remain too long they lose juice, becoming more or less mealy, and this is more particularly the case if the fruit has to be packed for travelling. The fruit should be gathered in the morning. Great care is necessary in handling Peaches, as the slightest pressure leaves an indent and the fruit is spoiled in appearance. In some of the large kinds which swell considerably round the wood it is advisable, when practicable, to remove the wood with the fruit, clasping the fruit in all cases with a pad of cotton wool in the hand.

PLANT HOUSES.

Ferns.—Plants that have become rootbound will be much benefited by the application of weak stimulants occasionally. These plants, in the majority of instances, receive little but water after they reach this stage, but it is surprising what noble specimens can be produced in small pots by judicious feeding. Nothing will be found more satisfactory than liquid made from cow manure and clear soot water, applied alternately or together. Adiantums and Davallias include those most useful for cutting purposes, and should have free exposure to air and light to harden their growths. Fronds from plants that have been well prepared for the purpose last much longer than those from plants that have been grown in a close moist heat; in fact, Ferns grown under the latter conditions are useless for cutting.

Polystichum proliferum.—Although hardy, this is one of the most useful Ferns that can be grown indoors for purposes of decoration. Small plants form a very effective edging for the greenhouse stage, and when grown in from 2 to 5-inch pots, are unsurpassed for the decoration of rooms. Being hardy, and grown under cool conditions, they last much longer than any other Fern. Another advantage, and one that most highly commends it to notice for this purpose, is the ease with which a large stock of small plants can be produced. One fair-sized specimen will produce hundreds, which form along the entire length of the older fronds. The fronds should be pegged down on a pan or over a bed of soil until the young plants form roots and are independent of the parent, when they can be placed in small pots, or, to save labour in watering, in pans or boxes, until they attain a larger size and are ready for placing in the sizes they are intended to be used in for decorative purposes. These plants can be grown in cold frames, or can be plunged outside during the summer months in any shady position where plenty of water can be given them.

Small Ferns for Decoration.—It is surprising how easily a stock of small Ferns can be maintained if a few plants are allowed to establish themselves naturally in the walls of plant or fruit houses. Where the stock is raised by sowing spores we would strongly advise cultivators to endeavour to establish a few plants from which thousands of seedlings can soon be obtained. A few plants have been established in our Cucumber house on the top of the back wall, and the wall beneath has been left unlimewashed since early spring, and is now a mass of small Ferns, and the same may be said of lumps of loam that have been undisturbed for a time on the Cucumber bed. By means of this system a continual supply of young Ferns can be maintained with but little care or trouble.

Selaginella Kraussiana (denticulata).—One of the most useful species that can be grown for furnishing purposes, either in dwelling-rooms or any of the many decorative purposes this plant is useful for. Where large quantities are in constant demand all the year round successional batches must be provided according to the demand, but where only required largely during the winter and spring the present is a good time to prepare a large batch. We find this plant the most useful in 2 and 3-inch pots, and in shallow pans not more than 1 inch deep; those prepared in the last mentioned are the most serviceable, as they can be used for surfacing the soil in the pots used in dwelling-rooms. It is wise to prepare the pans in time, so that the Selaginella becomes a dense mass. Any light soil will suit it, and when the pans are filled they can be placed amongst other plants in the stove or under the shade of late Vines, or in any shady position until they commence growth, and afterwards are better in a cool house than in heat.

Chrysanthemums.—The majority grown for the production of large blooms will now be showing a flower bud, which is known as the "July bud." This must be removed at once with the point of a knife, and the

best of the three-growth buds nestling round it selected to extend again in an upright direction. The plants must be pushed out of this stage as rapidly as possible, and all side shoots removed directly they can be seen until the plants form another flower bud, which will be towards the end of next month. Feed liberally from this time, and keep the shoots tied to the stake used to support them, or else the shoots may be broken in windy weather.

Staking must be pushed on rapidly with all bush plants intended for decorative purposes, and the shoots afterwards secured to the stakes as they extend. Stimulants must also be freely applied to these, and care must be taken that the plants never suffer by want of water, or they will become seriously checked and their lower foliage be much injured.

Heliotropes.—Plants intended for autumn and winter flowering should now be bushy little specimens in 3 and 4-inch pots, and ready for transferring into others 2 or 3 inches larger. Good loam, a seventh of manure, and a little sand will grow them well. After potting stand the plants outside, and attend to the pinching of the shoots as they require it from time to time to keep them compact and bushy.

THE BEE-KEEPER.

APIS MELLIFICA IN JAVA AND CEYLON.

(Translated by Mr. Alfred Neighbour from the "Bienenzeitung," No. 7, 1st April, 1883.)

THE gentleman in charge of the Imperial German Consulate of Batavia, who has for years past been kind enough to keep me informed of all that takes place in the island of Java as regards bee-keeping, sent me recently a cutting from a native paper which contains some notices of the bees introduced into Java by my friend Mr. F. Benton. Thinking that any information on the acclimatisation of bees in Java may be of interest so far as the history of bee-keeping is concerned, I have translated the article referred to, of which the following is an extract:—

"An American bee-keeper, Mr. F. Benton, who visited Java in order to study *Apis dorsata*, and, if possible, to introduce this bee into Cyprus, and thence into Europe and America, brought nine colonies of bees with him, seven being from Cyprus and two from Palestine. New hives were procured in order to try once more to acclimatise bees in Java after the first attempt to introduce the European bee, which was made in 1878, had proved a failure. The trial was made at Tjikeumeuh under the direction of Mr. Messink.

"The bees were placed in the Botanical Gardens under the superintendence of Mr. Benton, who looked after them personally for twenty-five days. When he left four queens had commenced laying eggs, and the other colonies, including their queens, were in tolerably good condition considering the long voyage they had made. During the first fortnight after their arrival the bees were fed with sugar dissolved in water. After this time the workers from four hives began to fly out and returned laden with honey. The queens continued depositing eggs for about three months after their arrival in Java. After that egg-laying diminished, and at last the bees quite ceased to leave the hive.

"The number of worker bees became smaller and smaller, and finally some of the colonies dwindled down so much that only the queen and a few worker bees were left. With a great deal of trouble one colony was kept alive till the end of the year. But when the western monsoon set in in 1881 the population of this stock also dwindled away, and the workers flew out no longer, probably on account of the dampness of the atmosphere.

"It is to be regretted that the second attempt to acclimatise the bee in Java has also turned out a failure, in spite of all the precautions that had been taken to make the experiment a success. The loss of all the colonies was probably caused by the worker bees not finding sufficient food during the hot season, the consequence being that the queens did not receive the proper amount of food, and therefore discontinued laying eggs.

"The experiment to domesticate the East Indian Bee (*Njirean*) has given a better result than a previous attempt in 1877 and 1878. For the last eight months there have been two colonies of these bees in Tjikeumeuh with very large populations. The bees fly out and collect a great deal of honey. Eggs are deposited regularly and without interruption. The honey of this bee is generally considered inferior in flavour, while the wax is said to be of excellent quality.

"A swarm given off by one of the colonies a short time ago has been secured, but it was no easy task. In Europe a swarm generally settles on a branch of a tree near the apiary, from which it is easy to remove the bees; but the Indian bees fly high up into the air, and do not settle till some time after.*"

* It may be assumed that *Apis indica* is the bee referred to above. The indigenous *Apis indica* of Java was described by Latreille ("Annales du Muséum d'Hist. Nat.," v., p. 170, No. 4) as *Apis Peronii*. It is hardly to be supposed that experiments should have been made to domesticate the small East Indian bee, *Apis florea*.—THE EDITOR.

Mr. Benton's attempt to acclimatise *Apis mellifica* in Java has unfortunately proved a failure, and I fear there is but little prospect of this bee becoming domesticated there, although I consider it quite possible if the bees after their arrival in Java are made to raise young queens, because the vitality of the imported queens becomes impaired during the long voyage. It would be necessary in that case to increase the population of the colonies and their stores quickly by feeding.

In Ceylon the bees that were imported by Mr. Benton have been more successful than those in Batavia. During the rainy season from May till September the colonies were supplied with food, but in the remaining months of the year the bees collected sufficient honey from the flowering Palm trees and other tropical plants for their own wants, and had even some to spare for their master. One stock swarmed three times, but unfortunately, during the absence of the bee-keeper, the bees had been left in charge of the servants, who neglected to attend to them, so that all the three swarms flew away and settled in the jungles, where they probably perished during the rainy season.

For the last few years experiments have been made to acclimatise the Vanilla in Ceylon, but only by artificial fertilisation was it found possible to get these plants to produce mature fruit. The "Tropical Agriculturist" calls special attention to the numerous visits of *Apis mellifica* to the Vanilla blossoms, and adds that the owner of the plantation has for this reason entirely discontinued the fertilisation of the Vanilla flowers by artificial means. In case the cultivation of Vanilla in Ceylon should prove successful the importation of *Apis mellifica* will have largely aided to bring about this result, and it would be quite worth while for this purpose alone to keep bees in Ceylon, even if they had to be supplied with food during the rainy season.—(Signed) A. SCHRÖDER, Trieste.



TO CORRESPONDENTS

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

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

Seedling Strawberry (*H. S.*).—The "weed" you sent appears to be a young seedling Strawberry plant, but it was so much crushed that we cannot determine it with certainty. Of course, if you wish, these could be easily pulled up and destroyed.

Shooting Pigeons (*T. B. Dolly*).—We have not yet obtained the information you desire, but will endeavour to do so. Anyone shooting a pigeon "wantonly" is liable to a penalty of £2 above the value of the pigeon.

Seedling Carnations (*Sigma*).—There are no prominent points of merit, considered from the florist's standard, in any of the varieties you have sent. No. 1 is undoubtedly the most distinct; it is novel in colour, and would be effective in borders. Nos. 2 and 4 are also good border varieties; but 6 is a nondescript colour, and a variety that we should not perpetuate.

Rose Election (*A. H. P. and L. D.*).—As you may see by reference to page 57 of our issue of the 19th ult. the election this year will consist of the newer varieties—namely, the best six, second best six, and next best twelve exhibition Roses introduced since 1877, including that year; and the same as regards the new Roses best adapted to garden decoration.

Dressing for Rhododendrons (*S. J.*).—It is questionable if there is anything better for mulching the surface of the soil amongst Rhododendrons than a thick covering of leaf soil, scattering a little heavier soil over it to prevent its being displaced. A correspondent a short time ago pointed out that some shrubs mulched with leaf soil had made far better progress than others, and required no watering. A thickness of 4 inches will not be too great in your gravelly soil.

Climbing Cinerarias (*Z. Z.*).—We do not know any true species of *Cineraria* of climbing habit. Possibly you refer to some of the *Senecios*, especially those which, like *S. macroglossa*, have leaves resembling the Ivy. These are of climbing or, more strictly, trailing habit.

Lycoperdon giganteum (W. E.).—The fungus is a small example of the Giant Puffball, *Lycoperdon giganteum*, which is common in some pastures and meadows near London and a few other districts. It is edible, and esteemed by some fungologists as a great delicacy when cut in slices, peeled, and fried in butter after dipping them in yolk of egg. They should be gathered young for this purpose, whilst the substance is white and pulpy. When yellow stems appear it is unfitted for eating.

Prunella vulgaris (T. L.).—The weed is popularly known as Self-heal, and botanically as *Prunella vulgaris*, being a member of the family Labiate. The best mode of destroying it is by forking it up now and removing from the land, also hoeing frequently in the spring. It often appears in lawns, and if very abundant the only course that can be adopted is to dig it up, relevel the ground, and sow fresh well-cleaned seed. The name Self-heal is derived, according to Parkinson, from the fact that "in France and Germany it is a common proverb that they need neither physician to cure the inward diseases, nor chirurgeon to help them that have *Prunella* at hand to use."

Pit for Melons (J. T. S.).—As we understand your case, the flue you name will be in the pit and under the bed for affording bottom heat, the sides of the return flue being intended to supply top heat. We do not think you would have sufficient atmospheric heat by this plan. Perhaps, however, you mean that the flue is to be in the centre of the pit for giving top heat, the sides of the return flue being intended to heat the bed. In this case there would not be sufficient bottom heat. In a case of this kind a plan of the house drawn to scale, the position of the flue being indicated, is requisite for the matter to be clearly understood. Melons can be grown very well with the aid of flues, but the flues must be well constructed, and sound judgment exercised in the management of the plants both as regards moisture in the soil and atmosphere.

Propagating Tropæolums (Idem).—The variety Ball of Fire is very good and most easily propagated. Cuttings inserted in pots of sandy soil in August, kept moist, close, and shaded for a time to prevent flagging, will speedily emit roots. The young plants may either be potted off, one in the centre of a 3-inch pot, or three round the sides of a 4½-inch, or they may remain in the store pots until spring. A shelf in a greenhouse from which frost is excluded will be suitable for them in the winter. When growth commences in the spring the plants may be topped and the cuttings rooted in heat, any required number being provided in a very short time. Until the cuttings are rooted the soil must be constantly moist, but in winter only sufficient water should be given to prevent flagging. Avoid, however, mere surface sprinklings while the roots may be dry below, or the plants will inevitably decay. Choose short-jointed firm growths for cuttings, which may be about 4 inches long, pinching out all flower buds as they appear after the cuttings are inserted.

Raspberries Luxuriant (J. R.).—You do not say that all the canes have branched in the manner you describe, and if they have not retain the most promising of those that are short-jointed and essentially of a fruit-bearing nature, cutting the exuberant growths away. If all the canes are as you describe, then you must thin-out the laterals, retaining the best, as if you cut them all off you will seriously impair your next season's crop. It is not the best plan to secure growths of this kind vertically to stakes and shorten the canes to the orthodox height of 4 feet, as by this practice the best fruit-bearing portions are cut away. It is far better to train the canes thinly, so as to form a hedge by securing them obliquely to stakes driven between those now supporting the plants. The finest crop of fruit we have seen this year was on canes trained as described, and from 8 to 9 feet long. Had they been shortened to half that length there would not have been half so many Raspberries.

Cropping under Trees (Idem).—In the fruit gardens in the Thames valley the land is constantly cropped with vegetables and flowers, and by the free use of manure the fruit trees continue in a healthy free-bearing state for generations. If you had grown early instead of late Potatoes they would have been cleared in time for sowing grass seeds, but as you have grown late kinds you cannot sow until the spring—the end of March or beginning of April. It is for you to consider whether to take crops of early Potatoes next year, or have strong Cabbage and Lettuce plants ready for planting as soon as the Potatoes are cleared off, manuring for these crops, which would be off the ground in time for sowing grass seeds in August. Had you stated the size of the trees and the distance they are planted our reply might perhaps have been more satisfactory.

Peaches under Glass (P. C.).—You ask if we "consider that trees in full bloom in a house without heat are liable to be affected by frost, so as to cut off all promise of a crop of fruit." Undoubtedly they are so liable, and we have known great losses incurred under the circumstances indicated. It is possible in a measure to mitigate the evil by retarding the trees as much as possible by free ventilation in winter and early spring; but as a matter of fact when glass is erected either the owner or the gardener in charge desires to protect plants of some kind, and thus keeps the house close on their account, forgetting that he is exciting the trees and causing the expansion of the blossom at a dangerously early period. Even when every precaution has been taken we have known Peach blossom under glass totally destroyed by frost when there were no means of excluding it. As a rule we consider that if it is worth while going to the expense of building a Peach house, it is worth while also to afford the means of excluding frost and securing crops of fruit; at the same time we know that in some districts, and with judicious treatment, good crops are usually obtained in unheated houses.

The Moss Campion (D. W. H.).—The little plant of which you sent a specimen is *Silene acaulis*, popularly known as the Moss Campion. It is a native of Great Britain, being found near the summits of the highest mountains, generally growing upon rocks. The plant is abundant on Snowdon, Ben Lomond, and most of the Scottish mountains, and it is said to have been the last flowering plant observed by Saussure when ascending Mont Blanc. The habit is dwarf, and as Parkinson remarks, it has a "number of heads of small green leaves thick set together, tufts in this manner spreading over much ground and covering it like moss." To this resemblance it owes its popular name, and by Gesner it was named *Muscus floridus* for the same reason.

Duke of Buccleuch Grapes not Ripening (F. J. M.).—We are very sorry indeed to see such fine Grapes in the condition of those before us, and in the absence of details of culture we can only attribute their state to some rather severe check the Vines have received. If the leaf you have sent is a fair sample, the Vines are scorched; and if all the leaves are like the one before us, that would be sufficient to impede the swelling of the fruit. The only suggestion we can offer is, that it would be well to encourage the growth of laterals and to keep the roots amply supplied with water. It is just possible the border may be too dry. Examine it, not on the surface, but 2 feet below, and act accordingly.

Vine Leaves Infested with Insects (Ignoramus).—The leaves are not affected with mildew. The black matter on the upper surface of the foliage is due either to the presence of mealy bug or scale, but we found no bug on the leaves and only one scale. Those you can do little with now, only to search for and remove the pests; but when the Grapes are all cut syringe the Vines and house with petroleum, employing a wineglassful to three gallons of water, syringing into the watering pot and on to the trees alternately, to keep the petroleum mixed, otherwise it will rise to the surface. There are also traces of thrips, against which fumigate on a calm evening and repeat in a week, being careful to have the foliage dry; and there is evidence of red spider, against which syringe thoroughly with clear rain water in the evening, ventilating the following morning before the sun acts powerfully upon the house. The bunches that are "going withered" are unquestionably shanked, which is due to a variety of causes, the most general being inactivity at the roots through their being deep in a cold wet border, the best remedy for which is lifting the Vines and laying in the roots nearer the surface, providing thorough drainage, with a proper compost.

Tydæas Unhealthy (Beta).—The rusted and shrivelled appearance that these plants, also Gloxinias and Achimenes, often assume is frequently the result of diseased corms or tubers. The disease is aggravated by injudicious watering and keeping the plants in a house in which the atmosphere is too dry. Sulphurous fumes, and even fumigation with tobacco smoke, are injurious to most kinds of Gesneriaceous plants. Apparently you have a very unhealthy stock, and you will do well to procure fresh plants that have no signs of disease, and give them somewhat different treatment from that which the example before us has received. We feel sure there has been some error in culture, but are unable to point it out, since you do not state the conditions under which the plants were grown. Is there an excess of iron in the soil? if so, that would in a great measure account for the condition of the plants.

Australian Apples (T. W. H., Auckland).—Your letter is unanswerable. It is quite impossible for anyone to say what price would be given for Apples next April, May, and June; but in all probability the price then will be lower than would have been obtained for good samples in the corresponding months of this year. Last year there were practically no Apples in British orchards; this year the trees are mostly bearing heavily, and there is the contingency of consumers becoming "almost tired of Apples" before the season is over. It is a question if April consignments would be lucrative. High-class produce arriving in the best condition later might meet with better demand. There is only one way of proceeding practically in this matter, and that is by sending samples to a respectable fruiterer, and if the varieties are such as find favour in the market, and the fruit arrives in good condition, no loss may attend the experiment. A trade of this kind cannot be established by correspondence alone, nor in a season. Some varieties of Apples may not be worth sending over at all, while others may possess considerable value. Named samples should be sent with the view of ascertaining the varieties that can be the most profitably sent in quantity. If you send produce for which there is a demand fruiterers will be very glad to receive it, and will send you a fair price for it, or it can be sold by auction, as many tons of French Plums have been sold in London this week at good prices, because there is next to no English Plums this season. You will see in another column reference to a consignment of Australian Apples, which is not encouraging. We have, however, seen fruit from the Antipodes arrive in the most perfect condition. The method of packing you propose is good. If you send samples to Mr. Webber, Central Avenue, Covent Garden, he will give you his opinion on them, which, from a commercial point of view, will be entitled to consideration.

Hydrangea paniculata (Subscriber).—This plant can be readily propagated by cuttings of half-ripened wood taken from the plant after flowering, and inserted under handlights placed on the shady side of a wall or hedge. Younger growths can also be employed for cuttings, and these will root quickly if inserted either singly in pots or a number together (the first method being preferable), and placed under handlights or in a close frame until they are rooted. If propagated in heat give a good watering after insertion, and keep the cuttings close and well shaded afterwards until they are rooted; cuttings possessing two joints—one to be in the ground and the other just above the soil—will suffice. The chief secret of flowering this *Hydrangea* well in a pot is the thorough maturation of the wood. After flowering the plant should be hardened and placed outside, then in autumn or early spring should be closely pruned back; if one pair of eyes is left on the new wood that will be ample. By giving your plant greenhouse treatment after the new year you will be able to have it in flower by the end of the month of June. If required earlier it must be subjected to forcing; an intermediate temperature is best for this purpose, where a fair amount of air can be given daily when favourable to maintain a dwarf sturdy growth. If forced in a close warm house its growths will be weakly, and may fail to flower; but they flower freely under a more judicious system of forcing.

White Pinks for Forcing (Idem).—There is no difficulty in obtaining a stock of the old white Pink for forcing, provided you possess plants that are planted out in beds and borders. Slip off a number of strong growths, and insert them as cuttings thickly together in 4, 5, or 6-inch pots, whichever will be most serviceable for you. The cuttings require but little making, and if the shoots are short they may be inserted as slipped off from the parent plant, removing the lower leaves. They root much better if a portion of the old wood is left attached to them. This may be carried out any time towards the end of this month. Any ordinary soil will do for them in which a little leaf soil and coarse sand has been intermixed. After insertion give a good watering, keep them close in a frame, and shade from bright sun until

rooted. By following this plan the majority will strike root. Another good plan—and perhaps the best for you, as it is by far the easiest—is to slip off portions consisting of a handful of growths from plants that are fully exposed and pot them in a similar manner as if they were small bushy plants lifted from the outside. The size of the clumps entirely depends upon the size of the pots you wish to place them in. After potting give a good watering, place them in a cold frame, and keep them close for about a fortnight, when they will be rooted, and can then be stood outside until the approach of frost. They should again have the protection of a frame until Christmas, when the first batch may be introduced into the forcing house.

Constructing Garden Wall (A Soldier).—The wall ought to be built hollow, as such are drier and warmer, besides not taking so many bricks. Stone is not suitable for a garden wall, and is more costly than bricks, as the stone, however cheap, will entail much expense in dressing to make it available for fruit trees; besides, it is not so absorbent of heat as bricks are, and remains wet longer. We have not only had walls built hollow, but used hollow bricks except the external headers, which, of course, to have an even surface on the face of the wall must be solid. A good base should be formed by excavating to the ground; and if there be any doubt about the foundation it should be concreted, putting in 6 inches in thickness of gravel and lime, enough lime being employed to form a mortar-like mass. The foundation ought not to be less than 2 feet from the intended surface level, and the wall up to that level should be taken up solid. You do not mention the intended height of the wall. If 9 or 10 feet above the ground level 14 inches will be proper, but if 12 feet or more it should be 18 inches in thickness, being respectively a brick and a half and two bricks thick. It is best built, if hollow, in Flemish bond in exposed localities, but as this will only give a very partial hollowness we have in sheltered situations three bricks on the face and then a header, and on the opposite side of the wall a course of bricks on face without any headers. In the next course it is simply changing sides. That without headers is laid so that the headers cross those first laid or on the opposite side of the wall, and the parallel course has no headers. In this way the wall is taken up to within the top two courses, which should be more solid, by introducing the true Flemish bond. You will have in this way a 4½-inch cavity.

Names of Fruit (Inquirer).—The Gooseberry sent is either the Crown Bob or Monarch. It is not easy to determine which without knowing the habit of the bushes. Both varieties are largely grown for market purposes, and both are good. We have mislaid your letter, but you will recognise this reply.

Names of Plants (Flos).—As we have many times stated, we cannot undertake to name varieties of florists' flowers, which are far too numerous and too much alike for identification. They can only be properly named by comparing them with others in a large collection, and florists from whom the plants are obtained will usually give the names of flowers that are sent to them. We only name distinct species of plants, not garden varieties. (W. McK.).—As you might have anticipated, the flowers placed loosely in a box without any packing of any kind arrived in a very shrivelled state. So far as we can identify them the names are as follows:—1, Impatiens Noli-me-tangere; 2, Justicia speciosa; 3, Campanula fragilis; 4, Echeveria scaber. (R. C., Flaneswood).—We have received your letter, but no flowers to which it refers. (C. T. A. M.).—Flowers sent in a dry box, with no packing to keep them fresh and firm, usually arrive in a shrivelled condition like those before us. No. 1 is Francoa ramosa; 2, Funkia ovata; 5, Oxalis corniculata rubra; the others are too withered for identification.

Bees (R. W.).—The term you mention refers to the condition of the combs and whether the honey is ready for extracting. If they are filled with honey and sealed over they are in the condition indicated.

COVENT GARDEN MARKET.—AUGUST 1ST.

VERY heavy supplies of fruit to hand, with prices lower all round.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	0 0 to 0 0	Grapes	lb.	1 3 to 3 0
"	per barrel	0 0	Lemons	case	10 0 to 20 0
Apricots	box	2 0 to 2 6	Melons	each	2 0 to 3 6
Cherries	½ sieve	4 0 to 10 0	Nectarines	dozen	6 0 to 10 0
Chestnuts	bushel	0 0 to 0 0	Oranges	100	6 0 to 10 0
Currants, Black	½ sieve	3 0 to 3 3	Peaches	dozen	6 0 to 12 0
" Red	½ sieve	3 0 to 4 6	Pears, kitchen	dozen	0 0 to 0 0
Figs	dozen	2 0 to 3 0	" dessert	dozen	0 0 to 0 0
Filberts	lb.	0 0 to 0 0	Pine Apples, English	lb.	2 0 to 3 6
Cobs	100 lb.	0 0 to 0 0	Raspberries	lb.	0 2 to 0 3
Gooseberries	½ sieve	2 6 to 3 0	Strawberries	lb.	0 3 to 0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus, English bundle	0 0 to 0 0	Mustard and Cress punnet	0 2 to 0 3		
Asparagus, French bundle	0 0 to 0 0	Onions	bunch	0 0 to 0 4	
Beans, Kidney	lb	0 3 to 0 4	Parsley	dozen bunches	3 0 to 4 0
Beet, Red	dozen	1 0 to 2 0	Parsnips	dozen	1 0 to 2 0
Broccoli	bundle	0 9 to 1 0	Peas	quart	0 9 to 0 0
Cabbage	dozen	0 6 to 1 0	Potatoes	cwt.	4 0 to 5 0
Capsicums	100	1 6 to 2 0	" Kidney	cwt.	4 0 to 5 0
Carrots	bunch	0 4 to 0 0	Radishes	dozen bunches	1 0 to 0 0
Cauliflowers	dozen	2 0 to 3 0	Rhubarb	bundle	0 4 to 0 0
Celery	bundle	1 6 to 2 0	Salsafy	bundle	1 0 to 0 0
Coleworts	doz. bunches	2 0 to 4 0	Scorzoneria	bundle	1 6 to 0 0
Cucumbers	each	0 4 to 0 6	Seakale	basket	0 0 to 0 0
Endive	dozen	1 0 to 2 0	Shallots	lb.	0 3 to 0 0
Fennel	bunch	0 3 to 0 0	Spinach	bushel	2 6 to 3 0
Herbs	bunch	0 2 to 0 0	Tomatoes	lb.	0 6 to 0 9
Leeks	bunch	0 3 to 0 4	Turnips	bunch	0 0 to 0 4
Lettuce	score	1 0 to 1 6			



HORSE LABOUR IN FARMING.

THIS subject, to be fairly treated, must be considered commercially in the interest, not only of the home farmer, but also in that of tenant farmers generally. Omitting the value of the necessary implements of husbandry, it is found that the value of those horses employed in farming the arable lands is nearly equal to the annual rental of the land cultivated by them, and also that the annual cost of keeping these is little less, if any, than their average value. These facts are sufficient to exhibit the importance of the subject. In manufacturing operations and in locomotive travelling steam power has, from its superior economy, effectually supplanted animal power, but it is only in the supplementary form that steam has economised the tillage of the land by assisting the horse power, especially at certain important periods of the year. Therefore, it is found that horses must be kept for various purposes. It is, nevertheless, of the utmost importance to adopt the best and most economical methods of managing them.

The amount of horse power required on the farm will require great judgment and experience, for upon large farms containing above 600 acres and upwards steam power may be used to a greater extent, and justify the farmer in the purchase and use under his own supervision either of a single or double set of steam tackle, according to the extent of the arable land and the size of the field; whereas upon farms of from 300 to 500 acres of tillage land, and the hiring of steam power within reach, the employment of horse labour must be based and regulated. Somewhat in the same way economy may be practised by supplementing horse power by working bullocks, but this cannot easily be done with true economy by making working oxen a part of tillage power for the whole year, in consequence of their not being available for all kinds of work at all times like horses. We, therefore, propose, as a matter of economy and commercial benefit on the home farm where no steam power is obtainable or can be kept, bullocks may be used in tillage for a period by a system which will be noticed further on.

The number of horses which can be profitably employed on the arable land will vary in a great measure according to the nature of the soil, and the course of cropping and tillage adopted. A very common and practical way of reckoning is to take the number of horses required at per 100 acres on the farm, with a moderate portion of meadow or pasture land. In this way four horses is considered sufficient for the cultivation and other work on the farm for each 100 acres. But even then it will vary according to the size of the farm. Thus it may vary from three to four per 100 acres, but not forgetting that very much will depend upon the size, breed, and power of the horses, as well as the implements used; for in a general way we believe that much horse power is frequently wasted, not only through the want of power in the animals, but through bad management and insufficient food.

It is of the greatest consequence to determine which is the best style and type of cart horse; but this is somewhat difficult, and certainly requires much intelligence and judgment on the part of the farmer, for we find the Clydesdale and the Shire horse prevailing favourites where the question has received the necessary attention. The size, however, and activity of the animal are of the utmost importance, and more so than is generally supposed, for unless we have horses of 16½ or 17 hands high, with substance in proportion, we are unable to avail ourselves beneficially of various improvements in the farm implements. Take, for instance, the use of the double and treble furrow ploughs; and to use these with effect in the ordinary operations of ploughing every horse should be enabled to turn a furrow; thus we use two horses only for a double-furrow plough, being of the height and power named. On our light-land farms we may well choose lighter and more active animals; but, like the Suffolk breed, still we contend for height as one of the leading points requisite. It is not our intention to enlarge upon the merits of different breeds of horses or the breeding and rearing of them, for we have done this in two numbers of this Journal, dated the 30th of January and 6th of February in 1879.

The next point to be considered is keeping the animals,

whether in stable or in the open air; for during eight months in the year—viz., from October to June, there can scarcely be a doubt that it is far more desirable in every respect to keep working horses in the stable. The effect of exposure to cold and wet throughout this period of the year is, in fact, tantamount to the waste of so many quarters of oats. To have full regard to the health of the animal is a matter of necessity as well as economy; we therefore contend for the keeping of horses, when in full work, in the stable for rest, shelter, and feeding, as of actual necessity if the stable accommodation is sufficient and properly arranged for the health of the animals, requirements for which are set forth in detail in our article in this Journal, dated November 10th, 1881. We must also refer the reader to an article in this Journal dated May 29th, 1879, upon the subject of "shoeing," for this is really the foundation and basis of the ability of the horse to perform its work either in tillage or road work; besides which, in many country districts the shoeing of horses is left entirely in the hands of the local smith, and thousands of horses are annually ruined and useless for labour in consequence of bad shoeing.

Nearly all the points have now been enumerated which enable the farm horse to perform the work of tillage with effect and with economy to the farmer, except that of feeding, which certainly demands attention. That the subject has not yet been exhausted is clear from the frequent and continued discussions of it at the meetings of local farmers' clubs, and from the attempts of writers in every new work on agriculture to throw some additional, if not new, light upon it. The cost of horse power is, moreover, a subject of particular moment at present when steam power in its various agricultural purposes and uses is being declared cheaper than horse power. This declaration and contention alone ought to furnish the grounds for a detailed inquiry by the farmer; but is it worth while in the first place to consider their relative positions as between animal and mechanical power? Prizes have been awarded at the various annual meetings of the Royal as well as local Societies for using steam power in the field for tillage and cultivation, which is said to be an economical substitute for the horse-drawn plough. We use the word "alleged" instead of "proved" in order to suggest the need of some further explanation of it; and as the essay in the Journal of the Royal Agricultural Society of England, contributed by Mr. J. C. Morton, contains the best and fullest information upon this part of our subject we quote from it. He says, "The cost of the competing steam power on the occasion of the trial was fully analysed and specified. It was stated in the official report under the heads 'Engineer,' 'Plough and Anchor,' 'Men,' 'Boys,' 'Water-cart,' 'Coals,' 'Oil,' and 'Interest on Capital;' while that of the competing horse power was merely estimated. It was 'estimated' that the light land could not have been so well ploughed by horses under 8s. an acre, nor the heavy land under 12s. 6d. It would have been more satisfactory had this estimate been justified by a detailed analysis instead of being merely declared, for it is not too much to say that while under one man's management the cost of horse culture might have been as much as 10s. an acre, under another it would not have been 7s. 6d. But it is plain that a decision of the narrow question of immediate cheapness cannot be made by comparison of actual cost on the one side with mere 'estimate' upon the other."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses will still be employed in preparing the land for late Turnips and occasional ploughing and other tillage, such as scarifying, harrowing, and rolling on the Wheat fallows. Should the land, however, work rough and coarse, and the couch and weeds be destroyed without rolling, so much the better, for the rougher and more cloddy the land remains for another month or six weeks the better, or until it is requisite to lay out the yard or town manure, in which case the land may be rolled to facilitate laying on the dung. In the southern, eastern, and some of the home counties the harvest has commenced on the early crops like Rye, winter Oats, winter Barley, Early Victoria White, and Canadian Oats, early Peas, &c., and as these crops will be the first to harvest, carting and stacking will now be going on. It will also be necessary, or at least it will be advantageous, to cultivate and sow such land, if clean, with Turnip seed, Trifolium, Mustard, and Rape. If the land should be foul with couch it may with benefit be immediately rafter-ploughed and scarified as the first attempt at cleaning the land. As the general harvest will be upon us very quickly, let every possible preparation required for furthering the work during the harvest period be made immediately. Obtain the manure for stubble seeding for Turnips, and as fast as the corn is cut and stooked let the horses proceed to plough between the stooks, sowing or drilling both manure and Turnip seed every evening as fast as the ploughing is done. Let all the tackle and implements required for use during the harvest be overhauled and put into repair in order that no time may be lost during

the busiest period in connection with the farming business. Above all things take care to provide sufficient manual labour in advance, because men engaged for harvest work may be set to hoe Turnips and various other kinds of work in order to retain a sufficient staff of men for the harvest work. Again, it frequently occurs in some districts on small farms that the teams are set to work in the harvest field while the horses are turned or are idle in the stables. It is, however, bad policy to allow the horses to remain idle during the early part of the harvest before the carting and stacking of corn commences. In fact, speaking commercially or economically, nothing can justify such a proceeding, for we hold that any horse labour which can be done during the harvest period besides actual harvest work must be of great importance if judiciously set out, and will be found of more value than at many other periods of the year, especially if steam power or extra animal power can be made available for the harvest month independent of the ordinary horse power of the farming establishment.

After a succession of bad seasons there is now more couchy land in the country than we have seen before. It is, therefore, desirable that, as early as possible after crops are removed either an autumn fallow should be made, or otherwise fallow crops, catch crops, green crops for ploughing-in, &c., should be sown and tilled for without a day's loss. When the season is favourable, the land not being too hard, the land may be scarified and freed from the couch, without the cost and time employed in ploughing, and without any delay in the seeding also of various seeds, such as Trifolium. When the autumn seedings are completed the autumn fallows, and also lea ground, can be taken in hand, leaving the autumn tillage until after the Wheat is sown. Now, to obtain these desirable objects we maintain that they are of so much importance that an extra outlay upon steam power may be incurred with benefit. We must now consider the policy of stacking Wheat, Oats, and Barley. We, for many years, have preferred to fill our barns with fattening cattle rather than with corn, excepting a small portion required for threshing early for seed. Ricks made in the field where the corn is grown are a great saving of labour. We make all our corn ricks round as a saving in many respects, and we prefer to put two ricks near each other, so that the building of each rick shall be made in half a day, and threshed the same, which will be an advantage in the short days of winter, or in anticipation of changeable weather. The cutting and binding reaper is now so perfect that in all but the smallest farms it is available for work by possession or on hire.

Live Stock.—In purchasing the Irish Shorthorns which are now imported we notice them as generally being in good fleshy condition, and when they arrive at the home farm, if the animals are only two years old or under, they should not during the first few days be put on the low-lying meadows or irrigated meadows; but when they do feed on such pasturage they should be removed at night to high and dry pasture land, and there receive their allowance of cake, which at first may be 2 lbs. of cake and 1 lb. of Beans, both in meal, per day each, and to prevent waste we like to mix the meal with cut Mangolds or Cabbage in the troughs. In case of purchasing sheep stock, as they are at present so high in price for grazing or fattening on the root crops during the winter months, it requires very serious consideration before deciding upon the outlay of so much capital at a venture so uncertain merely because we have made it part of the system of farming or rotation of cropping.

OUR LETTER BOX.

Cow Unhealthy (R. C.).—Your cow is suffering from some internal inflammation and should have a purging drink at once. *Recipe.*—Take Glauber salts, one pound; ginger in powder, two ounces; treacle, four ounces. Put all the ingredients into a pitcher, and pour three pints of boiling water upon them. When new-milk warm give the whole for one dose. If the symptoms return repeat the dose at the end of two days.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 29.92 and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
July.											
Sunday	22	29.757	51.5	52.0	N.W.	57.9	65.6	48.8	99.8	47.8	—
Monday	23	29.838	58.1	53.7	S.	57.3	65.7	46.8	100.3	42.0	0.143
Tuesday	24	29.761	58.7	52.3	N.	57.6	61.7	51.3	116.5	46.8	—
Wednesday ..	25	29.981	58.7	52.7	N.W.	58.2	66.7	49.7	118.2	45.3	—
Thursday	26	30.104	60.3	55.7	N.	58.3	68.7	50.4	116.7	46.5	—
Friday	27	30.156	57.0	54.3	N.W.	59.2	65.9	50.9	113.5	45.8	—
Saturday	28	30.137	55.0	50.7	N.W.	59.1	73.3	52.4	116.8	51.4	—
		29.963	57.8	53.1		58.2	67.5	50.0	111.7	46.5	0.143

REMARKS.

22nd.—Cool and overcast; much wind in morning; calm evening.
 23rd.—Dull and cool all day; rain in evening.
 24th.—Fine and much brighter, but still cool.
 25th.—Fine throughout but cool.
 26th.—Fine and pleasant, a little cloudy in morning.
 27th.—An unsettled day; some bright sunshine and a couple of very slight showers, not enough to measure.
 28th.—Fine, bright, and warm.
 A cool and rather dull week, with a generally small range of temperature. Decidedly warmer than the preceding week, but the mean temperature about 3° below the average.
 —G. J. SYMONS.



COMING EVENTS

9	TH	
10	F	
11	S	
12	SUN	12TH SUNDAY AFTER TRINITY. Ostend Show (four days.)
13	M	
14	TU	Royal Horticultural Society; Fruit and Floral Committees at 11 A.M.;
15	W	Eastbourne Show. [Weston-super-Mare Show.]

THE FUCHSIA.

THIS old favourite is not grown in many parts of the country either so extensively or so well as it deserves. Scarlet Pelargoniums and Tuberos Begonias are very well in their way, imparting a blaze and providing a show not perhaps attainable without their use; but mere glare and gaudiness in a greenhouse, especially at a season when there is glare enough and to spare outside, has not the soothing influence of the grace and quiet beauty of the Fuchsia when well grown.

True enough, skill of the commonest sort will provide a display of Zonals and Petunias, while little skill will provide Balsams and other plants which find their way to the rubbish heap sooner or later; but good culture is required to produce Fuchsias from 6 feet high and upwards perfectly furnished with growths, so that no stem or twig is seen, and so densely covered with flowers that 2 inches without blooms could not be found in the whole plant.

Yet it is not so much skill that is wanted as love for the plant, for where love is there will be attention; where love is not there will be inattention and failure. The raisers are partly to blame. Grand flowers have been produced of late years; but the tree-like habit of Guiding Star and Rose of Castile have gone, or are only forthcoming as the result of consummate skill and untiring pains.

The soil is the main item in Fuchsia culture. It needs something solid and good. No natural loam is half good enough or rich enough; but one-year-old turf from off a medium loam may be taken as the best basis; still, as it is only what is artificially supplied that is to be depended on, that rather than the medium ought to be most thought of in preparing the compost.

The Fuchsia requires nitrogen, phosphates, and potash. We have never found a better way of giving these than by laying up good loam months before it was wanted with layers of cow manure between, and then a soaking of urine. Under cover no rain washed the manure out, the soil fixed the potash and the phosphates, and turned the urea to nitrates. Meanwhile the cow manure had become soil—not the greasy fermented soil of a dungbed, and not the acidulated humus manufactured by worms—but sweet, light, wholesome, nutritious soil, gifted with root-producing, root-feeding powers. Soil so prepared would produce luxuriance in anything—for a time.

But “nothing in this world can last,” and nitrates speedily leave a soil through which water runs as it usually does in pots. Manure is not so rich in phosphates as one might think, and potash and phosphates are soon exhausted when only a small pot holds the rooting ground of a large Fuchsia. When the loam is chopped up for using at potting time then we sprinkle a little bonedust to yield future supplies of phosphates and also ammonia. The main supply of nitrogen we leave to the future, and other minerals (over and above the phosphates and potash) are supplied in the merest sprinkling of wood ashes. When the loam is very heavy or fibreless a

little sand is given—only then. So far as at present can be done a perfect soil is thus secured.

In the matter of raising plants the only beginning is with cuttings. Of course only those who have old plants from which to take cuttings can thus begin. Those who have not cannot get their young plants in too small a state. As usually treated plants of any great size have a check, and are not worth having. We cannot tell what time of the year is best for striking cuttings, but prefer January. Cuttings taken then and properly treated will be three, four, five, six-foot-high bushes, and beautifully furnished the same year. A heat of 60° is needed to do the cuttings justice, and moisture to prevent flagging is necessary. If this can be given, an open bed is much to be preferred to a close case. Open porous loam with just the suspicion of sharp sand at the base of the cuttings is the best medium to strike them in, and it should be on a bed or in a box. The single-pot system is the plan to be avoided.

If the soil is kept warm—about 70°, and the cuttings never flag, they will speedily root and commence growing. If the soil is such as we have described they will grow vigorously. If only ordinary loam is used, and the orthodox leaf soil and sand added, do not be disappointed if they fail to move. When the growth is started the plants should be transferred into 4-inch pots. The loam should be made friable and porous, and only moderately firm. The crush of roots will make it too firm by-and-by. Moreover, we want the present roots to multiply rapidly to seize in the nitrates and pass them up to the leaves to be manufactured into plant tissue. One crock in the bottom of the pots, which must be without a suspicion of clogging dirt, will be enough. The soil should be warm. Returned to their warm quarters, given plenty of room, and all the air and light possible, they will grow very rapidly, and in a few weeks will take another shift.

Long before shifting is necessary, for we prefer a pot pretty well filled with roots, we are not sure but the nitrogen in the soil may be getting scarce. As soon, therefore, as the surface of the pot is white with roots, as it will surely do in open wholesome loam kept properly moist, yet never so wet as to induce souring, we begin to give liquid manure. Nothing surpasses urine. The water is just tainted with this, and the result justifies the practice. The urea in it as well as the potash are directly assimilable, and so long as every drop of water contains both the plants never want. Anything above a taint under such conditions is too strong.

Staking always requires attention, and also pinching. When rapidly grown in a temperature of from 55° to 65° and well fed pinching is hardly wanted, except with the “improved” varieties. Varieties of good habit grow the shape of a Spruce Fir naturally, and that form is the best. One stake is sufficient up the centre. A leader must be kept for training to this. If it grows freely and furnishes side shoots plentifully let it grow. If it fails to furnish these, or if it shows flowers, the top must be pinched and repinched, and a new leader selected continually. The side growths should be similarly treated, and tied in to furnish a pyramid as perfect as possible.

In repotting keep the soil rather low in the pots, and when the pots are filled with roots top-dressing and mulching can begin. The roots always come up, and must both be fed and protected. Large pots are not advisable. If such soil as we have recommended, and such manure be applied as advised, plants from 6 to 7 feet high, half covering the pot, and 3 to 4 feet through at base, may be grown in robust health in 10-inch pots. But they must never once become dry. By continually syringing, occasionally putting a little soft soap in the water, green fly and red spider will never be seen, and by judicious shading the flowering period may be kept up for months. If urine dare not be used because of the smell, nitrate of potash will make a capital substitute, better than sulphate of ammonia.

Fuchsias so fed may be kept in good health for years in

the same pot. But we can do better: we can repot them and give them fresh soil, which acts like a charm. Not at the usual time, though. Some good man invented repotting in spring after the growth had started, and everybody knowing the doer to be successful have unquestionably followed. But that was before root-pruning was understood. Why it is the right thing to root-prune fruit trees in autumn and flowering shrubs in pots in spring we cannot guess. Perhaps Apples and Pears would be better root-pruned after the growths are started in spring, but we do not know, never having tried. But we know it gives Fuchsias a great check.

Fuchsias grown in the liberal way here recommended require a check in October. A proper drying-up accomplishes this, or a touch of frost will do it; the frost is dangerous; the drying gives a check that weakens much. It is successful, though. The sap goes out of the branches, they are pruned, and in a month or two push again, though very weakly. The drying killed the roots, and only slowly the plants recover. But they are in that way when they are shaken out of their pots root-pruned and repotted. A check follows a check, both unnatural, dead branches, feeble growths, and eyesores being the result.

A better way is in autumn to pinch all growing shoots, then a week after to turn the plants out of the pots, reduce the balls, and repot. The soil is kept moderately moist. Under this treatment the tops grow no more. The leaves, instead of falling desiccated and dried to death, ripen off, deliver their essence to the stems, which, instead of being sent to rest unprovided with a store to start the plant in spring, is stored full. The roots, instead of being dead, grow into the new soil, and in thus growing take off the surplus energy of a plant eager to advance. Such a plant not only starts with very much greater energy in spring, but gets no check afterwards, and instead of dead shoots and paltry growths becomes a huge shrub or small tree.

Space forbids particulars about pruning, training, and routine treatment. But we have pointed out the points where would-be Fuchsia growers err. The soil, potting, feeding, repotting, and root-pruning are the salient points, and when these are rightly attended to training and pruning are secondary points that the judgment alone can guide in.—
CULTIVATOR.

GARDEN CHEMISTRY.

(Continued from page 89.)

THE SOURCES AND USE OF NITROGEN.

BEING composed of exactly what garden plants most demand—nitrogen and phosphorus—what garden soils are deficient in, as well as other fertilising matter, guano when good is perhaps the best natural-artificial, if the term be allowed, in the market. For most garden crops it is very specially suited. For Vines and other fruit trees needing assistance it has been proved of extreme value. Nothing better exists for Cabbages, for ordinary flower beds, or top-dressing grass plots of all kinds, from the close-shaven bowling green to the pasture field.

Nitrate of soda (sodic nitrate) furnishes nitrogen to plants in a very concentrated form. Some samples are very impure, often, but not always, the result of being adulterated with common salt. Even "pure" samples contain from 3 to 4 per cent. of foreign matter. The nitrogen in nitrate of soda exists to the extent of 15 or 16 per cent., so it will be seen that it takes nearly 3 lbs. of it to be equal to 2 lbs. of sulphate of ammonia.

Except in the case of the Leguminosæ this salt has a telling effect on vegetation, especially on poor land. Wherever nitrogen is wanted it may be applied, but only in summer or spring. In wet seasons it is inferior to sulphate of ammonia, very probably because it is very easily washed beyond the reach of the roots and away altogether; but in seasons of drought it is better than ammonia salts, which remain on the surface unchanged. Some agricultural chemists consider that its presence favours the utilisation of phosphates by rendering the latter more soluble; but it may as reasonably be supposed to favour their absorption by giving the plants greater power to attack them.

It makes a good liquid manure, but as it affords nothing but nitrogen it will not long sustain the vigour it creates unless other essentials are applied. When dissolved in water the temperature of the latter is rapidly lowered. This should be borne in mind, for the

cold may often do mischief when the water is applied to plants in a high temperature.

Ammonia is familiar to most persons as smelling salts—ammonia carbonate. In this form it is said to be effective as an insecticide when diluted in water. An ounce of it is sufficient for a gallon of water. While it is death to green fly in Roses, it promotes their luxuriance. According to Professor Johnston a piece of it laid on a plate in a plant house evaporates slowly, and "adds greatly to the green and healthy appearance of the plants."

It is chiefly in the form of the sulphate that ammonia is to be had. This is manufactured from gas liquor—till lately a "waste product." Unlike the nitric acid of sodic nitrate, it is not readily washed from the soil, hence it is more valuable in wet districts or seasons; but, before being used, it changes to nitric acid and is then easily lost.

The sulphate is generally to be had nearly pure, when it contains from 23 to 25 per cent. of nitrogen. Sometimes a small quantity of ammoniac sulphocyanide is present, and as this is very injurious its presence should be sought for. If a solution in water turns blood red on the addition of a little ferric chloride (Fe_2Cl_6) the sulphocyanide is present.

Sal-ammoniac (ammoniac chloride) is occasionally used, and is a very powerful manure, containing, as it does, 31.78 of ammonia when pure; this and the preceding salt have solvent powers on phosphates. Some have thought that steeping seeds in solutions of ammonia salts hastened their germination and added vigour to the resulting plants. Wheat has been benefited this way; but with ordinary garden seeds the reverse is the case, or the writer has been unfortunate in his experimenting.

Ammoniac salts may be applied to everything for which nitrate of soda is suitable, and is even better for making liquid manure than the latter. It has no smell, and may therefore be used in houses where evil-smelling compounds would not be tolerated.

Nitrogen exists in a great many substances which are employed for manure, but which we need only name here. Flesh has been employed in gardens as manure, but not often, and will be even less in the future. Oftener fish has been likewise employed near the sea, when over-abundance has been landed. For the grosser-growing vegetables it proves effective. Soot owes its efficacy as a manure to ammonia, and while it is also a deterrent on worms and other insects, is often thrown away. Seaweeds are rich in nitrogenous matter, and are valued for manure whenever they can be had. In East Lothian, according to Johnston, 16 cwts. are considered equal to 20 of ordinary manure, and in the western Highlands are considered of double value. In Fife Clover is said never to fail after the application of seaweeds, but whether this is owing to any peculiarity in the way the nitrogen is combined or to the potash they contain is not clear. As most seaweeds contain much sulphur, possibly that may help Clover; and if so, the effect on Peas and Beans should prove similar. Brewers' grains, malt dust, chaff, and bran have all been used as manure, and are valuable chiefly because of the nitrogen they contain; but, unless damaged, they may be much more economically employed for feeding animals. Rape, hemp, poppy, cotton, and cocoa-nut cakes are oftener employed, but more by the farmer than the gardener. Blood dried and ground to powder is a manure containing nitrogen equal to from 12 to 16 per cent. of ammonia. Blood may be made into compost with soil or ordinary manure; it is a powerful stimulant. Horn dust is a capital article for mixing with potting soils or for fruit trees. Buffalo horn shavings were introduced a few years ago. We seldom hear of them now. Ordinary horn dust contains from 15 to 17 per cent. of ammonia (nitrogen equal to).

While the soil gains nitrogen from the rain, the rain also is the cause of heavy loss, more especially on heavily manured ground, such as that of gardens, in localities where the rainfall is great. At Rothamsted nitrates equal to fully 40 lbs. of nitrogen per acre appeared in the drainage from a bare unmanured fallow. This was the average of five years, and is equal, or very nearly so, to what is removed in 30 bushels of Wheat. Garden soil contains much more nitrogen than ordinary field soil; and though it is hardly likely, ground, even though rich, when under crop will lose as much from this cause as fallow soil does, still there is hardly room to admit a doubt that the loss is very considerable.

Ammoniac is not subject to being washed away as is nitric acid, neither is nitrogen in an organised form; but in the soil these are speedily converted by an invisible bacterium into nitrates. This transformation proceeds rapidly or slowly according to the heat in the soil. In winter it goes on slowly, in summer rapidly. While at Rothamsted some 6 lbs. appeared in the drainage during the quarter beginning April and ending in June, in October to December no less than 15 lbs. were lost. In summer the growing plants utilise the nitrates as fast as they are formed; but when in autumn the crops are removed the rapidly forming nitrates are at the mercy of the rain which passes through the soil. It was till lately supposed

that soil held the ammonia applied; but although this is true enough, it is only recently that it has been demonstrated that ammonia speedily changes its form. One way of saving the nitrates is by keeping the soil filled with active roots. On fallow ground Rape, Mustard, Turnips, Ryegrass, or other quick-growing crop, will gather up these valuable nitrates and convert them into forms less liable to be washed away. Such, turned under, will then be equal to fresh manure, though costing less—only a little trouble. These growing crops are serviceable for evaporating water, and prevent rain passing through the soil to an extent equal to what it does on bare fallow. Leaving the ground firm and undug till spring, thus causing the body of the rain to find its way into the drains by means of cracks, worm-tunnels, &c., will also do much to save them; but attention will be more particularly directed to this under another head.

In dry seasons applications of ammonia salts frequently have no effect. This is because the soil does not afford the necessary conditions for their being changed to nitrates. It must be in a moist condition for this. Under such conditions nitrates are often better, but neither is of much value unless water enough be applied to keep them in solution.

Sulphate of ammonia is generally applied at the rate of 100 lbs. an acre; nitrate of soda at the rate of 150. For some garden crops considerably more may be given, but not at once. All plants grown for their foliage alone, whether in the flower garden or in the vegetable quarters, are greatly benefited by these salts. In the case of flowering plants flowerlessness is sometimes induced, especially in wet seasons. They cause luxuriance at the expense of floriferousness. It is only on very poor soils, rich in the mineral food of plants, that they are of any benefit to plants grown for their fruit. When depended upon for such plants as Melons grand leaves are produced but poor crops of fruit. They are frequently used with mineral phosphates on various crops with success.—SINGLE-HANDED.

(To be continued.)

STRAWBERRIES IN POTS.

IN all establishments where Strawberries are extensively forced or are grown in small quantities only, two points to be considered are which are the most profitable varieties, and how best to secure strong early plants, and a few remarks upon the subject may be seasonable and acceptable. It appears to me that Strawberry forcing is not considered so difficult of accomplishment as was the case at the commencement of my gardening career. Better houses, more suitable varieties, and a better acquaintance with, or at any rate a closer attention to, the few cultural details necessary, all contribute to the marked improvement to be observed generally. A good batch of well-fruited Strawberries in pots always commands admiration, but is now-a-days considered common enough. At the same time, at the outset I wish to disavow all intention of encouraging amateurs or the proprietors of comparatively small gardens to commence or persevere in the pot culture of Strawberries. Unless well grown or appreciated to their full value they must be considered unsatisfactory and unprofitable, besides being a nuisance to most already overworked gardens, and a source of danger in crowded houses, as they are almost certain to leave a legacy of red spider or other pests. If there are no suitable shelves or stages that can be wholly devoted them, and plenty of manual labour, few or no early Strawberries ought to be expected.

At one time we layered all the requisite runners into small pots, later on shifting them into their fruiting pots, and this practice still finds favour with the majority of cultivators. However, I discovered that Mr. Bardney secured better plants than I had by layering direct into the fruiting pots, and the next season I adopted the same plan with very satisfactory results. I find it is the least laborious; the work is performed more thoroughly, as the soil can be rammed down evenly and firmly before the runner is fixed to the surface with a stone, with the result of easily securing grand early plants. They soon fill the pots with roots, and then unless separated will, as a friend once observed, contribute to the vigour of the parent plant, a by no means desirable reversion. Before this takes place they should be separated, placed thinly on ashes in the full sunshine, and kept carefully watered.

Most gardeners are well aware that the youngest plants yield the earliest and strongest runners. In large gardens the best plan is to annually plant the requisite number of rooted runners in a convenient spot, specially and exclusively for an early crop of runners the next season. Even where space is limited a portion of an early border might be devoted to this purpose, the plants in this case perfecting an early crop of fruit in addition to the runners, and then the same season be destroyed. As I have recently asserted, Strawberries require to be kept constantly rooting in firm ground, but I do not like the heavy trampling incidental to layering the runners in large or small pots and the subsequent waterings. This is another reason why I prefer to have two rows of plants alongside a walk and very near

a good supply of water. These plants, not being allowed to fruit, are available for the production of early runners during two seasons before being destroyed.

We are not particular as to the size of the fruiting pots, but the majority are fruited in 7-inch pots, and that size answers well for both early and late crops. It is all-important that suitable varieties be selected. In most cases, in addition to being free-setting, heavy-cropping, and good in quality, they must also be good travelling sorts. Much depends upon the convenience for forcing Strawberries. If grown on shelves near the ventilators nearly any variety will set well and be of fairly good flavour, the air admitted whenever the weather permitted materially contributing to these results. In some instances it is necessary to shift the earliest-forced plants when in flower to a more airy house to set, or to artificially impregnate the blooms with a camel's-hair brush, the latter being the most simple method. Then again, all early varieties with one exception are sour if ripened in a strong moist heat, and the plants must be shifted to a cooler house to finish off properly. The one exception is Vicomtesse Hericart de Thury, and this variety being also vigorous and heavy-cropping we consider it advisable for two-thirds of the stock for forcing to consist of it. Others may perfect larger individual fruits, but with us it is the heaviest cropper tried, and decidedly the most superior in point of flavour. La Grosse Sucrée, Sir C. Napier, President, and Sir J. Paxton are all suitable for later crops, the latter perhaps being the best traveller.

At one time varieties with the seeds to a certain extent embedded in the pulpy matter were preferred, at any rate this was the case when the old soft-fruited Trollope's Victoria was introduced. This variety was one of a batch of about thirty seedlings raised by Mr. Trollope, Bradford-on-Avon, Wilts, and was selected by a horticultural and medical acquaintance of mine. The remainder of the seedlings were thrown away, but it is very probable, if varieties that would travel were valued then as now, other good sorts would have been selected from them. Princess Alice Maud, better known by the abbreviation, "Alice Maud," was also raised by Mr. Trollope, and is still extensively grown for market. Mr. Laxton's new Strawberry The Captain, figured on page 12 of the present volume of the *Journal of Horticulture*, did not exactly please the above-mentioned medical gentleman, simply because the seeds were too prominent, but he readily admitted that surface-seeders are the best travellers, and therefore the most liked by gardeners. We do not want fruit partaking of the character of Raspberries, such being the worst of travellers, and would in reality be no better for the seeds being covered with pulp.—W. IGGULDEN.

JUDGING COTTAGE GARDENS AND THEIR PRODUCE.

As there are several cottage garden shows about to take place in this neighbourhood, a great favour would be conferred on many competitors if experienced judges and correspondents would (through the *Journal of Horticulture*) give a few hints on judging gardens and garden produce. An impression prevails among some persons that a tastefully arranged flower garden should receive more points than a well-stocked and nicely kept kitchen garden, while others express a contrary opinion. A few hints on vegetable-judging would be very acceptable; as, for instance, would Red Cabbage go before White Cabbage, Peas before Beans, Cauliflower before Potatoes, or Celery before Carrots, supposing them all to be as good as it is possible to grow; or which of the above vegetables should be entitled to the first place? Others might be named, such as Onions, Beet, Parsnips, Turnips, Leeks, &c. Information on those matters would be very useful and greatly appreciated.—READER.

[We shall be glad if those of our correspondents who are interested in this subject, or are willing to help those who are endeavouring to help themselves by cultivating their gardens profitably, and making the surroundings of their dwellings attractive, will send us their views on this matter. On the principle that that which is useful and serviceable is of greater importance to the cottager and artisan than that which is merely ornamental, we anticipate that the majority of persons will be of opinion that a "well-stocked and nicely managed kitchen garden" should receive more marks of approval than a "tastefully arranged flower garden;" still the skill that is exercised in the cultivation of flowers, and the taste displayed in arranging them, should not be overlooked, as the time spent in this work is commendably occupied. Some societies, we believe, often separate prizes for the best managed vegetable garden and the most attractive and enjoyable flower garden, and the plan is worthy of consideration.

As to the relative merits of vegetables, that is a point not

easy to determine, and cannot, in fact, be properly determined without considering the time the shows are held. On the score of utility Potatoes stand before all vegetables; and on the same principle, if White and Red Cabbages were staged of equal excellence in collections, the majority of judges would probably give the greater number of points to the former. Similarly, too, we presume, they would place Peas before Beans, and Onions, Carrots, Parsnips, and Turnips before Celery; except, perhaps, in August, when fine Celery always scores well, because of the labour and attention that have been involved in producing it. Really good Cauliflowers would, we presume, be quite on a level with Cabbages, and Leeks would rank before Beet. In judging produce from gentlemen's gardens the same relative value of the dishes would not obtain. Collections of vegetables are so numerous at cottagers' shows, and the judging occasionally so erratic—that is, not founded on any established rule—that it is no wonder competitors are perplexed and anxious for information that will enable them to stage their produce to the best advantage. Local gardeners also, and occasionally clergymen, who award the prizes at the shows in question, would not find their labours more difficult if they had a few general rules to guide them in their adjudications.

We by no means desire any of our correspondents to simply confirm what we have said on this subject, but would prefer that they consider the matter on its merits, and express their views, whether they are in accordance with our own or not.

GOOD CARNATIONS AND PICOTEEES.

SELECTIONS of good varieties of these beautiful flowers are always being wanted, especially by those who have not had the privilege of inspecting the shows or examining large collections of flowering plants. The following are very good:—

CARNATIONS.

Scarlet Bizarres.
Admiral Curzon(Easom).
Edward Adams(Dodwell).
Fred(Dodwell).
Lord Napier(Taylor).
Mercury(Hextall).
William Spoor(Adams).

Crimson Bizarres.
Harrison Weir(Dodwell).
John Harland(Adams).
J. D. Hextall(Simonite).
John Simonite(Simonite).
Master Fred(Hewitt).
Lord Milton(Ely).

Pink and Purple Bizarres.
Falconbridge(May).
James Taylor(Gibbons).
Unexpected(Turner).
Sarah Payne(Ward).
Stanley Hudson(Dodwell).
William Murray(Adams).

Purple Flakes.
Dr. Foster(Foster).
Juno(Baildon).
James Douglas(Simouite).
Mayor of Nottingham ..(Taylor).
Squire Meynell(Brabbins).
Squire Trow(Jackson).

Scarlet Flakes.
Annihilator(Jackson).
Clipper(Fletcher).
Dan Godfrey(Holmes).
John Bayley(Dodwell).
Sportsman(Hedderley).
Thomas Tomes(Dodwell).

Rose Flakes.
Apollo(Fletcher).
James Merryweather... (Wood).
John Keet(Whitehead).
Mrs. Dodwell(Lord).
Sibyl(Holmes).
Sporting Lady(Fletcher).

PICOTEEES.

H, heavy-edged; L, light-edged; and those not marked medium-edged.

Red Picotees.
Brunette (Kirtland) H.
Clara (Bower) L.
Dr. Abercrombie (Fellows) H.
Elsie Grace (Dodwell) L.
J. B. Bryant (Tugram) H.
John Smith (Bower) H.
Master Norman (Norman) H.
Mrs. Fuller (—) H.
Mrs. Gibbons (Taylor) L.
Thomas William (Flowdy) L.
Violet Douglas (Simonite) L.
Winifred Esther (Dodwell) L.

Purple Picotees.
Alliance (Fellows) H.
Alice (Lord) L.
Anu Lord (Lord) L.
Her Majesty (Addis) L.
Isabella (Matthews) H.
Mary (Simonite) L.
Minnie (Lord) L.
Mrs. A. Chancellor (Turner) H.
Master Nichol (Schofield) L.
Rev. J. B. M. Camm (Fellows) H.
Tinnie (Dodwell) L.
Zerlina (Lord) H.

Rose and Scarlet-edged Picotees.

Charles Williams (Norman) H.
Edith D'Ombraiu (Turner) H.
Ethel (Fellows) L.
Fanny Hellen (Niven) H.
Lady Louisa (Abercrombie) H.
Lady Holmesdale (Schofield) H.
Louisa (Addis) H.
Miss Horner (Lord) H.
Miss Wood (Wood) L.
Mrs. Adams (Adams) L.
Mrs. Allcroft (Turner) L.
Mrs. Payne (Fellows) H.

—GEO. RUDD, *Undercliffe, near Bradford.*

BEST DOUBLE IVY-LEAVED PELARGONIUM.—There must be a number of your readers who are fond of basket plants for suspension in conservatories, sunny windows, open verandahs and corridors. I have tried quite a number of the above plants in this way, single and double, with plain, variegated, and zonal foliage, but find Comtesse Horace de Choiseul, raised by Lemoine and issued by Messrs. Cannell last year, the best. The colour of the flowers is soft crimson-rose, produced in large trusses, and of wonderful staying powers. My trusses are fresh after three weeks; but they have been slightly shaded during the midday sun and suspended in a sitting-room window, which is not closed at night when the tem-

perature is above 60° Fahr. Many of the drooping Begonias do well similarly.—W. J. M., *Clonmel.*

NOTES ON PEAS.

CULVERWELL'S Paragon and Giant Marrow, Laxton's John Bull, Carter's Pride of the Market, and Telephone have been on trial with me this year. Paragon is described as being from 3 to 4 feet high, but with me on poor gravelly soil well manured it has grown to 6 feet. The pods are not curved but are straight, containing about nine fine peas, which are of good quality. Giant Marrow is what its name implies, the pods being very large, containing as a rule ten or eleven fine peas of very good quality. It is a great bearer and first-class exhibition variety. Height 7 feet. John Bull is a shorter variety, with good dark green pods tightly packed with large peas. It is fairly productive of robust growth, and no doubt will become a favourite with those who do not want to use long stakes. I consider this variety preferable to Pride of the Market, which is a good Pea of first-class appearance, but with me it has not been a good cropper. Telephone is now well known, and I need hardly describe it. I should like it better as an exhibition variety if the pods were of a deeper colour. Its rival Telegraph has a far better appearance.—H. S. E., *Great Totham.*

AMERICAN WONDER.

I have grown the above Pea with great success. It has proved a large cropper and of excellent quality and has required no support. Having cleared the crop, they would in the ordinary course of things have been pulled up and thrown away; but the ground not being wanted immediately they were left, and in two or three weeks I found to my astonishment that they were breaking at every joint, and that fresh bloom was appearing. They have now five or six pods on every plant, and will supply me with abundance of seed for another year.—C. J.

NE PLUS ULTRA.

Notwithstanding all the improvements in Peas, is there yet one more useful or of better quality than this old favourite? For late use especially I have not found one to equal it, as it continues growing and bearing for weeks, while some others produce one great flush of pods and are over in a fortnight. As to quality this is very much a question of palate; but lately I have been assisting in a family engaged in testing the quality of a few varieties of Peas when cooked. The result was as follows—Ne Plus Ultra first unanimously, Telephone second, Telegraph third, Pride of the Market fourth, Stratagem fifth, and Culverwell's Giant Marrow sixth. The peas were all alike fresh, in the best condition for table, and all were prepared by the same cook, who did her best with each. Perhaps other seven judges would place some of them differently, but I think Ne Plus Ultra would have a high position.—AN OLD FOGIE.

VIOLAS.

I NOTICE that Pansy Blue King is still announced by several persons as the best blue bedding Viola or Pansy known. I have for three or four years past discarded this variety in favour of Viola True Blue, which in my opinion is in every respect the best Viola or Pansy of that shade of colour we have. It is not a rambling grower, but has a compact, sturdy, short-jointed habit, and begins flowering very early in spring, and is a continuous bloomer. The flower is free from a central blotch, and stands wet weather well. This variety when more known will be everybody's Viola. Mrs. Gray, sent out by Mr. B. S. Williams, is at present our best cheap white. It is of a clear paper-white colour, and of good habit and a free bloomer. We have other whites—viz., Lady Polworth, and a new one of Downie & Laird's—Countess of Hopetown, which are fine, especially the latter. Of the yellow-coloured section, Viola Queen of Spring is very beautiful, entirely free from blotch, and a very free bloomer; but two of my seedlings from this variety—viz., Golden Queen of Spring and Yellow Dwarf, are improvements; the last-named is a very great acquisition. In the lilac-coloured class Elegans and Duchess of Sutherland are both admirable. Archie Grant is a very fine blue violet-coloured kind, and Lord Darnley is of a rich velvety dark violet-blue colour. Queen of Lilacs is of a blue-lilac colour, a wonderful bloomer, and of good habit. Two of our finest coming popular Violas, which will be obtainable at cheap prices this autumn, are Countess of Kintore and Mrs. Dr. Hornby, two lovely varieties of a pale purple colour tipped with white. Violas should be largely used in all gardens, but planting in October or November to get them established before winter sets in. These can be used with Hyacinths, Tulips, &c., for spring blooming, so that a continuous spring bedding display can be kept up.—WILLIAM DEAN, *Walsall.*

[A choice selection of Viola flowers accompanied this communication. True Blue quite excels Blue King, and we agree that Mrs. Gray is the best white for bedding. Lord Darnley, maroon shaded purple, is the best of that class sent, and is very fine indeed. A dwarf form of the useful Cliveden Purple is an improvement on the type; and Holyrood, violet and maroon, is very rich. At Hampton Court Violas are employed with great effect amongst variegated Pelargoniums.]

PARSLEY-LEAVED BLACKBERRIES.

I HAVE grown these for years, and they are very beautiful so far as foliage is concerned, but, what is much more satisfactory, loaded with

rich luscious fruit every season. My soil is tolerably strong, and the requisite number of the previous year's shoots are pegged-in to an unsightly wall during the spring. They often make 4 or 5 yards' growth of very strong wood. In September, 1881, I sent bunches of fruit to the Journal, which were favourably noticed.

Being a late fruit it is essential that the plants should be grown in a sunny aspect. I daresay every soil would not grow them satisfactorily, but with me the difficulty would be to get quit of them. Keighley station is a mile and a half from my Willow Bank nurseries, and I shall be pleased to show these beautiful plants to anyone who may think it worth while to call and see them. I have tried Lawton and several other Blackberries, but I do not find any equal to the Parsley-leaved.—JOHN CARTER, *Keighley*.

BRODIAEAS.

I AM induced to write a few remarks upon these lovely bulbous plants at the present time chiefly because they are a source of great pleasure to me, having had not less than ten species and varieties in flower at the same time, for the most part in pots, also examples of each kind are planted out and flowering equally as well. They are, indeed, very showy plants, especially the Vegetable Fire-cracker, which, I believe, is the Yankee name for *B. coccinea*. This species is so distinct from all other flowers that when once known it is not easily forgotten. These Brodiaeas, although closely resembling various species of *Allium* and *Triteleia*, nevertheless have a distinctness which renders them very desirable. They are easily cultivated either in

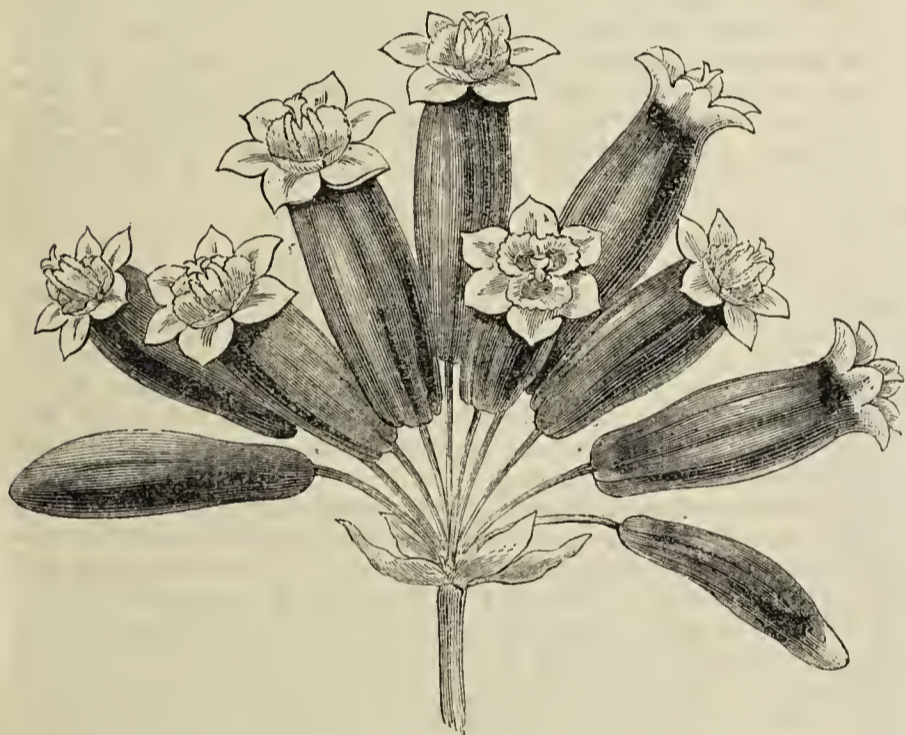


Fig. 21.—*Brodiaea coccinea*.

pots or in the border. A few of them increase abundantly in their favourite spots, and they are extremely pretty in masses. *B. coccinea* is perhaps the most tender of all, but it will stand outside all the year if the position it occupies is well drained and facing south or west. The precaution, of course, can be taken of lifting the bulbs and potting them, so that they can be put in a place of security for the winter. It richly deserves such a small amount of attention. Most of the other species here mentioned require little attention if planted out in moderately rich light soil; in fact, every lover of hardy flowers should have a special border prepared for the reception of choice hardy bulbs. In preparing such a border it is necessary to insure drainage and a good depth of soil, which of course can be qualified to suit the several and variable requirements of any particular set of plants. The Brodiaeas are all natives of North America, confined for the most part to the western States. I have carefully considered the synonymy of the species here described, since the trade of American bulbs is being largely increased, and such may be of service to some buyers, as all these synonyms are often quoted as species.

B. capitata, Benth.—Leaves slender, smooth. Scapes from 1 to 2 feet high, smooth, terete, umbellate. Flowers half inch to 1 inch long, broadly funnel-shaped, light purple, the segments rather longer than the tube. Known also under the name of *Milla capitata*, Baker. Native of California, in many parts of which it is very beautiful, extending to Utah. This is also a very handsome species, growing

very freely if treated like *B. laxa*, as it is not at all fastidious as to soil, enjoying a warm sunny position. Flowering in July and August with us.

B. coccinea, Gray (fig. 21).—A very handsome species, with narrow, channelled, slightly glaucous leaves, from 6 to 10 inches long. Scape from 1 to 3 feet high, umbellate at the top, with a few reddish bracts at the base of the pedicels. Flowers from four to sixteen in number, tubular; the tube from 1 to 1½ inch long, about half an inch through, of a deep red-crimson colour; limb segments ovate, slightly reflexed, of a pale green colour, not more than a quarter of an inch long, and less in width; anthers as long as the perianth limb. This is a most distinct and handsome species, and very freely flowers. Well adapted for pot culture or for a warm border. It is not quite so hardy as most of the other species, but if the bulbs are planted deep and the surface of the soil slightly covered during the winter it will stand all right. It is so rich in colour and unique in appearance that it richly deserves some care being bestowed upon it. It is known as *B. Ida Maia*, Wood. Sereno Watson, the celebrated American botanist, adopts the name of *Brevoortia coccinea* after Wood, but as the plant is more generally known in this country under the name of *Brodiaea* I have adopted it. It flowers in the open in our climate from June to August, and I recently saw at Messrs. James Dickson & Sons of Chester a quantity of plants in bloom at the same time, and the effect was simply charming. It is a native of Northern California, extending from Humboldt to Shasta counties.

B. congesta, Smith.—Leaves narrow, glaucous, channelled. Scapes 1½ to 4 feet high, densely umbellate or sub-capitate at the top. Flowers numerous, half an inch to three-quarters of an inch long, half funnel-shaped, with the segments nearly or quite as long as the tube. The former not reflexed, of a clear purple-blue colour, or rarely white, as in the variety *alba*, which is by no means so plentiful as the typical form. They are both very free-growing border plants, quite hardy, and readily establish themselves in most positions, increasing in strength yearly, and *en masse* they produce a very pleasing effect. The normal form approaches very closely to *B. multiflora*, Benth., but there are structural differences which keep them apart. Native of regions from San Francisco to Washington territory. Flowering in this country from the end of May to July.

B. gracilis, Watson.—Leaves solitary, very narrow, one-sixth of an inch to a quarter of an inch broad, slightly glaucous. Scape 3 to 4 inches high, slender, scabrous, purplish, umbellate at the top. Flowers few, half an inch or rather more in length, on slender pedicels equally as long or longer, of a bright yellow colour, the segments equalling the tube in length. A very scarce species, which I have never flowered. Found on the Spanish Peak, Plumas County. The bulbs of this species seem to travel badly after being collected, as on more than one occasion I have received bulbs in a very poor condition.

B. grandiflora, Smith (fig. 22, p. 115).—Leaves very narrow, nearly round. Flower-scape from 5 to 12 inches high, rarely reaching more than 10 inches in height, umbellate at the top. Flowers few, or rarely more than from eight to ten in number; the perianth about an inch long, sub-campanulate; the tube shorter than the segments of the limb, of a purplish-blue colour; flower-stalks somewhat lengthened and slender. It is a very handsome, free-growing, and hardy species, flowering in July and August, rapidly increasing by bulbils when once established. Abundant in all the regions from the Mohave River to British Columbia.—J. T. R.

(To be continued.)

PEAS—THIN VERSUS THICK SOWING.

MR. WARD, on page 69, gave a striking instance of the advantages of sowing Peas thinly. His plants of *Evolution* were placed 6 inches apart, in single line presumably, and not only made a good row, but he considered the plants were too thick by half. Recently I have been examining some Peas, and at the end of a fine row of Culverwell's Giant Marrow is one plant standing alone, from a scattered seed no doubt, but it has been secured to the stakes. The vigour of this plant is extraordinary. It has branched freely, and the side growths are as strong as any of the main growths in the thick portion of the row. This vigorous plant is bearing thirty-seven pods of great size, whereas the other plants grown thickly have only from seven to nine pods. I could not find one with ten, and the pods are much smaller than those produced by the branching plant.

In the same garden a long row of John Bull is growing. It appears that in sowing the seed was at first used too liberally, and to sow the whole length of drill it was necessary to sow thinly towards the end of the drill opposite to where the sowing commenced—near the extreme end of the row very thinly indeed. For a time it was feared the row at the thin end would be a failure, but now if there is a failure at all it is at the other end, where at the least thrice the quantity of seed was used per yard. Where the plants are thin they are extraordinarily strong, have branched freely, and are bearing distinctly the finest crop and the largest pods.

Several years ago when that useful Pea Veitch's Perfection was new, and consequently more expensive than it is now, I remember some rows that I have not seen equalled since. The seeds were dibbed in a double row at the same distances that Broad Beans are usually put in. The plants were luxuriant, the row full, the crop abundant, and the pods splendid.

This thin sowing would not answer so well in the autumn nor in inclement weather in early spring, but as the season advances, the land becomes friable, and the weather improves, it is questionable if the plan is not the best that can be adopted in deeply trenched and well-manured ground. What do the exhibitors of Peas say? They know which is the best method, and would do no harm by stating it.—A PLAIN GARDENER.

ROSES AT BERKHAMPSTEAD.

MOST readers of the horticultural papers have heard of the splendid Muscat Grapes grown at the nurseries of Messrs. Lane & Son, but it is not of Grapes but of Roses I wish to make a few remarks. I may state in passing that it is not from a showman's point of view that I name some of the many really good varieties of Roses grown in these nurseries. It is those only that took my fancy as free bloomers and vigorous growers that I shall name in this brief notice. Here are to be found a large collection of all the newest and best, besides a large general collection of tried varieties worthy of cultivation, some as dwarfs and some as standards. All are in the most vigorous health, with hardly any trace of mildew or any other disease to which Roses are sometimes liable. My visit was a hurried one, and I had no time to follow the catalogue arrangement, but jotted down a few of those which seemed worthy of growing. Many are grown by the hundred, and at the time of my visit, 18th July, were flowering profusely. I feel certain anyone who has not grown the following varieties will not be disappointed by adding them to their collection:—

Capitaine Christy, blush, large, and good; Duke of Connaught, velvety crimson, good; Sultan of Zanzibar, very dark; Mrs. Baker, crimson, large, and fine; Dupuy Jamain, bright rose; Henry Bennett, velvety crimson, good in bud, but petals thin; Marguerite Brassac, deep carmine, good; Mabel Morrison, as seen there one of the very best whites, like Baronne de Rothschild; Madame Lacharme, white, tinged with rose, good; Countess of Rosebery, large, carmine rose, vigorous grower; Duchess of Bedford, scarlet, good; La Rosière, crimson, large and fine; Mons. E. Y. Teas, red, fine form; Red Gauntlet, very bright red; Abbé Brammerel, dark red, good; Etienne Levet, rose, fine; Duchesse de Vallombrosa, light pink changing to white, large and good; Marguerite de St. Amand, fleshy pink; Hippolyte Jamain, rose, large and good; Mdlle. Eugénie Verdier, large, rosy pink, with large petals like Peony Rose; Madame Gabriel Luizet, pink, one of the best; Dr. Andry, red, very good; Madame Victor Verdier, good; Marie Baumann, rosy crimson, very fine; La France, lilac rose, very large and good; Louis Van Houtte, dark, rich, and good; Countess of Oxford, good; Elise Boëlle, creamy white; Paul Neyron, rose, very large and showy; Queen of Waltham, Star of Waltham, Glory of Cheshunt, and Brightness of Cheshunt, all good; Pride of Waltham, dark red; John Hopper, rosy crimson, good; Pierre Notting, vermilion, good; A. K. Williams, good. This hurried list might be considerably extended with equally good varieties, but those named especially attracted my attention.—J. SMITH, *Mentmore*.

POULTRY AND PIGEONS IN GARDENS.

MR. T. B. DOLBY'S case as he has stated it on page 71 appears a peculiarly hard one. He asks if a parallel case is known. There is probably no such case on record. I am told persons cannot claim damages for injury done by pigeons the same as for poultry, and if the birds cannot be shot when they are caught at their destructive work it follows that the Pigeons are our masters. If this is law it is not justice. In my district game is strictly preserved, yet anyone is permitted to shoot wood pigeons, as they are so destructive in fields. Domestic pigeons where they abound are equally voracious and work ruin amongst Peas. Has there not been an error of judgment in the case in question? If so the Judge, being a pigeon fancier, ought to be the first to assist in granting a new trial. The case as it stands is most unsatisfactory, and the verdict may have far-reaching and very serious consequences. I see by a reply last week the Editor is endeavouring to obtain information on the law affecting Pigeons. This is well, but it would almost appear as if they were above law.—A SEED-GROWER.

[So far as we have ascertained the following cases represent the law

on this subject, and we commend them to Mr. Dolby and his solicitor. "If pigeons come upon my land I may kill them, but I have no remedy against anyone for breeding them."

"If domestic pigeons come upon land sown with corn and eat up the corn, the occupier of the land is justified in shooting them, as he has no other means of taking them damage feasant."—(*Dewell v. Sanders*, Cro. Jac., 490; *Hannam v. Mockett*, 2 B. & C., 939.)

"Killing, wounding, or taking any house dove or pigeon wantonly is an offence punishable summarily by fine of £2 above the value of the bird."—(24 & 25 Vict. c. 96.)

APRICOT BRANCHES DYING.

(Continued from page 515 last vol.)

Soil and Climate.—Soil exerts a great influence on the growth, health, and prolificness of Apricots, and should be calcareous on soils overlying the limestone formation; but as oolite, lias, and even lime are not on the surface (though the latter is often only covered with a shallow stratum of soil) these formations exert but small influence on the growth of trees. This should be taken into consideration in forming fruit tree borders, and where the lime is at such depths as to be beyond reach of the roots of the trees it should be furnished in some form. Old mortar rubbish answers well, and being readily accessible will commend itself, whilst chalk broken small is equally serviceable. Chalk marls are also available, coprolites, shellsand, and even gypsum being capital additions to soils deficient in calcareous matter; but these, except the chalk marl, are best given as surface dressings. As a rule, one-tenth that of the loam employed in making the borders for Apricots should be chalk or lime rubbish, or where the soil is alluvial, or a loam having but a very small proportion of lime, for it exists more or less in all soils except it be peat and bog soil, the proportion of lime rubbish or chalk may equal a sixth of the whole, and in all cases be thoroughly incorporated. Lime is essential to the successful cultivation of the Apricot and all stone fruits. A calcareous soil best suits the Plum on which the Apricot is worked, and the nutriment it affords to the scion or Apricot tree is calculated to give solidity to its growth and the perfection of its stones, few fruits being cast in stoning in a calcareous soil as compared with those in a soil not containing more than a small per-centage of lime. Even a dressing of quicklime applied to the surface and forked in has a marked effect for the better on trees in an unsatisfactory state, a couple of bushels per rod not being too much for soils that have long been under crops of vegetables on fruit borders heavily manured.

The border should be well drained, and the depth of soil not more than 2 feet, as the Apricot, or rather its stock—the Plum—is a surface-rooting tree, and the roots should be encouraged and kept at the surface, but this is practically impossible if the border is to be used for early vegetables, and the heavy manuring and deep digging resorted to. It is only courting failure by causing the roots to strike deeply into the soil; and this, with the richness of the soil, tends to gross growth and the immaturity of the wood, which only needs severe weather to result in gum and ultimate dying off of the limbs.

The materials constituting the border should be put together firmly, as this tends to cause a steady growth in the trees, and is not conducive to that luxuriance characteristic of trees in a loose and rich soil. Once made the border ought not to be dug, but as south borders are so valuable, there are few, if any, gardeners that could avoid cropping them; nor, indeed, are such wide borders as we now employ for fruit trees necessary. It would be well if the trees were not given more than one-third the space now allotted, 5 or 6 feet width of border being ample for a wall 10 feet or even 12 feet high, and less in proportion, and this part ought to be kept exclusively for the trees. With the trees in such borders they are almost as much under command as when grown under glass. They can be mulched, and the roots fed, if necessary, with liquid manure when carrying heavy crops, the mulching encouraging surface roots, and only moisture in addition is necessary to keep them there.

Climate.—The Apricot is a tender exotic, and indigenous to a country with a drier climate in spring than ours, if not more genial in summer; yet the fruits in this climate have come safely through the ordeal where proper means of protection have been given. Not very long ago I read in the Journal a statement by Mr. Pearson that Apricot blossom and the trees really did not require protection in spring, advancing in proof the good crops obtained from the walls of cottages, where the trees were seldom if ever protected. This is incontestable as regards the trees against cottages in the firm and comparative poor soil, causing a much less and consequently ripened growth. But what of such advice for trees in the rich soil of gardens? Herring nets,

bands of straw or hay, and branches of evergreens, are only apologies for efficient protection—viz., canvas covering, or better still, Nottingham wool netting, quarter-inch mesh. The late Rev. W. F. Radclyffe was very successful with Peaches outdoors, attributing his success to thorough protection for the blossom, tender fruit, and young easily injured foliage; and I know the old gardeners were very successful with Apricots, and all wall fruit for that matter, and they employed efficient protection from the opening of the blossoms until the danger from frosts in May was past. But of late years the culture of wall-fruit trees has been very much neglected.

As aids to climate there is the warmth of the wall, but in the case of a fixed protection it obstructs the sun's rays considerably, and the wall absorbs very little, the case being very different when the protecting material is withdrawn in the daytime and replaced at night. Projecting copings to the walls are also of value. They to some extent prevent the passing off of the heat upward, increase the heat by day and retain it at night, as well as prevent the descent of cold and wet. A great improvement has of late years obtained in glass copings, which with stout scrim canvas in front, and readily moveable, are practically all that our climate requires for the successful cultivation of the Apricot against walls.

The copings should be moveable, not being fixed until the blossoms show generally white, as until this stage the blossoms are comparatively safe from frost; but when the blossoms show the corollas they need dryness and warmth. After the beginning of June the trees are best exposed to the full influence of the atmosphere, and the coping should remain off until the fruit is ripening, when they should be returned and continued over the trees until the leaves are falling, then they should be removed and not used again until the time above indicated. Keeping them over the trees in winter affords unnecessary warmth, and induces undue swelling of the buds in warm sunny periods.—G. ABBEY.

(To be continued.)

NOTES AT CHISWICK.

BOTH under glass and outside there is now much to interest a visitor to the Royal Horticultural Society's Gardens, Chiswick, and probably a better opportunity could not be selected for a journey thither. The recent rains have refreshed the flower beds and vegetable quarters considerably, and the fruit crops are fairly satisfactory, except the Pears, which are very scarce. Small fruits, particularly the Gooseberries, are abundant. Strawberries have been good, Black and Red Currants plentiful, but Cherries and Plums are few. Several trials have been taken in hand this season, including Peas, Potatoes, Tomatoes, Verbenas, Zonal bedding Pelargoniums, Pansies, Violas, and others, each of which possesses considerable interest. It is, however, a misfortune that the results of these trials are so rarely published now, for the advantage that would be otherwise derived from them is practically lost to the majority of cultivators. So much careful labour is expended upon the reports of these trials, that it is very regrettable they should be permitted to remain in manuscript stored in the archives of the Society, and accessible to few even of the Fellows, especially those living at a distance, and who might fairly claim an equal right to the benefits derivable from the Society's work. Those, however, who have the opportunity of visiting Chiswick can always find both instruction and interest, as they are most readily assisted by the courteous Superintendent, Mr. A. F. Barron, and his able subordinates. It is therefore an especial pleasure to have a run through the grounds and houses, and as I have recently had that pleasure I may briefly state a few of the features that most attracted my attention in the short time at my disposal.

ACHIMENES.

In one of the warm houses an excellent collection of these is grown, including both the best of the old varieties, together with the most notable of the more recent productions in this useful class of plants. The value of Achimenes is generally acknowledged and understood, as either in baskets, pots, or pans they are exceedingly attractive, easily grown, and profuse in flowering. Perhaps, however, the most satisfactory mode of growing them is in baskets suspended from the roof of a house, as their beauty is seen much more readily and advantageously than otherwise. The magnificent examples thus grown at Chatsworth may almost be considered unique, and can only be compared to gigantic balls of flowers when in their best condition. They are, or were a year or two since, grown in the tropical Water Lily house, and suspended round and over the central tank, from which a warm humidity is continually rising, they appear grand, and thrive most satisfactorily. At Chiswick, however, the object is not so much the production of wonderfully large specimens as to show the relative merits of the different varieties, for which purpose

the plants are carefully and liberally treated to ensure vigorous health and floriferousness. This is well accomplished by growing them in a moderate temperature, excessive heat and moisture having with them, as with many other plants, too great a tendency to produce a long weak comparatively flowerless growth. The varieties are numerous, but the following may be taken as the best of their respective types:—

Mauve Perfection.—Large handsome flower, rich bluish purple, clear colour; free, and of good habit.

Sir Treherne Thomas.—An exceedingly free-flowering variety, with bright crimson blooms of moderate size.

Ambroise Verschaffelt.—A well-known form with flowers of medium size, white ground streaked with purple; free and good.

Dentonia.—A very distinct variety, with delicately tinted pale lavender flowers.

Harry Williams.—One of the brightest coloured forms in cultivation; flowers moderate in size, neat in form, extremely bright scarlet. Very free and effective.

Carl Woolforth.—A useful variety, remarkably floriferous; compact in habit, and of a fine purple colour.

Dazzler.—An old but attractive variety, bearing abundant small bright scarlet flowers; dwarf and compact, being especially suited for culture in pots.

Mauve Queen.—One of the largest flowers of all, a really grand bloom; flat, and of great substance; colour, a clear purplish mauve.

Margarita.—Flowers rather small, but white, and useful for contrast with the brighter-coloured varieties.

IMPATIENS PLATYPETALA ALBA.

In the same house as the above a number of plants of this charming



Fig. 22.—*Brodiaea grandiflora* (see page 113).

Balsam are grown, and it deserves especial notice now that the rosy scarlet *Impatiens Sultani* is becoming so popular, as it would form a most valuable companion to that lovely species. It is of easy culture, and succeeds in any house with an intermediate temperature, producing its pure white-spurred flowers very freely, and though these are undoubtedly of short duration, the continual succession renders the plant attractive during a long period. It is chiefly increased by seeds, though probably, like the other named above, it could be also propagated by cuttings.

ZONAL PELARGONIUMS.

A most brilliant display of Zonal Pelargoniums is formed in another house, both single and double varieties from all the most celebrated growers of these useful plants being represented in the collection. When seen in a mass, as is the case there, the effect is dazzling, and the eye seems to seek for relief in quieter tints. The momentary effect is very striking, but one seems to tire quickly of such overwhelming colour when not moderated by an admixture of green or soft hues. When these plants are flowering in the profuse manner which characterises them they seem to need something more than their own foliage, and a few taller Palms, Ferns, and similar plants introduced at intervals in the bed would render the effect more pleasing without detracting from the value of the collection for purposes of comparison. Varieties of these plants have been so frequently named in these pages that it is unnecessary to

enumerate many now. A few of particular merit may, however, be mentioned. Amongst the single Zonals were :—

Kleber.—A pretty and distinctly coloured variety, violet scarlet, if such a term is admissible, for the tint is so peculiar that it can be scarcely described in any other way, there being an admixture of the two colours that has a singular effect in bright sunshine.

Constance deserves notice for its merits as a pink variety—a shade that is much prized amongst these plants when really clear and bright, as it is in the case of the one named, which is also of compact vigorous habit, with fine neat trusses of blooms.

Mrs. Hetley.—A profuse-flowering variety, with fine trusses and well-formed bright orange scarlet blooms.

Hettie.—Remarkable both for the size of the truss and flowers, the latter being of a scarlet-cerise shade, very clear and pleasing.

Two double varieties only specially attracted my attention—namely, the following :—

Sylvia.—A handsome pink form with large trusses, and

Edouard André.—Rich scarlet, with a magnificent truss of large flowers.

TUBEROUS BEGONIAS.

The collections of these plants at Chiswick have long since obtained a high degree of fame, and most deservedly too, for they have been grown in the best possible manner, and by careful nursing and selection many superb varieties have been raised that have from time to time been honoured with certificates at South Kensington. By this means the whole strain has been so greatly improved that it is found scarcely necessary to name varieties, and many fine unnamed seedlings are noticeable there now that a few years ago would have been thought most valuable acquisitions. Single and double scarlet, crimson, pink, yellow, and white are represented by numbers of fine forms, the single varieties being by far the best in a decorative point of view, as the colours seem to be much richer, brighter, and clearer, and the flowers have not the heaviness, or, indeed, the deformity, that distinguishes the others much too frequently in all collections. Amongst so many that are good it is not easy to select a few that are pre-eminently worthy of notice, but the following four may be taken as possessing characters of sterling merit :—

Nellie May.—A lovely variety with beautifully formed pink flowers ; large, but by no means coarse, and produced very freely.

Queenie.—Also a charming bright pink variety, but possessing a little history that renders it noteworthy. It bears the pet name of a little lady in the neighbourhood, who has been also immortalised by Mr. Musgrave in his charming musical production bearing that name.

Souvenir de Chiswick is now known to many growers, being distinguished by its exceedingly brilliant scarlet colour of the finely formed and large flowers.

GLOXINIAS AND FERNS.

The small stove near the long vinery is now very bright and pleasing with a drapery of Gloxinias arranged with small plants of *Adiantum cuneatum*, the stage being margined with a long fringe of *Panicum variegatum*. The real value of Gloxinias can be at once perceived when arranged in this manner, and the groups that have been occasionally staged from these gardens at the Kensington meetings and shows are invariably greatly admired for the taste manifested in this style of arrangement. The Gloxinias are of a good strain ; the flowers large, mostly erect, rich and varied in colour. The habit, too, is good, the large handsome leaves recurving round the pots and quite concealing them.

ALNWICK SEEDLING GRAPE.

In the long house devoted to Gros Colman and Alicantes in almost equal numbers a few Vines of Alicante Seedling are also grown, two being particularly notable, both having good crops of fair-sized bunches. One has had all the flowers set with pollen from Alicante, and the other has had half the bunches so treated, and the others at the upper portion of the Vine have been fertilised with their own pollen. The bunches are equally good, the berries swelling as freely and regularly in both cases ; and it is only regrettable that a few had not been left unfertilised for the purpose of comparison.

Quitting the houses, the beds in the walk leading to large vinery are the first which call for notice, amongst them being a fine collection of

DOUBLE POTENTILLAS.

Most of these have been received from Mr. Parker of Tooting for trial, and the results are greatly in their favour. The flowers in all cases are large, full, and richly coloured, and their value as hardy plants cannot be over-estimated, though probably the most ardent advocates for "single" flowers would expel them with great exclamations of dissatisfaction. Four especially worthy of notice are those mentioned below.

Escarboueh.—Flowers large and full, extremely dark red, and very freely produced.

William Rollisson.—A showy variety with dark orange-scarlet flowers ; large, full, and neat.

California.—Very bright yellow ; one of the best of its colour.

Velours Pourpré.—Colour extremely dark maroon, of velvety texture and handsome.

LOBELIAS.

Several good varieties of these have been tried this season, and though Lobelias are now numerous the following two are worthy of note.

Mrs. Tom Corbett.—Very free, dwarf and compact ; the flowers large, extremely bright clear blue with a white eye. This is an admirable

variety, the plants appearing quite balls of the brightest blue, and would be most useful for bedding purposes.

Blue Beard.—This is somewhat similar to the preceding, sharing all its good qualities, but it is rather taller in growth, with darker blue flowers.

HARDY FLOWERS.

The rockery and beds of hardy plants are exceedingly attractive. The former has now become well clothed with Sedums, Saxifrages, Campanulas, and similar plants, amidst which the choicer and taller species and varieties arise in a free natural manner, having quite a different appearance from that they possess in formal arrangements where the material employed is bare and unpleasantly conspicuous. This rockery, though modest in its pretensions and almost diminutive its extent, is yet one of the most natural and pretty, and might furnish a lesson for many a more elaborate production. Very notable is

Campanula Hendersoni alba, which forms dwarf clumps bearing a great number of pure white large bells, an agreeable contrast to the blue-flowered *C. carpatica* and *C. turbinata*.

Coreopsis tenuifolia is another thoroughly useful plant, its bright yellow flower-heads being borne very freely, and the whole plant, owing to its slender stems, has a very graceful aspect.

Lychnis chalcedonica alba plena.—The old scarlet form of this *Lychnis* is widely known and much appreciated in gardens still. This variety is, however, comparatively rarely seen, and yet is well worth notice, as the flowers are very double and white, thus forming a good companion for its older relative.

Nicotiana affinis.—A bed of this plant near the rockery has been quite a feature for some time past, and on the occasion of the Evening Fête recently held there it was greatly admired. The large white flowers are abundantly produced in succession, and in the evening they are in their best condition, diffusing a powerful fragrance that is perceptible for a great distance. For beds near a house this plant is most valuable, and its use for culture in pots was specially referred to when an engraving of it was given in this Journal, page 295, last volume.

VERBENAS.

The beds of Verbenas will shortly be very handsome, as a large number of varieties, chiefly from Messrs. Cannell & Son of Swanley, are being grown for trial. Already some of the most forward are flowering well, producing a very pretty effect by the mixture of bright colours. A few of these may be noted now, but the general collection will deserve further attention later on.

Lustrous is a fine scarlet variety, the centre of the flower white, free.

Stars and Stripes.—Mauve and white in alternate stripes, radiating from the centre of the flower.

Blue Beauty.—Very fine blue-purple variety, profuse and vigorous.

Statgartner Swartz.—Bright rosy pink, very effective, and useful for bedding purposes ; the truss large and compact.

Madame Anna.—An effective purple variety with a white eye ; truss large.

Melandris spectabilis.—An old variety, but still unsurpassed in brilliancy of the scarlet flowers, though they are somewhat small.

Mahomet.—A most distinct dwarf creeping form with divided leaves and small flowers, deep rosy pink with white lines radiating from the centre, and somewhat suggestive in form of the *Saponaria calabrica*.

In addition to the above a fine collection of Tomatoes is being grown for trial in pots, and some notes upon these may be useful later in the season. Some bedding Pelargoniums are also being tried, and these too will be worth attention.—L. C.



THE Rev. F. D. Horner informs us that the NORTHERN SHOW OF THE NATIONAL CARNATION AND PICOTEE SOCIETY will be held on Tuesday, August 14th, at the Botanical Gardens, Manchester. The Botanical Council kindly grant £10 to the prize fund, and free passes to the exhibitors in the Society.

— THE Meeting of the Fruit and Floral Committees of the ROYAL HORTICULTURAL SOCIETY at South Kensington, on Tuesday, the 14th inst., will be held in the Conservatory, on which occasion Messrs. F. Smith & Co., West Dulwich, Surrey, state it is their intention to exhibit a collection of Balsams.

— THE Rev. H. H. D'Ombra writes :—" I see in last week's Journal that I am credited with having made 'a pleasing and amusing speech' at the NEWCASTLE SHOW. I must deny the soft impeachment, for I was 200 miles away, and I did not, even if I had the power, communicate it by telephone !"

— "J. E." wishes to know if the "perpetual Strawberries" alluded to in the Journal last week by Mr. Prestoe are merely improved Alpines, and whether the pollen of the Alpine or Hautbois Strawberry will fertilise pistillate flowers of the commonly grown sorts.

— A CORRESPONDENT writes—"I have just cut a BROMHAM HALL MELON 16½ lbs. in weight. Several gardeners told me this is a very remarkable size. Will your readers kindly tell me the weight of the largest they have heard of?"

— A CHARMING little plant that is far too seldom seen in gardens is GALIUM RUBRUM, which might be applied to many uses in decorative purposes, particularly for bouquets and stands of flowers. It is dwarf, and produces such a number of small dark red flowers on slender feathery inflorescences that the plant appears quite a cloud of bloom, the foliage not being visible. The panicles or cymes of flowers are so light and graceful that their value is apparent at a glance, the stems being quite fine and hair-like. Any ordinary garden soil suits the plant, which at this time of year is in its best condition. It is a native of Italy, but has been an occupant of English gardens for something like 300 years.

— THE extent to which CHRYSANTHEMUMS FOR AFFORDING CUT BLOOMS FOR MARKET are grown is perhaps not fully appreciated by the public. A correspondent, who called on Mr. Stevens of Putney the other day, found some 3000 plants in pots, 500 of them being Elaine, in splendid condition, dwarf free-branching examples that are sure to produce fine blooms. Mr. Mahood of Putney, it is said, grows quite as many, and those who have seen the groups of plants arranged by both these cultivators at metropolitan shows know that they grow them well. In Mr. Stevens' collection are many seedlings, some of which are expected to prove valuable, and are being propagated accordingly. These are only two out of dozens of growers of Chrysanthemums for market, and the demand for white blooms especially must be enormous.

— THE Waterloo, Seaforth, and Crosby Horticultural Society held their eighth annual Exhibition in grounds adjoining the station, instead of the Hydropathic Establishment, as in previous years. The Exhibition on the whole was a gigantic success, and the exhibits much superior to those staged at previous exhibitions. The most successful exhibitors, amongst others, were Mr. Woolham, gardener to Colonel Blundell; Mr. E. R. Muspratt. Mr. J. Evison, gardener to the Hydropathic Company, was awarded the premier award for a group of plants arranged for effect. The first-named exhibitor was awarded the silver cup for the best model flower garden shown in the two classes provided for these in the schedule.

— HOPS FROM AUSTRALIA.—A parcel of 900 cwt. of hops arrived in London from Australia last week, and as they are the first shipment exported much interest has been created on the Hop Market. Although they have not paraded the matter much before European farmers, Australian agriculturists have for some years been devoting their attention to Hops, and the season which closed in March last has been a very successful one, the crop weighing about 19,000 cwts. The hops that have recently arrived were grown in several parts of Australia, also in Tasmania and New Zealand; they are described as being of fair quality and well suited for brewing. Much attention is now being given to hop cultivation in the Antipodes, the climate and soil being admirable, and vermin never destroying the plant. The harvest season is very different from ours, lasting, as it does, over two months, February and March.

— A CORRESPONDENT writes—"I have recently seen some of the finest and best-grown specimens of LILIUM SPECIOSUM ROSEUM which have ever come under my attention before. They are in one of the houses at Shirecliffe Hall, Sheffield, the residence of J. Watson, Esq., and under the charge of Mr. J. Udale, who has evidently carefully studied the requirements of these handsome Lilies, and with the most satisfactory results. The majority of the plants are 6 to 7 feet high, and bear from forty to sixty blooms, some of the flowers being 8 to 9 inches in diameter from tip to tip of the petals. The colour, too, is extremely rich, and the beauty of this Lily can be most fully appreciated when seen in this condition. Many of your readers would undoubtedly be glad if Mr. Udale would record the treatment he has found so successful."

— THREE additions to the excellent little HOLIDAY HANDBOOKS

by Mr. Percy Lindley (125, Fleet Street) have reached us, which are well worthy of the attention of intending tourists on the Continent. One is devoted to "The Moselle from the Franco-German Battlefields to the Rhine," liberally illustrated and containing an abundance of historical and miscellaneous useful information with regard to the chief attractions of the leading towns, hotels, conveyances, &c. A second is entitled "A Trip to the Ardennes," briefly describing the towns that can be seen in a fortnight's holiday, including Antwerp, Brussels, Namur, Dinant, Spa, Liege, Chaudfontaine, &c. The third is devoted to "The Amsterdam Exhibition and Dead Cities of the Zuyder Zee." This is in a similar style to the preceding, and equally useful. The extremely moderate price—one penny—at which these handbooks are issued must render them very popular, and the semi-official character of their contents renders them fully reliable—a most valuable recommendation.

— MR. T. MOORE, Sutton, Surrey, sends the following additional note on STRAWBERRIES ATTACKED BY MICE:—"In the Journal of July 12th, page 24, Mr. Mathew relates an instance of losing his crop of Strawberries by field mice. I can also give an instance, which occurred last summer. On some land I used for kitchen garden I had a plantation of Strawberries (about two roods), which produced a great amount of foliage, the soil being all clay. I intended gathering the fruit for preserving, but to my surprise I found the best of the ripe fruit already gathered, and on my searching the bed I found the fruit had been plucked with a short portion of stalk and hidden in small heaps of from a handful to a pint in each heap in various parts of the bed, which I at once concluded had been done by mice, and further on searching I saw two large field mice making their escape by leaping above the foliage, as it was too thick for them to get through easily. I have not in nearly forty years' experience ever noticed such an occurrence before."

— A COLONIAL paper states that THE TARO PLANT, which constitutes the principal article of diet amongst the natives of many of the South Sea islands, has been cultivated for years on many of the sugar plantations of Queensland for the use of kanakas. It has not come into general consumption amongst the white population, although it is said to be a very healthy vegetable, equal, if not superior, to the Sweet Potato. It has recently been introduced into some of the Southern States of America, where it is not only relished as a vegetable, but has been found a most excellent food for horses and cattle. The Taro grows to greater perfection in the island of Tanna than in any of the other islands, on account of the great depth and freeness of soil in that island. The natives cultivate it, like the Yams, on the tops of mounds of finely pulverised earth. When grown on land cultivated by the plough, it is usual to plant it on the tops of large drills prepared by hilling up together three or four furrows. A very good starch and a very fair arrowroot are made from the bulb. It can only be cultivated with success, however, on fine alluvial soil such as is to be found along the banks of rivers.

— IN an interesting article on FOREST RAMBLES IN MADEIRA, by Mr. H. G. Guillemard, published in the "Journal of Forestry" for the present month, occurs the following passage describing the scenery and vegetation:—"Leaving Funchal on a brilliant morning in early November, on a tour round the island, my hammock-men bore me steadily up one of the numerous steep paved roads leading up to the main mountain range, which bisects the island. The city lay round its blue bay, bathed in glorious sunshine, which sparkled in the dew-drops on the lovely clusters of Maidenhair Fern on the old walls, and showed up the full beauty of the crimson and purple Bougainvillea, which covered verandahs and trellises with superb masses of colour. The mountain peaks were still wrapped in fleecy clouds as the morning mists rose slowly from the ravines and lower slopes, whose terraced gardens, tiny fields of Sugarcane, groves of Bananas and Oranges, and spreading vineyards pleased the eye with a hundred varying shades of green; and over the entire amphitheatre of hills the prismatic colours of the morning mist-bow, which forms one of the attractions of the mountain view from Funchal, shone in perfect beauty. Down the side of the steeply graded road a mountain rill of the clearest coldest water was rushing, white with foam; over the walls of the numerous quintas hung trailers of the heavenly blue Ipomæa, bright Plumbago and gorgeous Passion-flower, above which the feathery fronds of the Date Palm and the exquisite light-green leaves of the

Banana drooped gracefully side by side with the luxuriant foliage and purple fruit of the Fig, the yellow Mango, and pale green Custard Apple, whilst here and there the glowing scarlet bracts of tall trees of Poinsettia appeared in vivid contrast with the creamy-white trumpet-shaped flowers of the Datura."

TOMATO CULTURE.

I HAVE read with interest Mr. W. Thomson's remarks (page 88) as to his success in the one instance and non-success in the other in the cultivation of the Tomato, but his observations would perhaps lead some to discontinue the use of horse manure. I have been accustomed for many years to grow Tomato plants on the back walls of our vineries, as I cannot get the fruit to ripen outside on our hills. Latterly I have devoted a small three-quarter span-roofed house to this fruit with very good results. My object has always been to give the plants a very rich soil—*i.e.*, loam and horse manure in equal parts with a small quantity of sharp sand. Our loam is of a heavy nature, but good in quality. We also give them a good supply of liquid manure; still, I never found they had too much.

Mr. Thompson tells us he has had one fruit 21 ozs. in weight, but unfortunately he does not tell us the variety he grows. I have grown several varieties, even the Trentham Fillbasket. By-the-by, is this the old friend we used to grow twenty years ago under the name of Large Red? It very much resembles that variety. Criterion is a very good Tomato, but I do not like the colour of the fruit. So far as my practice goes there is none at present for general purposes so good as Hathaway's Excelsior. This is without doubt a most beautiful fruit both in size and colour.

We potted the plants in the middle of last March—about sixty plants in 11-inch pots. Twelve of these we placed inside a small house (span-roofed) and trained up the wires like Vines, growing them on the long-rod system—*i.e.*, the leading shoot is allowed to grow on, but all laterals are stopped at the first joint. I have cut from these twelve plants (in pots) 150 lbs. of good ripe fruits, and there are several pounds more to cut; indeed, my own idea is that if these plants were cut down to within 1 foot of the pot and allowed to grow on again, 100 lbs. more fruit could be cut from them.

I remember some years ago reading in the Journal that no insect would attack the Tomato plant. For some years I found this to be quite true; but during the last two or three years we have been troubled with a small white fly. Perhaps some of your correspondents can tell us the best way to destroy this pest. I have tried various means, but cannot entirely get rid of it.—H. CAKEBREAD, *Rayners*.

WILL Mr. W. Thomson, whose letter on this subject appears on page 88 of the Journal (August 2nd), kindly add to the value of the information he gives by stating the nature of the "manure rich in phosphates and potash" which he found so successful?—R. M., *Swanley*

NOTES ON WEST OF SCOTLAND PANSY SOCIETY'S SHOW.

SELDOM have I had the pleasure of witnessing such a pleasant and enthusiastic gathering as that at the West of Scotland Pansy Society's Show, which took place in Glasgow on the 25th ult. Pansies are the main feature, and in spite of grub and insect enemies which are telling sorely on many good collections, the general character of the exhibits was very good indeed. The Fancy Pansy takes the lead. The progress this class has made during the last few years has been very remarkable, while the degree of excellence attained has doubtless far surpassed the most sanguine hopes of the introducers. A great mistake in connection with this Show, and which was also a cause of complaint at Edinburgh, is that few of the flowers are named. The reason given by some of the exhibitors was that the lists were generally lifted. Well, then, why not try some other plan? Neat strips of gummed paper placed over the top of each flower would not look amiss—unless, indeed, there be some truth in the remark which I overheard by one whom I set down as an unsuccessful exhibitor, that the Judges were very much influenced by the popularity some of the sorts had obtained without paying much attention to the quality of the blooms. For my own part I do not think there is much in that, as the Judges who award the prizes at this Show are generally men to whom most of the varieties brought together are well known, and who, I believe, would deem themselves far above any such paltry charge as the above. However, the benefit of having all the flowers brought forward to the competition table named is quite obvious. Let us trust that the Committee will see their way to form a bye-law causing all exhibits to be named as correctly as possible.

A few of the best varieties selected from those that had lists attached are the following—Catherine Agnes, Mrs. Jamieson, Robert Goodwin, May Tate, Mrs. Scott Plummer, Wm. Dickson, Lord Beaconsfield, A. McMillan, Mrs. F. McCoombe, Miss Bliss, Perfection, and Craigforth. The best Fancy in the Show was a splendid bloom of Catherine Agnes shown by Mr. Storrie of Lenzie. Show Pansies were neither so numerous nor so well shown as the Fancies, and as they were also void of names I merely give two of each class, which are indispensable in the smallest collections. Dark Selves.—D. Malcolm, Robert Watt; White

Selves.—Mrs. Dobbie, Mrs. Cadzow; Yellow Selves.—Gomer, G. Rudd; Yellow Grounds.—J. B. Robertson, D. Dalglish; White Grounds.—Miss Barr, Miss Jessie Foote.

Pinks were well shown, Messrs. Paul and Dickson of Paisley being the chief exhibitors. A good dozen selected from these are Modesty, La Petite Myra, Norma, Nellie, Rival, Volunteer, Emily, Tottie, Bertram, Lord Herbert, and Ada Louise. Next to the Pansies, however, I believe the Roses attracted most attention. Some excellent blooms were staged. Messrs. Hugh Dickson of Belfast and Alexander Dickson & Sons of Newtonards, Co. Down, deservedly shared the chief honours between them. Mr. Smith of Stranraer also exhibited some excellent flowers. Altogether it was a most enjoyable Show, and very encouraging to all those interested in its success.—WM. MARSHALL.

AMERICAN BLACKBERRIES.

MR. MUIR's communication, together with your editorial remarks, respecting these at page 5 of the current volume of the Journal, had quite escaped my notice until visiting a friend a few days since, who kindly drew my attention to the subject, remarking that "knowing how well the American Bramble does here he was, had he not then seen me, going to say a few words in its favour himself." In reiterating my former opinion of the subject in hand, I would remark that as Mr. Muir, according to his own showing, has not only failed in the culture of the Kittatinny variety of Blackberry, but has also made up his mind "to have nothing more to do with it, however much may be said or shown in its favour," I do not suppose that anything I may say respecting it will alter his opinion of it. Still, hoping that Mr. Muir, like the generality of mankind, gardeners in particular, is open to conviction, I will say that here the Kittatinny Bramble not only does well, but the fruit is highly appreciated when fully ripe. I may point out, in conclusion, that to attain success, even in the culture of Blackberries, it is necessary to observe a few practical details in their treatment—*viz.*, to plant the canes in rows 4 or 5 feet apart in the same situation as that given to autumn-bearing Raspberries, and treat and train them similarly to the summer-bearing ones, removing as much as possible of the over-luxuriant-growing shoots, so as to concentrate the flow of sap, not only to the development of the weaker-growing and next year's fruit-producing canes, but also the clusters of fruit now ripening.—H. W. WARD, *Longford Castle Gardens*.

CULTURE OF THE CYTISUS.

THE Cytisus must rank amongst the most useful of winter and spring-blooming plants, both for house or conservatory decoration. When employed for the former purpose it is most useful when grown in 48-size pots, in which we have had plants 18 inches in diameter. By striking a few cuttings annually there is no reason to retain the plants after their second season of blooming. Those that bloom the first year in spring we use for winter work the next winter, when they are best thrown away, unless very large plants are required, they are then re-potted. Cuttings may be struck in the autumn or spring. We prefer the former time, as they have a longer season of growth, consequently more flowers are obtained. September is the best month to strike them in. Take the half-ripened side shoots with a heel attached, and insert them in sandy soil pressed in firmly. They will strike quite readily if plunged in a cold frame for a short time, then introduce them to a little bottom heat. When rooted the points should be taken out, and they can be potted singly in 60-pots in two parts fibry loam and one of peat, with a good sprinkling of sand. Keep them close until established, when they should be wintered on a shelf in a greenhouse.

In the spring they should be placed into 48-size pots. After they are well established and the weather is mild and warm plunge them in the open air. The points should be kept pinched back until the end of August. We manage this by drawing the plant through the hand as often as they require stopping, and cut the tops off, then the plants are obtained of a uniform shape. They must be well attended to with watering. Before there is danger of frost place them in a well-ventilated greenhouse. After the plants have bloomed in the spring, cut them well back and repot, when they will bloom the following winter if placed in a temperature of 50°.—A. YOUNG.

SWAINSONIA OSBORNI.

ONE of the best known members of this genus is the old *S. galegifolia*, which at one time often appeared as an exhibition plant, but is now rarely seen except in gardens where these old favourites are prized. A charming variety of it is, however, more commonly shown now—*viz.*, *S. galegifolia albiflora*, and at the Southampton Show on Saturday last a beautiful specimen was staged in one of the collections. The flowers of this form are pure white, and contrast finely with the fresh green foliage. *S. Osborni*, of which a vigorous shoot and large raceme are shown in the woodcut (fig. 23), is also regarded by some as a variety of the above species, but it is practically quite distinct, and is undoubtedly the finest of all those in cultivation. When thoroughly well grown, as it is at Kew, this is one of the most handsome plants for the roof of a greenhouse or conservatory that can be

had, its long racemes of rich purplish flowers being produced very freely, and if the shoots are not too rigidly secured to the rafters, but allowed a little freedom, the effect is much better. Good turfy loam and peat suit it well as a compost, an occasional supply of very weak liquid manure increasing the vigour of the plant considerably. It requires little care, and is deserving of more popular attention than it receives at present.

In reference to the nomenclature of this plant, Mr. W. Watson of the Royal Gardens, Kew, has obligingly furnished me with the following information:—

“So far as I can ascertain from dried specimens and various figures Swainsonia is as variable as *Lathyrus odoratus* both as regards colour and size. In the “Flora of Australia” Bentham puts under *S. galegifolia*

the name of a gentleman (Mr. Isaac Swainson) who formerly resided at Twickenham; and having made a large fortune by the sale of a medicine known as Vello's Vegetable Syrup, formed a botanic garden, which contained a very good collection of plants, early in the present century. This was occasionally mentioned in some of Loudon's works, but is now almost forgotten except by few veteran horticulturists.—L. C.

EPICUREAN AND SUTTONS' CLUSTER CUCUMBERS

I AM fond of trying novelties, and this year, seeing a description of the new Cucumber Epicurean, I thought it would be worth a trial. In the seedsmen's list it was highly recommended for productiveness, and I can safely say it has come up to its character. My four plants have been crowded with fruit of very good quality. Some have attained a



Fig. 23.—SWAINSONIA OSBORNII.

both white, purple, and pink forms, among them being *S. elegans*, *S. albiflora*, and *S. Osborni*. According to Bentham's description typical *S. galegifolia* is *S. Osborni* of gardens. *S. coronillæfolia* he makes a variety of that species. [See 'Bot. Mag.' t. 1725, and also t. 792.] *S. Osborni* was figured under that name in a book not at Kew—viz., the 'Gardener's Companion.'—*T. Moore*. Moore named the plant after Osborn in 1851, who raised it from seeds sent from Australia. I have seen the figure and a note in another place, but the colours are altogether different from, and the leaves much smaller than in the Kew plant. Notwithstanding all this, *S. Osborni* is a good well-known garden plant, and for gardening purposes the name is sufficient."

It may be incidentally mentioned that the genus *Swainsonia* bears

large size, but most of the fruit have been of medium size. All grow well-shaped, with small neck, and colour rather deeper than Telegraph. I am much pleased with it, and shall grow it again. I forgot to add that this variety is almost seedless, but I have fortunately been able to ripen off one seedy fruit.

Suttons' Cluster is another variety I have on trial. It is a great cropper, and the Cucumbers being of a deep green, are very pleasant to the sight, as, indeed, they are to the palate, as I found on trial. They grow from 9 to 12 inches long, and are very clean-looking in appearance. I consider this and Epicurean to be a pair well worth growing.—*H. S. E., Great Totham*.

DO ASHLEAF KIDNEY POTATOES FLOWER?—Is it usual for any of the varieties of Ashleaf Kidneys to produce seed apples or plums, as they are

variously called? I bought and planted this year half a stone of the old Ashleaved Kidney, at least the seedsman said they were. On four of the plants apples have appeared. I have been planting Ashleaved Potatoes for forty years and never saw seed apples on them in all that time.—X., *Loughgall*.

LIVERPOOL SHOW.

AUGUST 4TH TO 6TH.

SINCE the resuscitation of the Liverpool Horticultural Association five years ago no such Exhibition, taking it in all the sections, has been provided in the beautiful Sefton Park as the Show under notice. Perhaps the large marquee has been more crowded on some future occasions, but if what are termed "foreign" exhibits were less numerous than before, the gardeners of the locality compensated abundantly by the excellence of their products. To say that the usually redoubtable competitor, Mr. Cypher of Cheltenham, was defeated in two classes is sufficient to indicate the high character of the Show in specimen plants; while the fruit was in all probability the finest display that has been held this year, the vegetables being both superior and staged in large quantity; and cut flowers, generally speaking, very fine indeed, those in the collections being of extraordinary quality. In every department it may be truly stated that only the growers of the very finest produce could obtain a place; while not a few exhibitors, though staging admirably, had to be content with the honour of contributing to the general display.

PLANTS.

In Class 1, for twelve stove and greenhouse plants, open to all, prizes to the aggregate amount of £30 were offered; the first prize £15, second £10, and third £5. Mr. W. Mease, gardener to C. W. Neumann, Esq., Wyncote Allerton, secured the premier place with a grand collection, which included some enormous specimens, several of them, no doubt, the finest of their kind in the country. In the back row Crotons Queen Victoria and Weismanii were 8 to 9 feet across and in splendid colour; *Latania borbonica* and *Areca lutescens* between them being of noble proportions. In the front row were *Statice profusa* rather thin, *Allamanda Hendersonii* a 5-foot globe, *Bougainvillea glabra* of the same size, *Clerodendron Balfourianum* larger, *Gleichenia Mendelli* 6 feet, *Vinca alba* equally large, and *Erica retorta major* about 3 feet in diameter. Mr. Cypher of Cheltenham was placed second; *Pritchardia pacifica* grand, *Erica æmula* superb, *Dipladenia amabile* telling, *Clerodendron Balfourianum* very good, and splendid examples of *Cycas circinalis* and *Dasylirocn acrotrichum*. Perhaps Mr. Cypher did not stage in his best style, but at any rate he probably never had a more formidable antagonist. Mr. Leadbetter, gardener to H. Tummins, Esq., Aigburth, was an exceedingly close third, and could only have lost the second position by the comparative weakness of his fine-foliaged plants, as his flowering specimens were fresher and generally better than the Cheltenham plants. *Ixora Dixiana*, *Stephanotis*, *Clerodendron*, and *Dipladenia amabilis* were unsurpassed in the Exhibition; while Crotons Disraeli, Weismani, and Queen Victoria, also *Gleichenia dichotoma*, *Alocasia macrorhiza*, and a *Dicksonia* were admirably shown. This exhibitor undoubtedly possesses the skill, and only requires time and space to become a still more powerful competitor.

In Class 2, for ten stove and greenhouse plants (local), several highly creditable collections were staged, the first position being secured by Mr. B. Cromwell, gardener to Thomas Moss, Esq., Aigburth, with admirable examples of *Ericas æmula* and *Irbyana*, *Alocasias metallica* and *crystallina*, a *Kentia*, *Dicksonia*, *Croton Weismanii* 5 to 6 feet, and a *Bouvardia*. Mr. A. E. Cox, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, was a close and excellent second; *Dicksonia antarctica* being in grand condition, as also were the flanking Crotons *angustifolius* and *Queen Victoria*, with an effective globe 4 feet in diameter of the good old *Plumbago capensis*. Mr. Finnigan, gardener to W. Burnyeat, Esq., was third, his striking plant being *Acalypha musaica* 7 to 8 feet high and 4 to 5 feet in diameter.

Class 3, six stove and greenhouse plants, was open, and here Mr. W. Mease repeated his feat of defeating Mr. Cypher. The first-prize plants comprised *Allamanda nobilis*, a globe of 5 to 6 feet; *Statice Butcheri*, 5 feet; with fine *Bougainvillea*, *Stephanotis*, *Allamanda Hendersonii*, and an *Erica*. The best of the Cheltenham plants was *Anthurium Andreanum* with twelve spathes. Mr. Leadbetter was third. In the class for four plants (local) the prizes were won by Messrs. Cromwell and Leadbetter with creditable collections. In the specimen plant class the last-named exhibitor was first with *Dipladenia Brearleyana*, not large but very fresh; Mr. Mease following with *Allamanda grandiflora* 6 feet in diameter. In the specimen greenhouse plant class Mr. Gowen, gardener to J. Cunningham, Esq., Mossley Hall, was first with a model example of *Kalosanthes coccinea* 4 feet in diameter and a sheet of flowers. Mr. Wright, gardener to E. Lawrence, Esq., Aigburth, second with an umbrella-shaped specimen of *Lapageria alba*, which will be fine some day if it has good treatment.

Ferns.—In the class for eight plants Mr. Cromwell was first with remarkably fresh and fine examples of *Pteris scaberula*, *Adiantum Veitchianum*, *Gleichenia flabellata*, *Nephrolepis davallioides* *furcans*, *Lomaria zamioides*, *Adiantum farleyense*, and *Asplenium Nidus-avis* ranging from 3 to 5 feet in diameter. Mr. Stevenson, gardener to Mrs. Horsfall, Grassendale, was second with very healthy plants, *Adiantum Sanctæ-Catherinæ* being the most noticeable. For six exotic Ferns the first prize was won by W. Rathbone, Esq., M.P., Wavertree; *Alsophila excelsa*, *Cybotium Scheidei*, and *Davallia Mooreana* being large and fresh. Mr. A. R. Cox was a close second, *Nephrolepis exaltata*, and a seedling form of *Gymnogramma peruviana*, being very fine; and Mr. Hurst, gardener to W. B. Browning, Esq., Aigburth, third. Mr. Whitfield, gardener to J. T. Cross, Esq., Aigburth, was first in the single specimen class with *Goniophlebium subauriculatum*, fronds 8 feet long; Mr. Cromwell second with a grand example of *Adiantum farleyense*, and Mr. Finnigan third with *Gleichenia spelunca*. Hardy Ferns were small, Mr. Wright being first, and for *Selaginellas* Mr. Hurst.

Fine-foliage Plants.—In the open class for eight plants Mr. R. Cubbon, gardener to Mrs. Alison Johnson, Woolton Heys, was in the premier place with excellent examples—*Cibotium princeps* 10 feet across and in fine colour, *Dicksonia antarctica*, *Cycas revoluta*, *Areca lutescens*, *Alocasia macrorhiza variegata*, and two Crotons, very good. In the local class for

six plants Mr. W. Mease was first with a magnificent group; *Croton Princess of Wales*, a grand weeping pyramid 5 to 6 feet high and a basal diameter of 4½ feet, being probably unsurpassed in Europe. Crotons Disraeli and Williamsi were still larger, *Alocasia macrorhiza variegata* superb, *A. metallica* fine, and a good specimen of *Thrinax elegans*.—Mr. F. Jellico, gardener to J. H. Gossage, Esq., Woolton, was a worthy second, his best plants being *Croton variegatus* 7 by 6 feet, *Davallia Mooreana*, and *Pritchardia pacifica*.

Ericas were not numerous. In the open class for four plants Mr. Cypher was first with young and fresh examples of *maidstoniensis*, *æmula*, *savilleoides*, and *tricolor profusa*; in the local class for three plants the prizes going to Messrs. W. Mease and Cromwell. The prizes for *Caladiums* fell to Messrs. Mease, Warrington, gardener to Tyndall Bright, Esq., Aigburth, and Stevenson, the first-prize group being of remarkable excellence, the specimens as fine probably as have ever been seen anywhere, and the others good. Zonal *Pelargoniums* were a great improvement on former years, prizes being offered for both pyramid and flat-trained plants. The former were 4 feet high and 2½ feet in diameter at the base, excellently trained, with good foliage and capital trusses of good flowers, the prizes being won by Messrs. Whitfield, and Evans, gardener to Mrs. Lockett, Grassendale House. The flat-trained plants were also admirably shown—not so large as at York, yet large enough for all decorative purposes. For six plants the prizes fell to Messrs. Stevenson, Whitfield, and Hurst, Messrs. Whitfield and Finnigan winning the chief honours in the class for three plants.

Orchids were only sparingly exhibited. First in the class for six plants was Mr. Edwards, gardener to Dr. Shadford Walker, Liverpool, with *Saccolabium Blumei majus*, *Cattleya Mossiæ*, *Odontoglossum Alexandræ*, and *Aerides suavissimum* with four spikes; Mr. Wilson, gardener to J. E. Reynolds, West Derby, being the only other exhibitor, and receiving the second prize. For one specimen plant Mr. Mease was first with *Saccolabium Blumei majus* with three very fine spikes; Mr. Cubbon second with *Cattleya Leopoldi* with two spikes and over twenty of its very dark blooms; Mr. Anderson, gardener to J. M. Heap, Esq., Claughton, secured the remaining prize with seven spikes. There were several exhibitors in this class.

Achimenes were better than we usually see them now-a-days, the prizes for four pairs going in the order named to Messrs. Mease, Gowen, and Bustard. *Gloxinias* were splendid, the finest we have ever seen staged, the prizes for six plants going respectively to Messrs. Gowen, Mease, and Agnew. The foliage was excellent, and the fine flowers, twenty or thirty on a plant, neatly staked.

Tuberous *Begonias* made a brilliant display, a great number of admirably grown specimens being placed in competition. In the class for nine plants Mr. Hurst was first with the finest examples we have ever seen staged by a gardener, the plants being 2 to 4 feet in diameter, good varieties with fresh healthy foliage and large blooms. Messrs. Stevenson and Evans followed in the order named. Mr. Mease staged the best specimen plant, a wonderful example of *Vesuvius*, 5 feet in diameter. We failed to obtain the awards in the minor classes, in which, however, the competition was good. In *Fuchsias* there is plenty of room for improvement, yet the winning collections of Messrs. Hurst, Wilson, Bustard, and Whitfield were fairly good. Mr. Warrington staged the best *Coleuses*, which were fresh and well coloured; Messrs. Stevenson and Hurst securing the prizes for single and double *Petunias*; and Messrs. Leadbetter, Agnew, and Gowen for *Cockscombs*, with plants in both classes of average quality.

Groups.—These were fairly represented, and filled the centre of a large tent. The arrangement of Messrs. K. P. Ker & Sons in the open class was decidedly the best in the Exhibition, and was not only more tastefully arranged, but the plants on the whole were of a choice description. A large well-grown *Dracæna* formed the centre, which was well elevated and surrounded with choice Ferns and *Begonias*. The groundwork throughout was formed of Ferns and *Grevillea robusta*, amongst which were most judiciously disposed small Crotons, *Dracænas*, hardwooded plants in flower, *Amaryllis*, and Fancy *Pelargoniums*. *Dracænas*, Crotons, Palms, and *Lilium auratum* formed the chief of the plants that rose from the groundwork. This was the only exhibit in this class, but well deserved the first prize awarded to it. In the local class for a circular group to cover a space of 150 square feet six were arranged for competition. They were much after the same style as the one described, but none was equal in effect to it. Mr. W. Mease took the lead with decidedly the best, followed closely by Mr. A. R. Cox, and Mr. G. Leadbetter, gardener to W. H. Watts, Esq.

Table Plants.—These were well shown, and the competition was keen for the prizes offered. The whole of the exhibits were good, and very even in size throughout. Mr. G. Leadbetter took the lead with a really beautiful lot of plants, comprising *Pandanus Veitchii*, *Croton interruptus aureus*, *Dracæna gracilis*, and *Aralia gracillima*. Mr. Q. Warrington, gardener to Mrs. Watts, was a good second with similar choice well-grown examples, and Mr. Joseph Wood third. Eight or nine collections were staged, and the whole were creditable to the exhibitors.

ROSES AND CUT FLOWERS.

Roses on the whole were of superior quality and numerous considering the number of classes devoted to them. In the open class for forty-eight Messrs. Perkins & Sons, Coventry, well deserved the premier position accorded them. Messrs. Cranston & Co., Hereford, followed closely, and Messrs. R. Mack & Sons, Catterick Bridge, in the order named. The first contained grand blooms of Louis Peyronny, Devienne Lamy, Star of Waltham, Emilie Hausburg, Mdle. Annie Wood, Madame Marie Verdier, Marie Baumann, and a grand bloom of Harrison Weir. A few of the best and most striking in the second collection were Teas Jean Ducher, Comtesse de Nadaillac, and Madame Lambard. Amongst H.P.'s Helen Paul, Lady Sheffield, John Stuart Mill, Prince Camille de Rohan, and Mdle. Marie Rady. The third collection contained grand blooms of Lady Sheffield, E. Y. Teas, Madame Gravielle Mouville, Beauty of Waltham, and Niphetos. In the corresponding local class for twenty-four blooms Mr. Gittens, gardener to T. B. Hare, Esq., Rock Ferry, was the only exhibitor and staged a box of beautiful flowers, amongst them being good blooms of Glory of Cheshunt, Marie Van Houtte, Alfred Dumesnil, Magna Charta, A. K. Williams, and Alfred Colomb. Messrs. Cranston & Co. took the lead in the open class for twelve Tea or Noisette blooms, amongst them being fine examples of Jules Finger, Comtesse Riza du Parc, and Madame Lambard. Mr. Gittens was a good second, having

good flowers of Comte de Paris, Jean Pernet, and Adrienne Christophe. Mr. E. Claxton, Allerton, was the remaining prizewinner.

In the local class for twelve blooms, distinct, six collections were staged, and the successful competitors were Messrs. Gittens, W. E. Hall, Higher Bebbington, and W. Mease. Seven or eight exhibitors entered the open class for twelve blooms of any dark Rose, and the exhibits in every collection were superb. Messrs. J. Dickson & Sons, Newton Nurseries, Chester, took the lead with Alfred Colomb, and, strange to say, in every instance the remaining three awards were made in favour of the same variety. Messrs. R. Mack & Sons and Perkins & Sons were placed second and third respectively, and Messrs. Cranston & Co. were also placed equal third. In the open class for twelve bright blooms of any one variety Messrs. James Dickson & Sons were again first with a capital box of Comtesse de Serenye, and Messrs. R. Mack & Sons second with the same variety. For the best and most tastefully arranged box of Roses, not less than twelve varieties, in box 3 feet by 18 inches wide, prizes given by Messrs. Cranston & Co., Hereford, there were three competitors. The premier award was made in favour of Mr. E. Claxton for a beautiful box of Tea blooms carrying splendid foliage, and rose out of a light groundwork of *Adiantum cuneatum*, which was relieved by a few sprays of *Selaginella cæsia*. Mr. Waterman, gardener to A. Tate, Esq., was a close second with a box of Hybrid Perpetuals, good flowers rising out of a groundwork of *Adiantum cuneatum*. The stand was most effective, but scarcely so light as the first-prize box. Mr. Gittens was the remaining prizewinner.

Cut Flowers.—The collections of these were altogether excellent. In the open class for eighteen stove and greenhouse varieties Mr. Mease was first with grand and neatly arranged bunches of from 4 to 6 inches in diameter of *Clerodendron Balfourianum*, *Bougainvillea*, *Cattleya crispata*, red and white *Lapagerias*, *Disa grandiflora*, *Dipladenias*, *Miltonias*, *Phœnocomas*, *Bouvardias*, *Plumbagos*, *Eucharis*, and *Erica Fairrieana*—a splendid stand. The second-prize stand was extremely bright and good, no exhibitor's card; Mr. Warrington being third, also with a neat and excellent stand. Mr. Mease was also first with twenty-four trusses of hardy flowers with a magnificent collection, in which finely represented were *Liliums candidum*, *auratum*, and *excelsum*, *Gladioli brenchleyensis* and *The Bride*, *Alstrømeria aurea*, *Phloxes coccinea* and *Rose of Castile*, *Matricaria inodora fl.-pl.*, *Potentilla Garneriana* and *maculata*, *Gaillardia hybrida splendida* very fine, *Lychnis chaledonica*, *Campanula Hendersoni*, *Achillea Ptarmica fl.-pl.*, *Helenium pumilum*, *Spiræas venusta* and *Ulmaria*, *Telekia speciosissima* with long gold thread-like ray florets, *Dianthus Napoleon III.* very rich, *Oenothera Youngi*, *Veronica corymbosa*, and *Agrostemma coronaria*. Mr. Bostock, gardener to E. Harvey, Esq., Aigburth, was an excellent second with a stand that would have been first at many exhibitions. In the class for twelve trusses there was close and excellent competition, Mr. Waterman, gardener to A. Tate, Esq., Roseleigh, Woolton, securing the first position with fine bunches of *Liliums excelsum* and *croceum*, *Phlox Hercules*, *Eryngium amethystinum*, *Potentilla formosa*, *Chrysanthemums Souvenir d'un Ami* and *Précocité*, *Campanula Hendersoni*, *Centranthus ruber*, and *Bupthalmum salicifolium*. Mr. Bustard was a good second, and Mr. E. R. Cox a close third with extremely neat and clean stands.

Bouquets, with the exception of a few that were too stiff and formal by too apparent wiring, were good. In the open class the prizes went to Messrs. Cypher, Downes, and Fryer; and in the local class to Messrs. Leadbetter and Whitfield. The best Pansies were shown by Mr. Mease, and the best Carnations by Mr. Brownhill, Rock Ferry. Special prizes were offered for stands of single Dahlias, but evidently some mistake was made in placing the cards, which were Agnew first, Mease second, and Waterman extra; whereas, if we mistake not, the Judges' awards were—Waterman first, Mease second, and Agnew third, no extra prize being granted. Such mistakes as these are inherent to the system adopted of showing under numbers and writing the prize cards after the judging—a tedious and laborious plan that is not often adopted at important exhibitions.

FRUIT.

The display of fruit as above mentioned was without doubt the finest ever seen in Liverpool. In the open class for eight distinct dishes, not more than two varieties of Grapes, the premier position was deservedly awarded to Mr. J. Edmonds, gardener to the Duke of St. Albans, Bestwood Lodge, Notts. This exhibitor staged capital examples of Black Hamburgh and Muscat of Alexandria Grapes, large in bunch, berry, and fairly well finished; Best of All Melon, a good Queen Pine, *Violette Hâtive* Nectarines, splendid Chancellor Peaches, and a good dish of Figs. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, was a close second, and staged good examples of Black Hamburgh and Muscat of Alexandria Grapes a little smaller in the bunch than in the first collection, good Black Eagle Cherries, Rivers' Orange Nectarines, a good dish of Brown Turkey Figs, and Luscious and Melting Melon. Mr. Joseph Ward, gardener to T. H. Oakes, Esq., Alfriston, Derbyshire, was a good third with Grapes and Melons of the same varieties, and a grand dish of Green Gage Plums. Mr. R. Hedge, gardener to Thomas Sykes, Esq., Cheadle, was awarded an extra prize for a very creditable collection. Seven collections were staged for the prizes offered. In the corresponding local class for six dishes Mr. W. Mease was well to the front with grand well-finished bunches of Black Alicante and Muscat of Alexandria, Barrington Peaches, Pine Apple Nectarine, and Masterpiece Melon. Mr. T. Elsworthy, gardener to A. R. Gladstone, Esq., was second, being rather behind in Grapes, but staged superior dishes of Bellegarde Peaches, Elruge Nectarines, and Brown Turkey Figs. Mr. Thomas Ferguson, gardener to Mrs. Paterson, Rock Ferry, was the remaining prizetaker.

Pines.—In the open class for two Pine Apples Mr. J. Wilson, gardener to J. E. Reynolds, Esq., Sandsfield Park, West Derby, took the lead with a pair of fine Queens. Mr. J. Stevenson, gardener to Mrs. Horsfall, The Priory, Grassendale, was second with smooth over-ripe Cayennes, and Mr. Goodacre, third with a pair of even well-ripened Queens, little inferior to the first fruits, their position being due either to an oversight of the Judges or the misplacing of the prize cards. In the local class for one Pine Mr. Wilson was again first, followed by Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth, and Mr. T. Elsworthy.

Grapes.—Eight or nine collections were staged in the open class for four bunches of Grapes. Mr. J. Ward was placed first with Muscat of Alexandria,

fair in size of bunch and berry, but scarcely finished; and the same applies to the bunch of Black Hamburgh. Madresfield Court was very creditable, as also was Buckland Sweetwater. Mr. C. Young, gardener to J. Evans, Esq., Hurst House, Prescot, was second with larger bunches of the same varieties except Foster's Seedling, which were all larger in the bunch than the preceding, but not so well finished. The third was awarded to Mr. W. Elphinstone, gardener to H. H. Mundy, Esq., Shipley Hall, Derby, for the four best coloured bunches in this class. These exhibits were smaller in size of bunch and berry, but the finish was perfect; and the bunch of Muscat Hamburgh was without doubt the premier bunch of black Grapes in the Exhibition. The competition was close and keen in the open class for two bunches of Black Hamburghs, and twelve exhibitors staged for the three prizes offered. Mr. Barker, gardener to A. Raynes, Esq., Rock Ferry, was deservedly placed first with large bunches and splendid berries. Mr. W. Wilson, gardener to H. Cunningham, Esq., was second with bunches and berries nearly as large, but not quite equal in colour. Mr. Goodacre was a good third with better examples, but not so large or shapely in the bunch. Mr. Ferguson well deserved an extra, which was awarded him. In the open class for two bunches of Muscat of Alexandria some twenty-two bunches of splendid Grapes were again staged. Mr. G. Middleton, gardener to R. Pilkington, Esq., Rainford Hall, St. Helens, took the lead with fair-sized bunches possessing large berries. Mr. W. Mease was a good second with equally good Grapes that had been a little rubbed. Mr. C. Young was third. An extra was awarded Mr. Elphinstone, who staged the best finished of the whole, but much smaller in the berry. For two bunches of black Grapes (local) six lots were staged, and Mr. Barker secured the first position with remarkably fine Black Hamburghs. Mr. C. Young followed with Madresfield Court, and Mr. J. Warrington was third with smaller but well-finished bunches of Black Hamburgh. In the local class for two bunches of white Grapes, Muscats excluded, seven competitors staged. Mr. C. Finnigan was first with Buckland Sweetwater, Mr. J. Hurst, gardener to W. B. Bowring, Esq., second with the same variety; and Mr. Young third with Foster's Seedling.

Peaches and Nectarines.—These were numerous and well shown. In the open class for one dish thirteen exhibitors competed. Mr. J. Dilworth, gardener to W. G. Holland, Esq., New Brighton, was well first with large well-coloured fruits of Bellegarde; Mr. Elsworthy second with the same variety; and Mr. J. Stoney, gardener to Sir Thomas Earle, Bart., Allerton Towers, third with good examples of Grosse Mignonne. In the corresponding local class nine dishes were exhibited. Mr. J. Harrison, gardener to E. F. Hollins, Esq., Firwood, Formby, was well first with the best Royal Georges in the Exhibition. Mr. Warrington and Mr. Elsworthy second and third. In the open class for one dish of Nectarines Mr. J. Wallis, gardener to the Rev. Walter Sneyd, Keele Hall, was well first with large well-coloured fruits of Hunt's Tawny; Messrs. J. Hurst and T. Elsworthy second and third respectively, both showing Pine Apple. In the local class for one dish the last two exhibitors were again first and second in the order as named above, both showing the same variety. Mr. C. Copple, gardener to T. Stanley Rogerson, Esq., The Priory, third.

Melons.—The two classes devoted to Melons were open only to local exhibitors, and a large number of good fruits was shown. For one green-flesh variety eleven fruits were staged, Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, was first with Best of All, a handsome fruit; Mr. M. Wood, gardener to Lieut.-Colonel Wilson, The Hermitage, second with Dell's Hybrid; and Mr. Ferguson third with Best of All. For one scarlet-fleshed kind Mr. G. Mease, gardener to Wm. Nicol, Esq., was first with a fine fruit of Burghley Pet; Mr. W. Mease second with Masterpiece; and Mr. C. Finnigan third with Malvern Hall.

Hardy Fruit.—This on the whole were good, and the prizes offered were well contested for considering the earliness of the season. For one dish of Strawberries only the second and third prizes was awarded to Messrs. Ferguson and Elsworthy, and need no further mention. For one dish of Cherries Mr. W. Illisley, gardener to T. S. Tinnis, Esq., Allerton, was first with good fruits of May Duke; Mr. White, gardener to J. H. Robinson, Esq., second; and Mr. W. Wright, gardener to E. Lawrence, Esq., Aigburth, third. There were ten competitors in the class for a collection of six dishes of fruit. Mr. J. Jellico, gardener to F. H. Gossage, Esq., was well first, and staged a good dish of Gooseberry Drill, Jefferson Plum, Morello Cherries, Red Currants, Strawberry James Veitch, and Prince Englebert Plum. Mr. Goodacre was a good second; and Mr. J. Lambert, gardener to Col. Wingfield, Onslow Hall, Shrewsbury, third.

VEGETABLES.

The vegetables were both numerous and of superior quality, a greater or better show of them being seldom brought together. In the open class for twelve distinct dishes seven collections were staged, and the competition was very close. Mr. J. Richardson, Boston, took the lead, having good Globe Artichokes, Improved Early Horn Carrots, Seville Long-pod Beans, Canadian Wonder Beans, International Potatoes, Climax Cucumbers, and good dishes of Onions, Turnips, and Peas, the three latter being unnamed. Mr. J. Lamhart was a close second, showing well Telephone Peas, Telegraph Cucumbers, good fine Red Celery, Early London Cauliflowers, Schoolmaster Potatoes, good Vegetable Marrows, and Negro Long-pod Beans; and Mr. W. Mease a good third. In the corresponding local class for twelve dishes Mr. W. Mease was well ahead, and staged a grand dish of Tomatoes, International Potatoes, Negro Long-pod Beans, and good Vegetable Marrows. Mr. R. Ball, gardener to Mrs. Jones, Heatherfield, Magull, second, his best dishes being Tomato Conqueror, Walcheren Cauliflowers, Telephone Peas, and Woodstock Kidney Potatoes. Mr. A. R. Cox was third, having good Carrots, Beet, Turnips, and Globe Artichokes. Some eight or nine collections were staged in this class. For six distinct kinds seven lots were staged, Mr. G. Condin, gardener to W. Chambers, Esq., The Grange, Wallesley, being first, followed by Messrs. G. Mease and J. Jellico, all staging creditable collections.

In the open class for six dishes of Peas seven excellent collections were staged, Mr. S. T. Turner winning first honours with Pride of the Market, Telegraph, The Baron, Giant Marrow, and Telephone; Mr. W. Mease second, having good Stratagem, Laxton's Fillbasket, and other varieties the same as the first exhibitor. Mr. T. Lambert was awarded the remaining prize. Forty dishes were exhibited in the local class for four varieties, and Mr. A. R. Cox was the successful competitor with staged Telegraph, The Baron, Telephone

and Stratagem in the best of condition. Messrs. Joseph Stoney and Mr. S. Whitfield were the remaining prizetakers, and staged the same varieties as the first exhibitor.

Potatoes were clean and magnificent, the competition being very close in the classes devoted to them. Four lots were staged in the open class for six dishes (three round and three kidney varieties). Mr. J. Lambert was awarded the premier position with grand examples of International, Vicar of Laleham, Porter's Excelsior, Blanchard, and Beauty of Hebron. Mr. W. Mease followed closely with good examples of Grampion, Myatt's Prolific, and Holborn Favourite; and Mr. J. Richardson third with a very creditable collection. In the corresponding local class for the same number of varieties Mr. T. Mason Green, Hale, Liverpool, was first, having good Reading Abbey, Beauty of Radstock, and Woodstock Kidney. Mr. S. T. Turner was a good second, and staged a splendid dish of Covent Garden Perfection. Mr. J. Stoney was the remaining successful exhibitor.

For the six prizes offered for Tomatoes twenty-two excellent dishes were staged. For three dishes Mr. W. B. Upjohn, gardener to the Earl of Ellesmere, Worsley Hall, Manchester, was first with Orangefield, Stamfordian, and an excellent dish of Dedham Favourite, which was decidedly the finest in the Exhibition. Mr. G. Condin was a good second with Conqueror, Trophy, and Wallesley Surprise, very fine. Mr. C. Finnigan was awarded the remaining prize. For one dish Mr. W. Mease was first with Stamfordian, good and even; Mr. W. Ball second with Trophy, very smooth; and Mr. G. Condin third with a good dish of Conqueror. Twelve brace of Cucumbers were staged, but only the first-prize pair of Mr. Porter, Bankfield Nursery, Freshfield, were of first-rate quality. These were model fruits of Telegraph, about 20 inches long, straight, and carrying their flowers. The remaining prizes went to Mr. Lowndes, gardener to T. S. Parker, Esq., Aigburth; and Mr. G. Mease, gardener to W. Nicol, Esq., St. Michael's Mount, Liverpool, with the same variety.

CONIFERS.

Only one competitor staged for the Society's gold medal in the open class for the best collection of hardy trees and shrubs. The gold medal was awarded Messrs. J. Dickson & Sons for their choice and effective group, which included all choicest Thujas, Retinosporas, Junipers, Yews, and Hollies, intermixed with Japanese Acers, Hydrangea paniculata grandiflora, and Vitis heterophylla variegata well coloured.

MISCELLANEOUS EXHIBITS.

These were very numerous, and contributed wonderfully to the beauty and effect of several of the large tents. Messrs. R. P. Ker & Sons, Aigburth Nurseries, had a very choice collection of flowering and foliage plants, a few of the most noticeable being Aralia Chabrieri; Croton Novelty, a new beautiful bright-coloured variety with bold foliage; Ficus elastica alba variegata, Adiantum Pacotti, a dense form; Davallia fijiensis, Dracæna Lindenii, as well as a general assortment of choice Crotons, Dracænas, Palms, and others. Messrs. F. and A. Dickson & Sons, The Upton Nurseries, Chester, contributed a similar collection of plants, which were most tastefully and effectively arranged. These included a great variety of the best Crotons and Dracænas both in a half-specimen and small state, which were intermixed with all the best double-flowered Begonias. This firm also staged a group of Clematis, dark-flowering varieties, intermixed with Acer Negundo variegata, and the effect was most striking; also boxes of Roses. The Horticultural Company (John Cowan), Garston, added largely to the Exhibition by contributing a large circular group of Tea Roses in pots, which were in the best health and condition, being clean and well bloomed; also a large group of specimen foliage plants, as well as a general assortment of small choice stove and greenhouse decorative plants and a number of well-grown pot Vines. Mr. J. Gore, gardener to I. Holden, Esq., Elmfield, Princess Park, a very fine group of exotic and hardy Ferns, which were highly creditable to him. Amongst the hardy varieties staged were some very beautiful seedlings. Messrs. J. Laing & Co., Forest Hill, London, exhibited a box of fine Tuberous Begonia blooms.

On Monday morning two hampers of Cattleya Eldorado arrived, containing two dozen plants in superb condition, with upwards of sixty expanded lovely tinted blooms, including the white variety, from Mr. J. Dovey, gardener, Saighall, Eccleshall, Staffordshire. These quite eclipsed the whole of Orchids entered for competition.

Altogether, as may be gathered from the report, the Show was of great magnitude and excellence, and it is worth consideration as to whether it would not be wise to make more open classes. It is clear the local growers have little to fear, and the honour of winning in an enlarged constituency would be the greater; also it would appear desirable in the interests of many excellent gardeners who have not the means for growing large specimen plants to provide classes of plants, say, in 8-inch pots, and this also would admit newer plants to be staged than in the elephantine classes, where the plants, being large, must be more or less old, the more recent and fine varieties of such plants as Crotons, Dracænas, and other both fine-foliage and flowering being necessarily excluded. These suggestions are respectfully commended to the consideration of the excellent practical Committee of the Association.

HORTICULTURAL REQUISITES AND APPLIANCES.

There was an imposing assortment of structures, boilers, seats, wirework, and other requisites of the garden. Messrs. David Lowe & Sons, Manchester and Edinburgh, had substantial, well-arranged, and efficiently arranged houses and capital frames. The next stand was of American inventions and articles for the garden and home exhibited by Messrs. Glassey & Co., Liverpool, including steps, seats, and other articles; also the simple, serviceable, and efficient domestic refrigerators of Mr. W. H. Hilton, Bristol, which appears to win medals everywhere. Mr. Webster, Prince Alfred Road, Wavertree, had very useful, excellent, and well-made houses and frames; Messrs. Wright & Holmes, Moseley Road, Birmingham, portable span-roof and lean-to frames of great service in gardens; Mr. Joseph Bramham, Dale Street, Liverpool, fine examples of wirework, for which he is famed, and the powerful and popular Allerton Priory boiler in various sizes; and Mr. Mee, Wood Street, Liverpool, had on view his capital sectional saddle boilers, one of which in operation was interesting, as each section—dome, back, and waterway fire-bars—had separate flow and return

pipes attached. It was particularly observable that the heat given by the hollow bars was very great, showing that these bars are really a valuable and important addition to the boiler. Messrs. Wm. Wood & Son exhibited samples of Orchid and Azalea peat from Hampshire, which appears sweet, clean, and well adapted for the plants for which it is provided.

Mr. Richardson, the Chairman of the Committee, and other officials were active and diligent, and their labours deserve and it is hoped will insure success.

[We hear that £250 taken at the gates on Monday places the finances in a satisfactory condition.]

THE GREENHOUSE AND ITS INMATES.

(Continued from page 77.)

CYTISUS.

THESE are well-known, indispensable, sweet-scented, Broom-like, greenhouse plants which are favourites with everybody. They bloom during winter and early spring when flowers are scarcest and most valued. Small plants are very ornamental either in the greenhouse or in the window, and they furnish an inexhaustible supply of elegant, yellow, sweet flowers for glasses. They are not particular as to soil, although good loam and leaf soil with a little sharp sand suit them best. They, moreover, thrive satisfactorily outside during summer. Large plants may be grown in comparatively small pots, and they may be trained as climbers up the wall or on flat trellises, so that they may not interfere with the other occupants of the greenhouse. At the same time handsome bushes or pyramids are easily produced if such plants are wanted. We, however, prefer small plants in small pots, or plants trained to cover the back or other wall. Spring-struck cuttings make attractive little plants for rooms or front rows in the conservatory.

Cuttings of the young wood 3 or 4 inches long with a heel strike freely on a hotbed in March or April. After that they should be grown on in a frame till June, when they should be placed outside. Plants grown outside flower more freely than those kept under glass during summer. *Cytisus racemosus* is most commonly grown, and it is the best. *C. racemosus elegans* is similar but is of more compact habit, while *C. r. superbus* grows stronger. *C. filipes* is of drooping habit, and grafted on stems of Laburnum, as is sometimes done, makes a beautiful "standard" for conservatory decoration. *C. Everestianus* is another fine sort, rather deeper in colour than the others.

FUCHSIA.

Fuchsias are deservedly popular. Few greenhouse plants are more ornamental, and few are more easily grown. Cuttings taken in spring (when the young shoots have pushed 3 inches or so) with a heel of the old wood strike very readily if potted in sandy soil, placed on a hotbed, and carefully shaded and watered. After they are rooted they should be potted in a mixture of good loam, well-decayed manure, and a good sprinkling of bonemeal. Use the smallest-sized pots, and after potting is done return the small plants to the hotbed to root anew. These cuttings should be struck about April, and by the time they are rooted, potted, and hardened somewhat in the warm frame the weather will be mild enough for their transference to a cold frame. As fast as the roots fill the pots a larger size should be given.

The tops will require pinching off in order to make young shoots start from the sides. When secondary shoots start the top one must be tied to a stick and trained straight up, while the other shoots are encouraged to make horizontal growth. The pinching and training process must be repeated as often as may be necessary in order to form pyramidal-shaped plants. Should flower buds form in the points it will also be necessary to pinch out the points, for after flowering commences no more branching-out need be expected.

Syrings of pure water should be given every evening, especially after a hot day, and occasionally soapy water to keep down aphides and red spider. As soon as the plants attain an ornamental size they should then be removed to the greenhouse. Liquid manure once or twice a week will do much to promote continuous growth and continuous flowering. While in the greenhouse syringing must not be neglected, or insects will attack and soon spoil the plants. After flowering is past the plants should be placed for the winter in any cool house or frame from which frost is excluded. No more water will be necessary than is enough to keep the roots from perishing, and if they are stood on a damp bottom enough moisture will rise to do this. In spring they should be partially shaken out of the old soil, the roots slightly pruned back, and the plants repotted into the same sized pots in fresh soil. The tops should also be pruned back at the same time. When the pots are filled with roots repotting should be done and training followed out as in the case of the young plants. With attention good plants will soon be the result. Amateurs with small houses may be as well to only grow small plants, as these are of greater use and cost much less trouble than large plants. For exhibition, however, large specimens—the larger the better—are necessary. Among whites Mrs. Marshall and Rose of Castile, although old kinds, are perhaps the most useful. Among darks Try Me O and Avalanche are excellent. There are, however, a great number of varieties to select from, and those who require larger collections should consult the catalogues of the chief nurserymen.

HYACINTHS.

Hyacinths are much-admired, easily grown, bulbous plants. The bulbs, which are annually imported from Holland, require to be bought

every year, for they never flower satisfactorily a second time. September is the best time to buy and pot the bulbs, although they may be potted at any time till November or even December, but we advise beginners not to be later than October. Loam, leaf soil, or decayed cowdung and a little sand suit them admirably. The pots should be drained in the usual way and filled loosely with soil to the rim. A little sand should then be placed on the surface of the soil in the middle of the pot, and the bulb placed in the soil so that only the top is exposed. The soil should then be rendered firm and the potting is completed. Six-inch pots are quite large enough for single bulbs, and 7-inch ones will do for three bulbs. We, however, recommend potting the bulbs singly, as sometimes they do not flower all together, and then the effect is spoilt.

The pots should be arranged on a firm base where worms will not reach them, and where they will be cool but safe from frost and wet. Cover the pots with ashes, leaf soil, or sawdust. In this position they may stand for a month or two until the pots are filled with roots and the tops are showing. They should then be removed to a cold frame and the pots plunged near the glass. During hard frosts the frames must be protected, and when the weather is fine ventilation is necessary. They may also be removed at once to the greenhouse to develop, but the extra heat and distance from the glass, although causing them to bloom earlier, will induce a more weakly growth than in the cold frame. At the same time this gentle forcing may add to the number of flowers very early in the year, when they will be more appreciated. A little liquid manure applied occasionally after the leaves have grown somewhat will aid materially in producing well-developed spikes. Failing either a frame or greenhouse they may be grown in the window.

In Glasses.—This is an elegant way of growing this popular flower. When the bulbs are being purchased the purpose should be stated to the vendor, so that sound ones may be secured. The glasses should be filled with water so full that only the base of the bulbs may touch the water, for if it fall short of this they will not root freely; if the bulbs are immersed they may decay. The glasses can be stood in a dark cool place until they are filled with roots, when they may be placed in the light—a greenhouse or a window will suit them. If at a window care should be taken not to allow a cold draught to blow on them, or the spikes will not unfold. At all stages of their growth care should be taken to keep the water pure or the roots will decay. For this reason the water should be changed occasionally, and each time a small piece of charcoal added for the purpose of absorbing any unwholesome gases which may be generated.

Two dozen names of good old cheap varieties are appended, also with some of the newer and more expensive kinds. The best way for an amateur to make a selection is to visit a good spring show and note the leading kinds. The prizewinners are almost invariably new expensive varieties, but for ordinary purposes such varieties as are named here are almost as good.

Old Cheap Varieties.—*Red:* Dr. Livingstone, Gigantea, Homerus, Lord Derby, Macaulay, Madame Hodson, Queen of Hyacinths, Von Schiller. *White:* Alba Maxima, Alba Superbissima, Baroness Von Tuyl, Grandeur à Merveille, Hercules, Marie Stuart, Queen Victoria, Vesta. *Blue:* Czar Peter, Grand Lilas, King of the Blues, Lord Melville, Lamp-lighter, Prince Albert, Porcelain Sceptre, and Voltaire. All the above are singles. The doubles are not so good as the singles.

Newer Varieties.—La Grandesse, Koh-i-noor, King of the Blues, De Candolle, Kent Blue, Primrose Perfection, and Vuurbaak.—A. H.

(To be continued.)

SOUTHAMPTON SHOW.

AUGUST 4TH AND 6TH.

THE twenty-first anniversary of the Royal Southampton Horticultural Society was fittingly celebrated by an exhibition of more than usual merit—one, indeed, that both in extent and quality of the exhibits could be favourably compared with the best on the Society's records. Such a long period of energetic labour must have exerted a great influence upon the horticulture of the district, and the effects were manifested in the plants, flowers, fruits, and vegetables so largely and so well shown on this occasion. The fame of the Show is, however, more than local, and brings contributions from many distant counties, which always impart an additional interest to competitions, besides really proving beneficial to growers in the district, who thus have an opportunity of noting the success achieved by some of the most distinguished cultivators in the kingdom. Such champions, for instance, as Messrs. Jackson & Sons, Kingston; Tudgey, Waltham Cross; Cypher, Cheltenham; and C. Rann, Handcross Park, Crawley, amongst the plants; Messrs. Ward, Longford Castle, Salisbury; F. Thomson, Norman Court; Dean, and Molyneux, Swanmore Park, in the fruit classes; and the last-named with Mr. Iggulden, Marston Garden, Frome, with vegetables, would alone render an exhibition of considerable value. These with many others all showed exceedingly well generally, and the few defects noticeable in particular classes might be more traceable to weather influences than to want of skill on the part of the exhibitors. So numerous were the entries, that almost on the eve of the Show additional tent accommodation had to be obtained from London, five enormous marquees being well filled. Three were devoted to plants, one to fruit and flowers, and the fourth to vegetables, each department constituting an important feature. Great care was displayed in the arrangement of the exhibits, and the best effect was produced, all the plants being seen to excellent advantage, the spaces well filled without any crowding, the fine-foliage plants judiciously disposed to soften the brilliancy of the flowering plants, and the latter to brighten the display where needed.

The Show was held in Westwood Park, which it will be remembered the Society has now obtained possession of for a period of fourteen years on

lease, the grounds to be devoted to the usual horticultural exhibitions, musical and other entertainments. The site is elevated and beautiful, commanding pleasing views, and being in close proximity to the picturesque and extensive common. The distance is not more than an agreeable walk from the town, and tramcars run very near, so that the popularity of the gardens may be considered insured. On the occasion of this Show the weather both on Saturday and Monday was very favourable, the visitors on the latter day assembling in great numbers to enjoy the Exhibition and miscellaneous sports and entertainments so liberally provided after the style of the York Floral Fête.

PLANTS.

An admirable display of these was contributed, the chief class being that for twelve stove and greenhouse plants, six in flower and six fine-foliage, the prizes being £20, £15, and £10. Three beautiful collections were staged, the champion being Mr. J. Cypher, Cheltenham, who deservedly secured the premier award with exceedingly fresh, even, and well-grown plants, the most notable of which were *Erica æmula* of moderate size, but in grand health and superbly flowered—indeed quite a model plant; other good specimens were *Bougainvillea glabra*, *Stephanotis floribunda*, *Dipladenia amabilis*, *Croton angustifolius*, *Allamanda nobilis*, and *Encephalartos villosus* very large. Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, followed closely also with fine specimens, several *Crotons* being especially richly coloured, the handsome *C. Warreni* and *C. Hendersoni* attracting much attention. Cycads and Palms were represented by vigorous and gigantic examples. Mr. Tudgey, Waltham Cross, was placed third, his two most remarkable plants being *Croton Johannis* beautifully coloured, and *Cycas revoluta* very large. These three collections were close to each other in merit, and were each highly creditable to their respective growers.

Next in importance were the classes for eighteen miscellaneous plants, not less than six to be in flower. One was devoted to nurserymen, Messrs. Jackson & Son taking the lead with an excellent collection of healthy plants, mostly of moderate size, but as fresh as could be desired. Such well-known exhibition plants as *Statice Butcheri*, *Allamanda cathartica*, and *Bonapartea juncea* were shown in grand style, a fine globular *Rondeletia speciosa* major well clothed with its large richly coloured flowers, and a seedling *Erica* with very dark red flowers, for which a certificate was awarded, being two other specialties in a most praiseworthy collection. Mr. J. F. Mould, Pewsey, was placed second with very even and healthy but smaller specimens; Mr. J. C. H. Ranson, Hill Lane, and Messrs. Oakley & Watling, St. Mary's Road, taking the third and fourth positions. The competition was also keen and the exhibits good in the amateurs' corresponding class, Mr. E. Wills, gardener to Mrs. Pearce, The Firs, Bassett, being awarded first honours for beautiful examples of *Erica Parmentieriana* var. *rosea*, *Alocasia metallica*, *Statice profusa*, *Davallia Mooreana*, and *Microlepia hirta cristata* amongst many others also of great merit. Mr. S. Amys, gardener to the Hon. Mrs. Eliot Yorke, Hamble Cliff, Netley, was placed second with well-grown specimens, *Statice profusa* and *Croton interruptus* well coloured, being two of the best in the collection. Mr. J. Blandford, gardener to Mrs. Haselfoot, Moor Hill, West End, was third with *Lygodium scandens* well trained, *Microlepia hirta cristata*, and *Cyanophyllum magnificum*, the latter a tall, vigorous, handsome plant.

There were five groups arranged for effect as suitable for the centre of a conservatory, the first prize of £7 being presented by the Mayor and Corporation of Southampton. In all these, however, there was too much formality, rigid pyramids with evenly banked sides, and in some instances the plants were far too much crowded to produce a good effect. As examples of tastefulness in the arrangement of plants these were of little value, and there is unquestionably much room for improvement in this class. Mr. Wills was placed first with a bright group prettily edged with *Adiantum* and *Panicum*. Mr. Amys took the second position, followed by Mr. J. Kingsbury, Bevois Valley, and Messrs. Oakley and Watling.

Ferns were staged in first-rate condition generally, especially in the open class for six plants, the premier award being secured by Mr. Amys with most creditable examples of *Lygodium scandens*, a globularly trained plant in vigorous health and one of the best specimens of this Fern we have ever seen. *Adiantum Sanctæ-Catherinæ*, *Gymnogramma ochracea*, *Dicksonia antarctica*, and *Adiantum concinnum latum*. Mr. Wills was adjudged second honours, his finest plants being *Adiantum cardiochlaena*, *Nephrolepis davalloides furcans*, and *Adiantum concinnum latum*. In the gardeners' class for four Ferns, Mr. Peel, gardener to Mrs. Todd, Sidford Lodge, Shirley, was the most successful, having *Gymnogramma chrysophylla* and *Davallia Mooreana* very handsome. Messrs. Allen and Budd followed in that order. Messrs. Jackson & Son took the lead in the nurserymen's class for the same number of Ferns, having a good *Platycerium grande*, *Nephrolepis davalloides furcans*, *Lomaria zamioides*, and *Dicksonia antarctica*.

Zonal Pelargoniums were shown in fine condition by several exhibitors, the flowers and trusses large, and the colours rich and clear. Mr. Allen, gardener to J. Bailey, Esq., Elmfield Hall, secured the principal prizes both with single and double varieties; and the same exhibitor had the best *Fuchsias*, tall, conical, and profusely flowered specimens, suggestive of the grand examples seen in the neighbourhood of Bath.

Orchids formed a small class, and it is surprising that these popular plants do not receive more attention in the district. Mr. Osborne was first with a collection comprising some well-flowered plants of *Dendrobium bigibbum*, *Odontoglossum Uro-Skinneri*, *O. Alexandræ*, and *Epidendrum vitellinum*. Messrs. Jackson & Son were second, and Mr. Blandford, gardener to Mrs. Haselfoot, Moor Hill, West End, was third.

For the best specimen stove or greenhouse plant in flower the competition was good, several fine *Allamandas* being entered; but a large example of the beautiful *Impatiens Sultani*, from Messrs. Jackson & Son, was selected by the Judges as the premier. This specimen, which is 4 or 5 feet in diameter, globular in form, and profusely flowered, is probably the largest in the country, and has already gained honours at several other shows.

Miscellaneous small classes for plants were well filled, especially for *Celosias*, of which a great number of small but pretty specimens were shown. Cockscombs were also represented in fine condition, the heads large and richly coloured. *Achimenes*, *Gloxinias*, and *Tuberous Begonias* all contributed materially to the extent of the Show, many of the exhibitors already mentioned gaining fresh honours amongst them.

Cut flowers were not very largely shown, the Roses and Dahlias from Messrs. Keynes & Co. of Salisbury being amongst the most noticeable. The Dahlias in particular were remarkably good, quite of the high standard distinguishing the Salisbury blooms. Epergnes and table decorations were in good force, Mr. J. Cypher being as usual foremost in both classes with very tastefully arranged stands and tables, in both of which flowers of *Francoa ramosa*, *Gloriosas*, and *Aquilegia chrysantha* were freely employed with excellent effect, sufficient Grasses and Fern fronds being used to impart lightness to them. The bases of the stands were very handsome, being filled with large white Water Lilies, *Dipladenias*, and *Allamandas*.

FRUIT.

Sixteen classes were devoted to fruit, and the majority were very well filled, the competition being extremely keen in all the most important. The principal was that for eight dishes, distinct varieties, the first prize of five guineas being presented by the Southampton Tramways Company, which was gained by Mr. Ward, gardener to the Earl of Radnor, Longford Castle, Salisbury, with a good collection, comprising a magnificent Charlotte Rothschild Pine Apple, large, even, and finely ripened, which formed the strongest point in the lot; large Goshawk Peaches, Brown Turkey Figs, Moorpark Apricots, Lord Napier Nectarines, a green-flesh Melon, with Black Prince and Muscat of Alexandria Grapes; the last-named were rather green, but the other Grapes were fairly coloured. The Pine Apple, however, was greatly admired by all, as it amply deserved, for rarely is such a grand example seen at exhibitions, and Mr. Ward certainly merits great praise for it. Mr. F. Thomson, gardener to W. Baring, Esq., Norman Court, Dean, was adjudged second honours, an award that did not give satisfaction to some experienced and disinterested growers, and the above two collections were subjected to considerable criticism. Mr. Thomson had very fine Barrington Peaches beautifully coloured. His Madresfield Court and Muscat of Alexandria Grapes were good, Melon, Pine Apple, and Figs fair, but his weakest point was a dish of Greengages that appeared to be very unripe. After carefully considering the respective merits and defects of these two collections, several distinguished horticulturists came to the conclusion that they were equal, but it was undoubtedly the Pine Apple which gave Mr. Ward's collection such weight. Mr. Miller, gardener to W. H. Long, Esq., M.P., Rood Ashton Hall, Ironbridge, and Mr. J. Budd, gardener to F. G. Dalgety, Esq., Lockerby Hall, Romsey, were third and fourth respectively, each showing well, though Grapes all through were of rather indifferent finish.

For six dishes, distinct varieties, Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, won first honours with a collection that well deserved its position, though the competition was even keener as regards general quality than in the preceding class. Mr. Molyneux's dishes were Madresfield Court Grapes; good Muscat of Alexandria, rather green, but fine in bunch and berry; Hero of Lockinge Melon, finely netted; Violette Hâtive Peaches, Pine Apple Nectarines, and Morello Cherries. Mr. Jones, gardener to Lord Calthorpe, Elvetham Park, Winchfield, was a close second with fine Bellegarde Peaches amongst others. Several other fairly good collections were also staged and secured prizes.

Melons were largely shown, about two dozen being entered in the two classes. The scarlet-flesh varieties were of good size and well netted, but rather poor in flavour, much the best being a handsome fruit of Blenheim Orange, with which Mr. Iggulden, gardener to the Earl of Cork, Marston, Frome, obtained the first prize. This was greatly admired, the flesh being very deep, the fruit of beautiful form and grandly netted. Messrs. Thomson, Cox, and Oxford followed in that order. The green-flesh Melons were of fine flavour, especially Mr. Ward's Cox's Orange Gem, which was placed first in the class; it was admirably ripened, very rich and sweet. Mr. Richards, gardener to the Earl of Normanton, Somerley House, Ringwood, was a good second with a fine fruit of Hero of Lockinge well ripened. Mr. Hills was third with Eastnor Castle fairly good.

Peaches were represented by a dozen dishes, Mr. Thomson taking the lead with large and richly coloured fruits of Barrington, exceedingly handsome. There were also twelve dishes of Nectarines staged, Mr. Ward being first with Pine Apple, large but rather poor in colour, and apparently not quite ripe. Mr. Richards was placed second with Humboldt, well ripened and of good colour, and this again occasioned some little dispute, as in the opinion of many the second dish was more worthy of the premier position than the other.

Grapes were not of remarkable quality, the best being Mr. Molyneux's premier bunches of Black Hamburg, which were well ripened and coloured. In white Grapes Mr. W. Hills, gardener to Viscount Gort, East Cowes Castle, took the lead with Muscat of Alexandria, large in bunch and berry and well ripened.

VEGETABLES.

One tent was entirely devoted to vegetables, a very fine display being provided, and of good quality, both in the gardeners' and cottagers' classes. Ten collections of twelve varieties were staged, Mr. Molyneux winning chief honours with handsome Giant Rocca Onions, Trophy Tomatoes, Champion Scarlet Beans, Nante's Horn Carrots, Long White Marrow, Globe Artichokes, Cucumbers, International Potatoes, Sulham Prize Celery, Peas, Cauliflowers, and Turnips. Mr. W. Iggulden was awarded the second prize, but the Judges had some difficulty in determining the position of these two exhibitors, as their collections were very close in merit. Mr. Iggulden's most telling dish was Phillip's Perfection Tomatoes, a beautiful variety, with very even brightly coloured fruits. His other best dishes were Negro Mammoth Long-pod Bean, Nantes Horn Carrots, Telegraph Cucumbers, Culverwell's Giant Marrow Peas, Turnip-rooted Beet, and Schoolmaster Potatoes. Messrs. A. Miller and Sanders were second and third. In the class for nine varieties the competition was also good, Mr. Amys taking the chief position amongst nine exhibitors, followed closely by Messrs. Pope and Budd. Potatoes and Onions were largely shown, the latter being very fine, and most of the Potatoes were also clean and neat.

Collections of flowers and plants not for competition were contributed by several firms, Messrs. Jackson & Son having a group of Palms, Ferns, Ericas, and miscellaneous plants. Mr. W. H. Rogers, Red Lodge, Southampton, had a striking group of Conifers, Ivies, and ornamental shrubs and trees.

Messrs. Elcombe & Son, Romsey, sent a group of Zonal Pelargoniums, comprising many fine varieties remarkably well grown and freely flowered.

HABENARIA BIFOLIA.

SOME plants are grown because they are handsome in form, some because they produce handsome flowers, and others because of the fragrance they emit from leaves or flowers. Among the many orders of plants cultivated perhaps few yield more handsome-leaved plants than the Orchideæ, none finer flowers, and none more delightful odours. The somewhat common British plant noted here cannot boast of anything particularly striking in habit, though it is neat-growing and upright. Nor are its flowers particularly handsome, being of a not very pure white, although in that it would not suffer in comparison with not a few cherished plants. But for filling the evening air with delightful odour not many plants, native or foreign, are superior to *Habenaria bifolia*.

In some places, as in the sub-alpine districts of Stirling, Perth, and Dunbarton, it thrives, and, indeed, all over the country it is frequently the commonest of wildings. On the moor, by the side of the bogs, at the roadside it is to be found frequently; but nowhere in such profusion nor in such vigour is it to be seen as on ground that has been once cultivated but long laid down to pasture. Frequently to be found where the ground is wet, it thrives best where once wet land has been laid dry by draining. These facts will afford a clue to the most successful mode of cultivating it.

It is not difficult to cultivate. Though lifted from its "native heath" at the worst time—when in full bloom—we have always had it as vigorous condition the year following as when lifted, when the precaution was taken of removing the flower spikes, otherwise it is sure to come up weakly the second year. A porous soil suits it to perfection when in the open ground, and a carpet of *Sedum* not only keeps the soil shady and cool, but prevents thundershowers from spoiling the flowers by splashing soil on them.

But in order to enjoy it thoroughly it should be grown in pots. When this is done very tough loamy turf pulled to pieces and mixed with bits of porous sandstone, is perhaps the best compost that could be chosen.

Although in pots it must not be grown under glass at any season. Orchids all the world over have one peculiarity—they will not force. Given a soil open enough, porous enough, and sweet enough it does not matter what the materials are; but make the air too wet or too dry, and especially too warm, and the plants will rapidly go wrong. This is as true of the loveliest British Orchid as of the most delicate *Odontoglot* or *Phalænopsis*. Though the *Habenaria*, then, will grow splendidly in pots, forwarding it in heat, or rather the attempt to do so, or with the idea of being kind to it, will slowly but surely work its ruin.

They do well in the full sun, but much better when only the morning or evening sun reaches them; and though they do not care about too much moisture at the root, its presence in the air produces great luxuriance. A damp surface, therefore, should be kept up in arid quarters.

Not to be bought—at least not that we are aware of—it is often to be found by tourists. Lifting injures most plants much when in bloom, unless all the soil about them is retained, which is burdensome. But most Orchids can be lifted when in full flower with impunity; indeed, only then can they be lifted, being undiscoverable at any other time. But if the plants are lifted carefully and no roots broken, no earth need be removed. They may then be planted very closely together in little boxes or baskets, and will do well, even though kept thus for a few days or even a week or two; but the leaves should be kept fresh and not hid from the sun. The flower spikes should also be removed. Sphagnum moss, soil, or even damp sawdust will do very well for planting them in temporarily, but it must be kept moist. In this way large numbers may be carried far.

Unless the gatherer is a botanist he might not notice it, but there are two common forms, and a third not so common. The handsomest and most robust has been called *H. chlorantha*. The distinguishing feature of this form botanically is that the column is short, stout, and very broad, the anther cells being much wider apart at the base than at the top, and curving downwards. Another, and always, so far as we have observed it, smaller and more delicate plant, has a much narrower column, and the anther cases are close together and not diverging. This used to be regarded as *H. bifolia* proper. The other form with which we are acquainted is intermediate between these, the anther case being considerably separated, and the lower ends curving upwards. Then there are two forms—a British and a foreign—of *H. chlorantha*, the foreign having green flowers. These variations need not bother the amateur. He will not err if he groups them, and consider that his observations have led him to observe how species originate; but these peculiarities, after being observed, will give the observer an insight into the mysterious evolution of species,

though indeed *Habenaria bifolia* shows few variations compared with the countless variations of some species, some of them British.—H.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.

THIS Society, which is strong and well supported financially, held its second annual gathering in Delapré Park, Northampton, on Monday and Tuesday last, and the large attendance of visitors on the first day fully justified the choice of the Committee in selecting the August Bank Holiday for their Exhibition, and thus affording wholesome recreation for the numerous unemployed residents and visitors at this industrial centre. The Show was a large one, but a material falling off in the number of competitors in comparison with last year's display, which was held in connection with the County Agricultural Exhibition, was apparent. The arrangements were good, and the comfort of visitors and the protection of exhibitors was well considered by the provision of a large amount of tent accommodation.

The Exhibitions of the Northamptonshire Bee-Keepers' Association and the Seedling Potato Show were also held in connection with the Meeting, and a good deal of interest, especially for professionals, seemed to centre in the work of the local Committee, which has energetically attempted to carry out on a limited scale the recommendations of the Committee of the House of Commons on the Potato disease, but whose endeavours only serve to illustrate the great difficulties and cost of carrying out in a thorough and satisfactory manner the practical tests requisite for the work of advancing the cultivation of that important and necessary portion of the food of civilised races—the Potato. Prizes were offered by the local Committee for the best seedling white and coloured kidney and white and coloured round varieties, and a champion prize (instituted last year) for the best after a three-years trial under the supervision of the Society. This work has been carried out by Mr. W. Farr, gardener to Sir Chas. Knightley, Fawsley Park, with great labour and care, some ten varieties having been selected by the Judges on the last occasion for this test; but unfortunately, as the conditions required that the whole of the produce should be lifted for examination at this Exhibition, which, with a backward season, has been held much too early, several of the varieties tried were not fully developed and nearly all sufficiently ripened, the test for this season can hardly be considered a satisfactory one, but on a future trial the Committee will do well either to lift only half the crop in August, or to leave the whole for a late autumn examination. No signs of disease appear to have been present in the produce, and the crops were reported by the Committee as entirely free from it. Seven pounds of each variety were planted on the 16th of April, the crop was examined by the Committee on the 5th of July, and all were lifted on the 3rd inst. The following will show the careful scrutiny of the Committee and the Judges; and as some of the varieties tested last year, which were then prominently placed for quality when cooked, were this year at the bottom of the list, it is apparent that the test of a single season is totally insufficient to determine quality; soil, climate, and season being all material factors in the development of the Potato.

Name and address of Exhibitor.	Name or Description of Seedling.	Height of Haulm.	Gross Weight of Produce.		Remarks as to Appearance and Quality.	
			cwt.	qrs. lbs.	Appearance.	Quality.
Mr. E. Simons, Harleston, Northampton ..	Round red	2½ feet	1	2 11	8th.	9th.
Mr. W. Kerr, Dargavel, N.B.	Sir Garnet, red kidney	3 feet	1	3 17	7th.	10th.
Mr. Jno. Waugh, Castle Hill, Lochanaber, N.B.	Flat round red	3½ feet	2	0 18	10th.	5th.
Mr. C. H. Hill, Durdward's Witham, Essex	{ Rivenhall Champion, large round white, but few small .. }	1½ foot	1	1 25	3rd.	6th.
Mr. E. Cole, Althorp Gardens, Northampton ..	{ Cole's Favourite, long, flat, white }	2½ feet	2	1 15	1st.	7th.
Mr. W. Horley, Toddington, Beds	{ Roundish, flat, white, from Giant King.. }	2½ feet	1	2 11	9th.	3rd.
Mr. J. Hughes, Eydon Hall Gardens, Byfield..	Coloured kidney, No. 4.	2½ feet	1	2 1	2nd.	4th.
Mr. J. Hughes	{ White kidney, No. 4, Beauty of Hebron by Myatt's Prolific }	1 ft. 8 in.	1	1 24½	6th.	1st.
Messrs. F. & C. Myatt, Offenham, Evesham ..	{ White kidney, King Offa.. }	1 ft. 8 in.	1	3 20	5th.	2nd.
Mr. R. Fenn, Sulhamstead, Reading.. ..	Pink kidney	Not given	1	2 17	4th.	8th.

Prizes were awarded for seedlings exhibited for the first time at this Exhibition as follows:—

Class A, White Kidneys, sixteen entries.—First, Mr. Ross, gardener to C. Eyres, Esq., Welford Park, Newbury, for Robt. Fenn, a handsome flat oval seedling from Woodstock Kidney; good in quality and shape. Second, Mr. Thomas Watson, East Haddon, Northampton, for a seedling from Black Walnut-leaf. Third, Mr. Jas. Dunkley, Kingsley, for a flat oval seedling from Woodstock Kidney. Fourth, Mr. John Hughes, Eydon.

Class B, Coloured Kidneys, two entries.—(Third prize only awarded.) Third, Mr. Henry Hopewell, Berry Wood, for a seedling from Paterson's Victoria, but quite unlike that variety.

Class C, White Rounds, seven entries.—First, Mr. C. Ross; seedling M. P., a large shallow-eyed, smooth white round of the Schoolmaster type, but from Paterson's Victoria. Second, Mr. H. Hopewell; a seedling from Victoria, somewhat flatter, and yellowish skin. Third, Mr. Hopewell; similar, but with whiter skin. Fourth, Mr. Richard Farmer, 16, Albany Street, Northampton, for a medium-sized, flattish, yellow-skinned seedling from Paterson's Victoria by Fluke.

Class D, Coloured Rounds, five entries.—(Third prize only awarded.) Third, Mr. Richard Rowe, Sheep Street, Northampton, for a small but handsome smooth round seedling of the Lye's Favourite type, but with whiter flesh, and probably suitable for strong land. It will be seen by the

entries how satisfactorily the proportion of new white sorts is becoming to that of coloured, the number of the former being twenty-three, and of the latter seven.

The show of plants in flower, foliage, and Ferns, were principally local, none of the great growers putting in appearance. The first prize, however, in the open class A, for twelve stove or greenhouse plants, six in and six out of bloom, was secured by very creditable specimens from Mr. Jno. Day, gardener to A. Seymour, Esq., Norton Hall, Daventry, whose collection included fine examples of *Statice profusa*, *Corypha australis*, *Clerodendron Balfourianum*, and *Ixora Dixiana*. Messrs. Ball & Son of the Bedford Road Nurseries, Northampton, were second, and Mr. W. Farr of Fawsley Gardens, third. For the group of miscellaneous plants in the same class, Mr. Miller, Whittlebury Gardens, was first, having a very clean and well-grown collection. Mr. Thomas, gardener to Lord Overstone, Overstone Park, was second, and Messrs. Ball & Son third. For six exotic Ferns, Mr. Miller, and Mr. Holland, gardener to W. Jeffery, Esq., Northampton, were placed equal first, and Messrs. Ball & Son third. All the collections were good, Mr. Holland's collection containing a fine *Cibotium regale*, *Asplenium Nidus-avis*, and *Adiantum cuneatum* well grown. Mr. Miller had robust specimens of *Blechnum corcovadense*, *Lygodium scandens*, and *Adiantum gracillimum*. For six ornamental foliage plants Mr. Day was first, Mr. Farr second, and Mr. Holland third. Mr. Day showed *Areca Baureri*, and a very handsome seedling *Gymnogramma*. The show of Roses in this and the other classes, to some extent, perhaps, owing to the weather, was almost a total failure, and will hardly call for further comment.

Fruit was not largely shown. In the open class Mr. Day was placed second for the collection of nine varieties, and first for nine varieties in the gardeners' local class, and Mr. Thomas second, but the Grapes and other specimens were not equal to those in the special classes. In the class for three bunches of white Grapes Mr. Day showed very fine and well-ripened Buckland Sweetwater, and was placed first, Mr. Thomas coming second with Foster's Seedling. For three bunches of black Grapes Mr. Day was first with Black Hamburgh, and Mr. Thomas second. For Peaches, which were good, Mr. Miller was first with *Violette Hâtive*, and Mr. J. Harlock, gardener to Lord Lilford, Lilford Hall, Oundle, was second with *Late Admirable*, large, but not highly coloured. Other fruits were only meagrely shown.

In the gentlemen's gardeners' classes for ten stove and greenhouse plants, five in and five out of flower, Mr. Day was first and Mr. Holland second. Mr. Day had *Cycas circinata* very fine, and Mr. Holland a good *Yucca aloifolia variegata*; and for six plants Mr. Thomas and Mr. Farr were awarded first and second prizes respectively. In cut flowers the only noticeable exhibits were two attractive stands of single and Cactus Dahlias shown by Messrs. Ball & Son, one containing twelve blooms of the beautiful *Juarezii* surrounded by *White Queen* was very showy.

Vegetables as usual at Northampton were in fine condition and largely shown, especially in the cottagers' division, where the competition for the valuable prizes offered by Messrs. John Perkins & Son was very strong, no less than twenty collections being entered, and almost as many staged, the first prize falling to Mr. W. Hopewell, Berry Wood. Potatoes were very clean and fine, *International* and *Mr. Bresee* being especially remarkable for size and beauty. *Snowdrop*, a very handsome and good-quality early white-skinned variety, an improvement on *Snowflake*, was numerously exhibited, and almost as frequently good. For six varieties Mr. Geo. Harrison, Duston, Northampton, was first with fine examples of *Mr. Bresee*, *Snowdrop*, *Mammoth Pearl*, *Radstock Beauty*, *Carter's Eight Weeks*, and *International*.

In the gardeners' class for fifteen varieties Mr. Ingram, gardener to W. Butlin, Esq., Duston, was first, having fine *Purple Globe* Artichokes and *Orangefield* Tomatoes. Mr. Day was second with an almost equally good lot, including splendid *International* Potatoes, *Nantes* Carrots, and *Cauliflowers*. For the collection of eight varieties Mr. Allen, gardener to L. Pritchard, Esq., Abington, was first, and Mr. Thomas second. For three dishes of white Kidney Potatoes Mr. Allen was placed first with *International*, *Snowdrop*, and *Jackson's Improved Kidney*. For three dishes of coloured kidneys Mr. Allen was also the winner with *Mr. Bresee*, *Beauty of Hebron*, and *Trophy*. For three dishes of white rounds Mr. Allen was again first with *Bresee's Prolific*, *Felton White*, and *Porter's Excelsior*; and first also for three dishes of coloured rounds with *Red Emperor*, *Reading Russet*, and *Radstock Beauty*.

A fine brace of *Telegraph Cucumbers* was shown by Mr. J. J. Watkin of Duston. Mr. Laxton of Bedford also showed large, handsome, and well-corned specimens of his new early Longpod Bean *John Harrison*, for which a first-class certificate was recently awarded by the Royal Horticultural Society, and also examples of his new Runner Bean *Girtford Giant*, evidencing its great size and fertility. Messrs. John Perkins & Son of the Billing Road Nurseries, Northampton, had a special tent erected on the ground for their exhibits not for competition, and amongst these were many well-grown and attractive plants and flowers. Double and single *Zonal Pelargoniums* were well done, and so good and well-flowered doubles are rarely seen as those from Messrs. Perkins' establishment. *Guillon Mangilli* was a model specimen double; and amongst singles *New Life* (striped), *Eurydice* (carmine-rose), *Bacchus* (vermilion), and *Constance* (bright carmine) are evidently very taking sorts. Early-flowering *Chrysanthemums* *Lucinda* (tinted white Pompon), *Précocité* (yellow half Pompon), and *Sonvenir de Ramport* seem useful acquisitions in this class.

The Show was contained in about ten marquees of great capacity, and, considering that most of the classes only are open to the county of Northampton was a horticultural success even in a gardening district, and will probably prove so financially, as the subscription list is a liberal one, and it would be no injustice to the local exhibitors if a few more prizes were in future offered in the open division A.

NEWPORT AND COUNTY HORTICULTURAL SOCIETY.

THE ninth annual Exhibition of this popular Society took place on Thursday, the 2nd inst., in the beautiful grounds at King's Hill, kindly lent by F. Primavesi, Esq., and was a great success, the exhibits being of the finest order. We would not omit to mention the splendid collection of Mr. S. Cordes (R. Wattie, gardener) in the open class, who showed a magni-

ificent *Erica retorta* major quite 6 feet through, a grand *Anthurium*, and a *Stephanotis floribunda* nearly 7 feet in diameter covered with bloom; in fact this was one of the finest plants ever exhibited. *Allamanda Schottii* was also a mass of bloom, also *Dipladenia Brearleyana*, and a splendid plant of *Statice profusa* grandly bloomed. For this collection he was deservedly awarded the first prize. Mr. J. Cypher, Cheltenham, was second with a good collection, and amongst other plants we noticed a fine *Clerodendron Balfourianum* well flowered. Mr. W. Jones, nurseryman, Maindee, was awarded the third prize for a very fair collection.

For eight fine-foilage plants there was a keen competition between Mr. Wattie and Mr. Cypher; but the Judges justly awarded the former the first prize, as his plants were of a very fine character, being fresh and of a good colour. Mr. Cypher took second prize, and Mr. E. A. Lee, The Coldra, the third prize.

In the amateur class Mr. Wattie was again to the fore, staging a very fine collection of fair plants, including a grand *Stephanotis* and a beautiful *Dipladenia* called *Wattyana*; E. A. Lee, Esq. (R. Giddings, gardener), was second; G. J. Jones, Esq. (S. Bishop, gardener) was third. E. Fowler, Esq., Pontypool, was awarded first prize for a fine collection of Orchids.

The competition for the prizes for fruit was very keen, and, considering the wet weather we have had, the collections were very fine.

The day being fine the *elite* of the neighbourhood and county attended, and we are pleased to hear that financially as well as in every other respect the Show was a decided success, and amply repaid the great efforts of the Committee and Secretaries.



HARDY FRUIT GARDEN.

Fruit-protection.—Late Cherries must now be thoroughly guarded from the attacks of wasps and birds. To do this effectually there is nothing equal to Nottingham netting bound with tape to which rings are sewn, so that it may be put over the trees, or taken down easily and quickly by slipping the rings over hooks or nails driven into the wall, and thus avoid the wear and tear which is unavoidable when the tedious process of driving nails through the netting is followed. Do not wait till the fruit is ripe before doing this, for blackbirds and thrushes clear it off as soon as it softens slightly and begins to colour. Gooseberries require a light framework of poles to keep the netting from contact with the bushes. The best way of keeping off birds as well as insects is to put closely woven garden mats round the sides of the bushes and Nottingham netting over the top; or if a rectangular enclosure be made around several bushes, then 6-inch strips of half-inch deal put on edge round the bottom of the framework, fastened to its supports, and having nails or hooks for the rings of the netting, answers perfectly, and is preferable to the mats because it is less costly and more durable. It is quite useless to trust to netting thrown over framework and only fastened to the ground with pegs, for the blackbirds then inevitably find a way under the netting, even if it is double. Red and White Currants required to be kept for late use should be closely covered with garden mats both on walls and in the open plantations.

Strawberries.—The picking of the last fruit should be promptly followed by a clearance from between the rows of all superfluous growth, and the application of a heavy dressing of manure to all beds that are to be kept and the hoeing-up of the plants of old exhausted beds. To do this is simply to obey a fundamental law of gardening, or rather to follow the dictates of common sense, which tell one that no plant should ever be suffered to exhaust the soil unnecessarily. Concerning the digging-in of manure between the rows now there is a considerable difference of opinion, but it is a matter with which mere opinion has nothing to do. In a close heavy soil liable to settle into an inert mass and to become sodden with rain the digging-in of manure now is necessary, not only to feed the plants, but to preserve them through winter from the destruction to which they are then so liable in a water-logged soil. But in a free, light, open, thoroughly porous soil through which rain water quickly passes to the drains a top-dressing of manure without digging will suffice. These are precious items of dear-bought experience, purchased by us many years ago at the cost of a large Strawberry bed before we had learnt to test all theoretical opinions by the light of practice. Make a reserve bed of runners dibbled in a few inches apart in any spare border or nook. Such plants are useful to fill gaps in new beds in spring, and also for planting or potting next spring or summer. On the 17th of April we planted two large beds of several new sorts on trial from a reserve bed. The bloom was kept picked off, and they are now magnificent plants quite certain to afford a full crop of fruit next summer, and thus enable us to ascertain the relative value of each sort in productiveness as well as in size and flavour.

FRUIT-FORCING.

CUCUMBERS.—*Raising Plants for Winter Fruiting.*—Now is a good time to make a sowing of some good-constituted and free-bearing kind, there not being any better than Rollisson's Telegraph, whilst Pettigrew's Cardiff Castle and Verdant Green are capital sorts. The seed is best sown singly in 3-inch pots in light and not very rich soil, plunging in a Cucumber or other frame where there is a gentle heat and as

the plants require more root room shift them into larger pots as required, until they become large enough for planting out either in beds with hot-water pipes for furnishing bottom heat, or they may be fruited satisfactorily in pots or boxes. A suitable compost for winter-fruited Cucumbers may consist of three parts good light fibrous loam, one part peat, and about a sixth of charcoal, which is useful in keeping the soil sweet. Any feeding required is best given as surface dressings or in liquid form. The young plants will need securing to small sticks as they advance to keep them from snapping, rubbing off all laterals whilst quite young, until they have sufficient stem to reach the trellis.

Stopping, Tying, Syringing, and Watering.—Stopping must be attended to frequently. Plants in good health need only have one joint left beyond the show of fruit, but weakly plants may be allowed more spread of growth with a view to encourage root-action. Thinning must not be allowed to get into arrear, removing superfluous shoots, also mis-shaped fruits, and do not allow anything like overcropping or the fruit to remain longer on the plants than they are fit to cut. Tie the shoots evenly over the trellis. Syringe twice a day in bright weather, and close early in the afternoon, 3 or 3.30 P.M., according to the power of the sun. Be careful not to allow the plants to want for water at the roots, but do not over-water, and when it becomes necessary apply it or liquid manure in a tepid state thoroughly.

Insects.—Woodlice are often very troublesome, the best remedy for which is to make the soil firm around the sides of the bed, placing a little hay there, and in the morning pour boiling water along the sides and ends of the structure where the hay is placed. If done judiciously the water will not injure the roots of the plants. Should red spider appear heat the hot-water pipes to 160° or over, and coat them whilst hot with sulphur made into a thin wash with skim milk. If mildew appear dust the plants with flowers of sulphur. Green and black aphides are sometimes troublesome at this season of the year, for which there is no better remedy than careful fumigation with tobacco paper on two or three consecutive evenings, being careful to have the foliage dry, and not to give an overdose.

PINES.—*Treatment of Young Plants.*—Young stock under the conditions that naturally prevail at this season, combined with proper attention, will make quick and vigorous progress, which so long as solar influences are favourable should be encouraged. Ventilation must be carefully attended to, commencing to ventilate from 80°, maintaining the heat about the plants through the day at from 85° to 95°, closing at 85°. By this time the plants will have become inured to sunshine so as to be able to resist its effects without injury, in which case shading should be dispensed with; and anything impeding the free access to the plants of the solar influences must be removed. With a view to promote speedy growth in recently potted plants the heat at the roots should be maintained steady at 95°. Carefully water such plants, as, until roots are formed, only a small quantity will be required, but when the soil in the pots is permeated with healthy roots plentiful supplies of water are needed, with some stimulating agent in a weak state.

Fruiting Plants.—The night temperature should be kept at 70° to 75°, and the maximum by day 95° from sun heat, closing the house at 90° when the sun begins to wane in the afternoon. Damp the floor at closing time, and the plants also two or three times a week.

MELONS.—*Stopping, Thinning, and Tying.*—Stopping the growths to one joint as made after the fruit is set and swelling will need frequent attention; and not less important is the removal of growths where they become crowded so as to interfere with the access of light and air to the principal foliage. The shoots should be disposed even on the trellis, so that light and air will have free access.

Moisture.—The atmospheric moisture in both houses and pits or frames will need to be regulated according to the weather and the stage of growth at which the occupants of each structure have arrived, damping requiring to be done very carefully in pits and frames where hot-water pipes are not at command. Frames will be the better of having the linings made up moderately in which the plants are swelling off their fruit, and those setting will need a little air constantly to insure a good set.

PLANT HOUSES.

Tradescantia marginata variegata.—This entirely supersedes the old zebrina for furnishing purposes, and its beautiful foliage is very attractive and useful for associating with cut flowers, and can be used in a variety of ways with great effect. Where a continual supply is required cuttings should be inserted at intervals of two or three weeks. Every cutting inserted will root in a stove or intermediate temperature without either being shaded or kept in a close frame. This plant is most serviceable when about four or five cuttings are established in 2-inch pots and used for furnishing when the plants are about 3 inches high. The beautiful foliage of this plant associated with small Ferns and Lycopodiums for edging groups of plants have really a charming effect. It need scarcely be said this plant is easy to grow, and in no way particular about soil or treatment, and in consequence is invaluable for the purpose for which it is recommended.

Bertolonias.—However select a collection of stove plants may be, a few plants of these where foliage is appreciated should find a place. Their foliage is so beautiful and distinct that few fail to admire them when well grown. These plants are easy of cultivation, but to grow them to perfection require a close frame or to be under bell-glasses. They will do well without if the house in which they are grown is kept close. In order to keep them in the best of condition through the winter a number of cuttings should be rooted without delay. If the cuttings

are good and strong insert them singly into 2 or 3-inch pots in a mixture of equal parts of fibrous peat, sphagnum moss, and silver sand. A good dash of the latter should be placed in the centre of the pots for the base of the cuttings to rest upon. Give a good watering after insertion, and keep them in a close, moist, well-shaded frame until rooted. If these directions are followed every cutting will root, as these plants are not difficult to propagate. *Bertolonias* can be used with much effect for room-decoration, but, unfortunately, they are not adapted to withstand rough treatment, and will not last long for such purposes; in fact, we could not recommend them as useful plants for that purpose, but, on the contrary, they are better adapted for the purpose of rendering a plant stove attractive.

Caladium argyrites.—This is decidedly the most useful *Caladium* that can be grown, and stands in the foremost rank as a decorative plant. Few plants are more dwarf or compact in habit, and none possesses more beautiful foliage. To have these in the best of condition for autumn and winter decoration a number of plants should now be split up and potted into 4-inch pots. After potting keep them close until the young plants commence rooting afresh, and then gradually expose them to more air, and grow them under ordinary stove conditions. Any ordinary soil will suit this *Caladium* providing it is moderately light and rich, and a good supply of water should be given while the plants are in active growth; in fact, they should not be allowed to become so dry as many varieties of these plants even while at rest, or detrimental results will ensue. Before using these plants in rooms or other decorative positions give as much air as the plants will safely bear, so as to bring them into as hardened a condition as possible, and they will last nearly double the length of time as would otherwise be the case if taken directly from close heated structures.

Gardenias.—Young stock that have become thoroughly established in 4 or 5-inch pots, and are rather cramped for room at their roots, should without delay be placed in others 2 inches larger. Young plants will grow rapidly for some time to come, and be much benefited by receiving a shift at this season of the year; in fact, they can be managed so as to produce flowers after the general stock has done blooming, which is important where a supply of these blooms is in request during the spring months. Stock that has been cut back should have more air from this time than has been given in the past, which will be the means of bringing their growth to a standstill, and the result will be flowers in autumn and through the winter instead of being produced only in the spring. These, if thoroughly root-bound, should receive occasional doses of Standen's manure or stimulants every alternate watering made from cow manure and soot water. In case mealy bug infests these plants syringe with paraffin oil and water at the rate of an ounce to the gallon of water, which should be repeated again in the course of four or five days if the first application fails to eradicate the whole of the insects. Care should be taken to shade the house or pit in which the plants are growing after syringing with paraffin, or in bright weather the plants will suffer.

THE BEE-KEEPER.

FIRST PREPARATIONS FOR WINTER.

If we wish to take time by the forelock it is not a bit too early to begin preparations for passing our bees safely through the winter. Already the first tinges of autumn are appearing on the forest foliage, the honey harvest is failing, and bees have to fly wider in order to add to their stores. It is only in favoured districts where the purple Heather begins to brighten up the moorland or to glow on the mountain side that there is yet another golden harvest to be reaped by our merry labourers. Where the supply of honey has to be drawn only from the early fruit blossoms, or later on from the Clover and an occasional avenue of Limes, the time of profit is waning, and the bee-master must be alert to do his best to prepare for another season's ingathering. We have before pointed out how much the amount of that next ingathering depends on the condition of the stock in autumn; but at the risk of being accused of repetition we must again try and impress on the owners of bees, more especially on beginners, the great necessity for careful preparation at this time of the year.

We would first speak of bees in the neighbourhood of Heather. Where they are kept in bar-frame hives a heavy return of honey may yet be obtained should the present weather continue. We are now writing from the wild and beautiful moorland of North Devon, and the sight of thousands of acres of rapidly opening Heather flowers, while it gladdens our eyes, impresses us with the great fact that tons of honey are being wasted in a country which imports its principal stock from other lands. Doubtless our friend Mr. Griffin and his fellow workers have done and are doing much to encourage the cottagers of Devonshire to learn how to pay their rents from the produce of the Heatherbells; but very much more can be done, and no doubt in time will be

done, to apply this free gift of Nature to a profitable purpose. Now, those who keep bees in such a neighbourhood should extract all the honey they can from the combs and make the bees start afresh. This will act as a stimulus both to the bees to store the greatest possible quantity obtainable of Heather honey, and it will also cause the queen to lay more rapidly and later on into the season. This is exactly what must happen to insure strong stocks composed almost entirely of young bees to go into winter quarters. With fair weather ordinary-sized hives will also fill many sections of Heather honey. The consistency of this kind of honey is such that it cannot be extracted from the combs, and therefore the introduction of sections into the body of the hive, as well as around or above the brood nest, is commendable. So long as the queen has room beyond what she requires for forming a strong brood nest every available part of the hive should be filled with sections.

Heather honey, from its natural density, is the very best to travel and also to be kept for long periods after gathering; whereas fruit blossom and Clover honey is the best for extracting from the combs by means of the slinger and storing in glasses and jars. Heather honey does not candy in the comb like Clover honey, and is therefore preferred by many to the latter kind. The honey gathered from Heather, again, does not require so long a time to ripen, and supers are therefore quickly sealed and finished off ready for withdrawal from the hive. With straw skeps the management is, of course, more difficult than with bar-frame hives. If we had skeps near Heather we should certainly cut away the outer slabs of honey on each side of the brood nest if they did not contain brood. This would cause increased energy among the bees, and they ought to rebuild and fill these combs as well as working in sections above the hive. The same result would thus be obtained as in the bar-frame hive, so far as the obtaining of plenty of young bees for the winter was concerned.

Where the honey harvest ends with the cutting of the Clovers and the flowering of Limes, &c., we must use other means to obtain the same results. More trouble must be taken in such cases, but the result will well repay for the extra amount of work given to the bee keeper. From bar-frame hives we have extracted nearly all the honey obtainable, and replenished the hive by giving sugar syrup. This syrup should be of a greater density than that recommended for spring feeding; 4 lbs. of best lump sugar to three half pints of water, a pinch of salt, half a wineglassful of vinegar poured in when the syrup boils, allowed to boil gently for ten minutes, and then a table-spoonful of salicylic acid solution added, makes a good autumn food. This should not be applied too rapidly, so arranging the feeder that some 2 or 2½ lbs. of the food can be taken down in the twenty-four hours for the first week, and about 1 lb. per diem afterwards. This will carry us on well through August before the hive has become sufficiently heavy to pass through the winter, when the supply should be gradually diminished, and the bees will likewise gradually quiet down and complete their wintering arrangements. The effect of this system if regularly carried out will be that the stocks so treated will be in like manner strong and full of lately hatched bees, to bear the brunt of the spring-tide battle. All stocks should, of course, be kept equally strong. Where one outsteps the others to any great extent it is well to take a slab or two of brood from it and give them to a weaker neighbour, substituting sheets of foundation for the combs abstracted. By keeping all the stocks equally strong the chances of robbery will be reduced to a minimum. Woe be to the weak stock in a neighbour's garden. Where such powerful colonies are near, weak stocks, especially where left to take care of themselves, are certain to come to grief. But it is no fault of the careful and provident bee-keeper if the neglected stock of a neighbour be cleaned out. The remedy is in the owner's hands: he should keep his bees as well, or so protect them that they cannot be robbed, by narrowing the entrance so that only one bee can pass at the time.

We advise that all supers be taken away the moment they are sealed up. This will not only preserve their beauty of appearance, but in the event of a sudden breaking-up of the weather often save them to the bee-keeper, instead of having them uncapped and partly carried below. As the season approaches its end, and the finished supers have been removed, care should be taken to know what amount of real stores the bees have left in the body of the hive for their winter consumption. The weight of the hive is not a safe thing to determine this by. Brood is heavy, and half the weight may consist of brood, bees, and pollen. Sealed honey to the amount of from 15 lbs. to 20 lbs. or more must be present if the bee-keeper wishes to leave his bees unmolested, as they should be, until March, after once putting them up for the winter. If, after

taking away all super honey, there be not sufficient store remaining, syrup should be given to make up the requisite amount, after which the bees should be prepared for wintering. A few words as to the methods we adopt for putting our bees comfortably to rest must be left until another letter.—P. H. P.

BEE AND HONEY SHOW AT OLDHAM.

EXHIBITIONS like this are very unusual. The Corporation of Oldham have just opened a grand building in the centre of the town, which has cost £10,000, and in it are now having a Fine Art and Industrial Exhibition, opened by Sir John Lubbock on the 1st of August. It appears that the Corporation resolved to have a Bee Show in connection with those of industry and art, and employed Mr. Pettigrew of Bowdon to furnish the exhibits, and they charge 2d. for admission to the bee room.

The exhibits are interesting, but badly hung—much too high. The two principal exhibits are two large black boards with letters that read "God Save the Queen" on one board, and "Fine Art Exhibition" on the other. The letters are distinctly formed in pure white wax by the bees, and is considered a marvellous achievement by all who examine it. Such work has been seen at one other Show only—viz., the great horticultural one at the Manchester Botanical Gardens two years ago. The black boards are hung on opposite walls in the bee room at Oldham, the supers of various forms and sizes are placed on a shelf on one side of the room, and five observatory hives are placed on the other. In the bee room all is evidently for exhibition, not for competition. The Show is, we believe, to remain open three months.

PAPER ROOFING.

I SHALL be glad if any of your readers can give the receipt for making paper roofing. I think I saw it some time since in the *Journal of Horticulture*. I would also like to know where it can be purchased, and if it is considered suitable for covering bar-frame hives, I mean for covering the wood. I have four hives I have made from instructions that have appeared in the *Journal*, from which I have gathered many valuable hints.—SUTTON.



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

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

Books (*W. G., Sligo*).—The following are works of permanent value, and likely to be useful for reference in your library:—Thompson's "Gardener's Assistant," Hogg's "Fruit Manual," Johnson's "Cottage Gardener's Dictionary," Brown's "Forester," Morton's "Cyclopædia of Agriculture," Mr. B. S. Williams' works on stove and greenhouse plants, Orchids, and Ferns; and Mr. F. W. Burbidge's "Propagation and Improvement of Plants." These works can be obtained through a bookseller, who will inform you of their price. The collection will probably somewhat exceed the amount you name.

Grubs in Strawberry Bed (*A. W.*).—The insects sent are the grubs or larvæ of one of the crane-flies, or "daddy-longlegs," seemingly the species called *Tipula paludosa*. An extensive list of applications has been suggested for the destruction of these grubs, which lurk at the roots of a variety of plants, though specially partial to the Cruciferae. Their vitality, however, is so strong that any compound which will kill them is almost certain to injure the plants. As it appears your bed is already ruined, the only measures you can adopt would be those likely to check any further appearance. The thorough breaking-up of the soil, and the free application of gas-lime or rich manure, which the insects dislike, and attention to drainage, may be recommended. It is a curious circumstance that while some of the grubs you forward are nearly adult, others are very small, and therefore must represent a different brood.

Black Bryony, *Tamus communis* (*Bromesden*).—This conspicuous plant, of which you sent shoots, is a member of the Yam family, the Dioscoreaceae, which is chiefly tropical; the Black Bryony is, however, well known in English hedgerows and throughout Europe generally. The tuberous roots contain a viscid acrid juice, which was at one time used for plaisters, and

such are even now used occasionally in country districts to restore the colour of the skin when bruised. The fruits steeped in gin are recommended as a remedy for chilblains, while the young shoots are eaten in Greece like Asparagus, which they are said to resemble. There is more or less of an acrid principle in the whole of the plant, and it would certainly be exceedingly unwise to eat the fruits.

Sunday Work in Gardens (*G. A. B.*).—Your letter has been attentively read, and the subject of it well considered. We are convinced that its publication would not be of service either to yourself or to any other gardener, old or young. The majority of young gardeners are attentive to their duties, but all are not alike in this respect. Head gardeners also vary in the mode of discharging their duties, and your reproaches as applied generally are not well founded. Work must be done in gardens on Sundays, and those men who are not willing to do it will never excel. At the same time it should be, and we believe usually is, reduced to a minimum. Even then it must often be more or less exhausting to the man in charge, since he often has the work of two or three men to do in watering, syringing, shading, and ventilating, and he must endeavour to do it. It is proverbial that much injury has been done in gardens by the young men in charge rising late on Sunday morning. If it is part of a young man's duty to attend to vineries, for instance, at 5 A.M. he must be there at the time, and he has no right to retort that the head gardener is not seen for some hours later. If a head gardener has a suspicion that his assistants are negligent, then it is his duty to ascertain the facts of the case by being in the houses before them, and if he finds the neglect general then his further duty would be to discharge them. Undoubtedly an under gardener must "do as the head gardener wants," and if a young man cannot do this his plain duty is to resign. You will recognise the truth of this when you have had another twenty years of experience, and we hope long before, for your letter indicates that you either are or will be a good and attentive gardener.

Voles (*J. N. F.*).—You are not alone in your want of knowledge of these animals, as others have sought for information as well as yourself. Field vole (*Arvicola agrestis*), is the name of the short-tailed field or meadow mouse; a species which subsists exclusively on vegetable productions; and being, like the rest of the rat tribe, extremely prolific, multiplies occasionally to such a degree, even in this country, as to become the most injurious of our wild quadrupeds. "After having followed the labours of the reaper, and taken their share of the harvest," the field voles, says Mr. Bell, "attack the newly-sown fields, burrowing beneath the surface, and robbing the husbandman of his next year's crop, and at length, retreating to the woods and plantations, commit such devastations on the young trees as would scarcely be credible were not the evidence too certain to be doubted. In the years 1813 and 1814 these ravages were so great in the New Forest and the Forest of Dean, as to create considerable alarm lest the whole of the young trees in those extensive woods should be destroyed by them." A timely and assiduous attention to restraining the increase of this pernicious species, by the aid of terriers, ferrets, and traps, is imperative on those who have the charge of young plantations; but when the numbers of the field vole have surpassed the usual bounds, then it is recommended to dig holes about a foot in depth and the same in diameter, taking care to make them much wider at the bottom than at the top, so that the animal once in cannot easily get out again. In holes of this kind, Mr. Jesse states that at least 30,000 field voles were caught in the course of three or four months in Dean Forest plantations, that number having been counted out and paid for by the proper officers of the forest.

Lawn Tennis Ground (*F. G.*).—The following particulars on this subject were published in this *Journal* a short time since from a Liverpool correspondent:—"A full-sized court for four players is 26 yards long by 12 yards wide. As much play takes place at the extreme ends or "back lines" of the court, a considerable margin is required at each end; the total length of the tennis ground should therefore, if practicable, be not less than 33 or 34 yards. My own tennis ground is at present only 18 yards wide, but it would be preferable to have it considerably wider than this, so as to allow of the position of the court being moved a little one way or the other, and thus obviate wearing out the ground unduly. It is generally a good plan to have a little drainage material laid under the turf, so that the ground will not be so liable to play "dead" after rain. If a wire fencing about 6 feet high is placed at each extreme end of the ground, and a lower fencing about 3 feet high running along each side, this will be found to save a great amount of superfluous muscular exercise in "fielding" the balls. If neatly put up and painted dark green this wire fencing does not appear too prominent in the grounds. The ground should be as nearly level as possible, as uphill or downhill playing is undesirable." After repeating the above regulations, another correspondent observed:—"It is much better if the ground is kept a little higher in the centre, say 4 or 5 inches, so that when a heavy rain occurs much of it passes off to the sides and ends, and the ground is quicker dry and fit to play upon sooner than when made perfectly level, and the greater part of the rain having sunk into the ground. It is very essential to have a firm surface; and for this reason, where the soil is clay or is wet, it is a good plan, after having levelled and consolidated the ground, to spread about an inch of clean coal ashes over it before laying down the turf. In addition to this it should be previously well drained. On light dry soils less trouble is necessary to have a fair tennis lawn; indeed, it may be played for "home practice" on any lawn where there is a little less room than is required for full-sized courts, and although it is not quite level."

Zonals for Winter Flowering (*Idem*).—There are now so many handsome varieties of these to select from that it is easy to form a very fine collection, which will afford a supply of flowers during many months. The following twelve, selected from the great collection of Messrs. H. Cannell and Sons, Swanley, are especially recommended for the purpose you name:—Favourite, Mr. Teesdale, Edith George, Crimson Gem, P. N. Fraser, Ferdinand Kauffer, Kate Farmer, Imogene, Eurydice, Eureka, Mrs. Miller, and Mrs. Moore.

Names of Fruit (*J. Cope*).—An individual berry of one variety and two berries of another, with no intimation as to the shape of the bunches and time of ripening, are quite insufficient for anyone to determine with accuracy the names of Grapes. We can only say that in the crackling nature of the

flesh No. 1 resembles Royal Ascot, the berries being large, and No. 2 is probably Black Morocco, also a fine berry.

Names of Plants (F. B.).—*Senecio Jacobæa*. (Reader).—1, *Veratrum viride*; 3, *Gentiana asclepiadea*; 5, *Sedum spurium*; 6, *Centaurea Cyanus*. All the specimens were greatly crushed, the box being quite flattened; 2 and 4 were quite unrecognisable. (S. L.).—The white flower resembles *Hydrangea arborescens*, the other is *Eucharidium grandiflorum*. (*Bromesden*).—*Tamus communis*. See reply above. (G. M.).—*Pyrus torminalis*. (*Subscriber*).—*Godetia Whitneyi*. (W. C., *Horncastle*).—*Malva moschata alba*, a perennial plant.

Driving Bees (R. Stoke).—In a case of this kind we can only say drive the weaker into the stronger hives, leaving, however, the strongest of all untouched. You will then have three instead of five hives. You can after a time, if you choose, reduce them to two by again uniting the two weaker. The work of driving is simple and easily done. First blow some smoke from fustian or calico rags amongst the bees, turn up the hives and place them on their crowns upside down, put empty hives over them, roll a table cover or piece of cloth of any kind round the junction of the hives, and drive the bees up by drumming on the bottom ones for fifteen or twenty minutes. This drumming shakes and disturbs the bees below, and causes them to run up for safety. Give the bees 2 lbs. of sugar made into syrup every night for twelve days, and you will have healthy stocks. It is well before uniting to sprinkle the bees in both hives with a syrup to which a little peppermint has been added, and little or no fighting will then occur. Is there not a practical bee-keeper in your neighbourhood who would help you in the work and advise you generally on the management of your bees?

[Replies to a number of letters are unavoidably postponed until next week.]

COVENT GARDEN MARKET.—AUGUST 8TH.

TRADE quiet during the holiday, with heavy supplies. Prices still downward.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 0 to 2 6	Grapes	lb.	1 0 to 3 0
"	per barrel	0 0 0 0	Lemous	case	10 0 20 0
Apricots	box	2 0 2 6	Melons	each	2 0 3 6
Cherries	½ sieve	4 0 10 0	Neectarines	dozen	2 0 6 0
Chestnuts	bushel	0 0 0 0	Oranges	100	6 0 10 0
Currants, Black	½ sieve	2 0 3 0	Peaches	dozen	2 0 6 0
" Red	½ sieve	3 0 3 6	Pears, kitchen	dozen	0 0 0 0
Figs	dozen	2 0 0 0	" dessert	dozen	0 0 0 0
Filberts	lb.	0 0 0 0	Pine Apples, English	lb.	2 0 3 6
Cobs	100 lb.	0 0 0 0	Raspberries	lb.	0 2 0 3
Gooseberries	½ sieve	2 6 3 0	Strawberries	lb.	0 3 0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Asparagus, English bundle	0 0 0 0	Mustard and Cress punnet	0 2 0 3		
Asparagus, French bundle	0 0 0 0	Onions	bauch	0 0 0 4	
Beans, Kidney	lb	0 3 0 4	Parsley	dozen bunches	3 0 4 0
Beet, Red	dozen	1 0 2 0	Parsnips	dozen	1 0 2 0
Broccoli	bundle	0 9 1 0	Peas	quart	0 9 0 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	" Kidney	cwt.	4 0 5 0
Carrots	bunch	0 4 0 0	Radishes	dozen bunches	1 0 0 0
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 0
Coleworts doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 0	
Cucumbers	each	0 4 0 6	Seakale	basket	0 0 0 0
Endive	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Fennel	bunch	0 3 0 0	Spinach	bushel	2 6 3 0
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 6 0 0
Leeks	bunch	0 3 0 4	Turnips	bunch	0 0 0 4
Lettuce	score	1 0 1 6			

of them is imaginary, not one of them is a mere scheme or proposal, every one of them is actually adopted and in use on farms, many of them in whole districts, in this country. The differences of cost in the weekly food, according to the modes of feeding specified in Table 1, are very considerable, more than 100 per cent. in the cost of summer feeding, which averages 8s. per week, and varies from 5s. to 11s.; 70 or 80 per cent. in the cases given of autumn feeding, which costs on the average about 9s. 6d., and varies from 7s. 6d. to 12s.; more than 100 per cent. in the cost of winter feeding, which averages about 6s. 4d., varying from 4s. 9d. to 12s.; and 30 per cent. in the cost of spring feeding, which averages nearly 10s. a week, varying from 7s. 6d. to 12s. The annual cost in some of the cases named is, however, brought out more accurately in another table, where the average annual cost of thirty-five selected instances comes out as equal to £21 15s., being 8s. 4d. weekly throughout the year."

As we cannot here find space in a tabulated form for the information given we have made the above quotation from the best essay ever written on the subject, and valuable it must be by reason of the wide-spread sources from which the information is obtained. It is, however, dated December, 1858. We therefore must endeavour to ascertain the cost of feeding most in use at the present period. Some differences of opinion will doubtless be found, yet they may be justified in some cases by surrounding and peculiar circumstances. In giving our opinion and practice we will divide the year into four periods of thirteen weeks each. The first thirteen weeks, commencing on the 1st of May, each horse may be fed as follows:—1½ bushel of Oats, 4s. 6d.; green fodder, 3½ rods, 2s. 11d.; total, 7s. 5d. The second thirteen weeks, commencing in August, 1 bushel of Oats, 3s.; green fodder 4 rods, 3s. 4d.; total, 6s. 4d. The third period commencing in November, 2 bushels of Oats, 6s.; 1 peck of Beans 1s. 3d.; 1 cwt. of hay, 3s. 6d.; 70 lbs. of Carrots, 7d.; total, 11s. 4d. The fourth period, commencing in February, 2 bushels of Oats, 6s.; 1 peck of Beans, 1s. 3d.; straw, 2s.; 70 lbs. of Mangold, 6d.; total, 9s. 9d. Thus the average cost of keeping farm horses per week per annum will, we reckon, amount to 8s. 8½d. per week by estimating the green and root food at consuming value. As the practice of feeding horses differs so much in different districts of this country some remarks will be necessary. As our first period of feeding begins on the 1st of May and green fodder is used, *Trifolium* may not be ready in some districts, but Rye and Italian Rye Grass will be, except in the northern districts, and where it is not obtainable the Mangold feeding may be continued until green fodder is available. Again, at the conclusion of the second thirteen weeks green fodder may not always be available up to November, but if Rye and Vetches or Italian Rye Grass are not to be obtained up to that date the feeding may be regulated by commencing feeding with Carrots or other roots when the green crops cease to be available. We set great value upon the root-feeding in the autumn and winter months; in fact, to fill up the vacant period after green fodder goes out until it comes in for use again. Maintaining the supply of green or vegetable food throughout the year is a matter of the utmost consequence in the feeding of horses, for in the autumn and winter months, if allowed dry food only, the animals are sure to show a long, thick, and rough coat, this being one of Nature's resources to counteract the effect of injudicious feeding, and when horses are worked with such an external covering they sweat readily and profusely in consequence, and are faint and weak after very moderate exertion.

In referring again to the large number of cases in feeding of horses, as shown by the numerous correspondents and the results of farmers' club meetings, being the authority on which the calculations are made and the weight consumed per week of hay, Oats, Beans, roots, Clover, and straw by horses, and the calculated cost of so maintaining them. The cost is calculated at the rate of 3s. a cwt. for hay, 3s. a bushel for Oats, 4d. a cwt. for Turnips or Mangold, 6d. a cwt. for Carrots and Clover, and with or without charge for straw. It is, however, not attempted to justify the prices here adopted, but they will suffice to illustrate the mode of calculation adopted, and no figures could be substituted for them to which exception might not be taken. The prices adopted in calculating the cost of food are, it will be found, the ordinary market prices of the grain consumed; and in the cases of the hay, roots, and green fodder, the value which it is estimated they might produce if given to other kinds of live stock on the farm. It is, however, rather remarkable, as we find in one case the horse keep is only charged at 5s. per week, and that its food consisted of Oats just as they were harvested and passed through the chaff cutter, straw and corn just as they grew in the field. We fail, however, to see how this calculation can be justified, because the yield of grain cannot always be found in proportion to the bulk of the straw.



HORSE LABOUR IN FARMING.

(Continued from page 108.)

THE most important part of our subject is feeding in different seasons. This can only be properly accomplished by combining effect with economy, so that when dividing the year into four parts of thirteen weeks each, and making use of the food produced on the farm, and available at certain periods, in order that a full amount of nutritious substances may be consumed at each period and of the least value for sale, so that the most benefit may be derived by the animals in consuming a given quantity of articles of the least value commercially to insure the greatest economy. We find most valuable information on the cost per week for keeping farm horses, as stated by Mr. J. C. Morton in his essay on the cost of horse power, in the Journal of the Royal Agricultural Society of England, wherein it is stated, "There are no fewer than 115 cases named in Table 1 (p. 442). If any of the methods of feeding here described should seem whimsical—any of their differences merely fanciful—the excuse which must be taken for their appearance is that not one

We consider that one of the leading points in corn-feeding is that these ought always be bruised or crushed to obtain the full nutriment to be found in them, besides which, some horses have defective teeth; others, especially when fed in stalls side by side, often eat so fast that proper mastication becomes impossible, and, therefore, as they are not ruminating animals, the whole grain passes them without contributing that support to the system which is necessary. We notice, too, that in some cases bran or millers' offal of some kind is advised in the feeding of horses. We, however, repudiate and object to it entirely, for we have seen the results and fatal cases of animals after being fed with bran for a considerable period. Only last week that we noticed exhibited in a market hall where the farmers were in attendance, four stones or kind of concrete which had been found in horses which had died. Our attention was called to them, and it was stated that they were taken from two horses, each of them owned by millers in the county of Middlesex, whose habit was to feed their horses principally upon bran. We also recollect various instances of the same kind, one of them which occurred within our knowledge sixty years ago, when a whole team of millers' horses died from the same cause, stones weighing from 6 lbs. to 24 lbs. being found in their intestines. We, therefore, name these cases to put horse-keepers on their guard against using millers' offal except in moderation. Another reason why we object to bran is that machine-crushed Wheat would be cheaper, and at the same time would be free from the millstone grit, which is the principal cause of mischief.

The value of the horses' labour cannot be calculated entirely upon the animals' weight, height, &c., but must also be reckoned on by condition; for the chief benefit arising from keeping horses in good condition is that two horses well fed and cared for properly will do the labour of three horses badly kept and otherwise ill provided for, so that two to a plough will be sufficient during the busy periods of the year. In corroboration of the advantages of liberality in feeding farm horses, we will state the observations of a railway contractor upon the subject. He was asked whether he reduced the food of his horses when the cost of the food consumed was unusually dear. He replied, that he had been sorely punished by extravagant prices at certain periods, notwithstanding which he gave the same amount of food to his horses, which, in fact, was almost unlimited, averaging three bushels of Oats and half a bushel of Beans each horse per week, and the best hay *ad libitum*. On being again asked if he was quite sure that he could not reduce the amount of corn with advantage, he rejoined that he tried the plan, but was convinced that the system he adopted was the cheapest in the end, particularly when his horses worked hard for twelve hours in a summer's day.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is still being required and continued on the land where Trifolium has been removed and now in preparation for Turnips, as the land required rafter-ploughing and scarifying to comb out the couch; so it will require harrowing to dispose of it by either burning if weather is dry; if not, carting it away must be done, for time and season wait for no man. Turnip-sowing cannot be delayed many more days without lessening the prospect of a full crop; still the Greystone sort will grow very fast with manure under and favourable weather above them. We, however, have not yet decided whether to drill the seed with manure or sow both broadcast, for in the event of the crop being required for ploughing-in for Wheat we shall not require bulbs, but a thick and regular plant as luxuriant as can be obtained, for a matted crop of gross greens is better for ploughing in as a green crop than bulbs which require labour of reducing before being ploughed under. Thus the labour of hoeing and singling the plants is also saved, and a greater amount of fertility left in the land if the plants do not bulb, for the bulk of food produced will be derived from the air and rainfall. Hay-carting will still be going on in all the latest districts and in the water meadows where they were fed by sheep in the spring and the growth of grass gathered late; but to this date the weather generally has been very fickle and but ill adapted for producing hay of good quality, in fact we can scarcely remember a more difficult period for haying than has persistently occurred ever since the first week in June. Working on the fallows for Wheat will be required for some time yet, as so much couch has been left on various farms by outgoing tenants for several years past; that in passing through the various districts we cannot travel far in any direction without seeing farms lying neglected in a foul state, but especially in the heavy land districts, and these foul fields must now be cleared or allowed to run to waste. On some estates much land not tenanted has been allowed to run waste or growing rough grass and weeds; the only thing being done is keeping a few Scotch sheep, which it is said is all profit, but it must prove a very small rental obtained, if any. The aftermath in the meadows and Clovers will be very productive if the showery weather continues, and which now prevails. Weeds everywhere are growing in an extraordinary manner, and the only way to be free from them is not to wait and kill them, but to horse-hoe between the drills of

root crops before they make much growth, because moving the ground is quite enough on a dry day to destroy young weeds, but stronger ones may be cut up without getting rid of them. It is therefore a mistake to say it is no use to hoe the weeds, as they do no injury yet. Just so; but it is the time to destroy them in their infancy and early leaf.

Live Stock.—The second growth of grass in the meadows will now afford a good pasture for cattle, but it will require great care, especially with sheep, for although the same irrigated or other meadows may be fed by sheep in the spring, yet it must not be attempted now, or the sheep may take the entozoa of the fluke and produce the rot. It has also been stated that cattle are affected in the same way, but it seldom happens to them unless the animals are kept very short of grass food, and also without cake or other feeding stuffs. The dairy cows will require a constant change of pasture with a full bite of grass, and if with 3 lbs. of cotton cake each per day at the stalls when they come in to be milked, so much the better, for it is a matter of immense importance that the milk should not fall off early, or that the cows should go dry at all until about a fortnight before they are due to calve. It is letting the cows go dry for several months before they are due to calve which is the principal cause of nearly all the disorders which they suffer from usually at calving time, but more especially is this the case with any well-bred high-conditioned animals; in fact, it is in consequence of accumulations of internal fat which causes the most serious complaints which the dairy cows suffer from. This matter should be especially attended to when heifers drop the first calf, for if heifers are allowed to go dry for any period before calving, it will be with great difficulty they can be prevented from doing so as older cows; we therefore prefer heifers should suckle calves for veal during their first season before going into the dairy herd for milking. The foals may now soon be weaned where they fell early. It is important, too, that if turned out it should be in company with others, and the paddock well fenced; otherwise, which, in fact, was our own plan, give them a shed and yard in front, 12 feet by 15 feet, well littered, and let them have green fodder, such as the team horses may be receiving, with a moderate quantity of crushed oats, to be increased as they grow up as may be required. In this way we have reared valuable animals, which have been sold when two years of age at from £40 to £60 each, never having been off the straw.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—At a Council Meeting held at Bristol on the 31st ult., the Finance Committee reported that the Society's prizes awarded in the various departments at the Bridgwater Show had been paid, and that the Maidstone Local Committee had paid the sum of £800 to the Society's Treasurer, in accordance with their agreement with the Society. A communication was read from the Mayor of Brighton stating that at a public meeting of the inhabitants of the borough of Brighton, held at the Town Hall on Thursday the 17th day of May, 1883, to consider the propriety of inviting the Society to hold their annual Meeting for 1885 in Brighton, and to adopt such resolutions with reference thereto as might be deemed expedient, the Deputy Mayor, Henry Davey, Esq., in the chair, it was resolved, "That this Meeting on behalf of the inhabitants of the Borough hereby requests His Worship the Mayor to invite the Bath and West of England Society and Southern Counties Association to hold their Meeting and Exhibition for the year 1885 in Brighton." In accordance with the resolution the Mayor invited the Society to hold their 1885 Meeting at Brighton. On the motion of Mr. Gray, seconded by Sir J. Duckworth, the invitation was unanimously accepted, and it was agreed that after the August Council a deputation from the Society should visit Brighton at a convenient time to the Mayor and Corporation to inspect the sites, exchange signed conditions, &c.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 29° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1883.										
July.										
August.										
Sunday	29.944	62.9	55.6	W.	60.3	73.4	47.4	120.4	43.3	0.057
Monday	29.627	61.7	57.0	S.	60.8	73.3	53.6	99.7	51.2	0.038
Tuesday	29.718	60.3	57.9	N.W.	60.2	74.6	54.8	119.3	51.6	0.173
Wednesday ..	30.011	62.7	54.8	W.	61.2	68.3	52.8	113.0	49.5	—
Thursday	30.201	61.3	56.7	N.W.	60.4	72.3	53.3	116.7	50.4	—
Friday	30.234	63.7	58.6	N.W.	61.0	73.6	54.6	123.3	48.8	—
Saturday	30.247	57.7	56.9	N.W.	61.7	71.3	55.9	100.8	50.6	0.023
	29.997	61.5	56.8		60.8	72.4	53.2	113.3	49.5	0.291

REMARKS.

29th.—Bright and warm in the morning; cloudy latter part of day; rain at night.
 30th.—Dull day with frequent showers, one at noon very heavy.
 31st.—Bright morning; heavy rain with thunder after 3.30 p.m., lightning at 4.5 p.m.; fair evening.
 1st.—Fine bright day, cloudy evening, with a few spots of rain.
 2nd.—Cloudy nearly all day.
 3rd.—Fine, and on the whole bright.
 4th.—Fog in morning; fine afternoon and evening.
 Temperature equable and very near the average; rainfall slight except in afternoon of 31st.—G. J. SYMONS.



16	TH	Reading Summer Show.
17	F	
18	S	
19	SUN	13TH SUNDAY AFTER TRINITY.
20	M	
21	TU	
22	W	

BULBOUS IRISES.

SOME time ago a correspondent asked me several questions about bulbous Irises. I was prevented from giving any answer at the time owing to the press of other duties; but I may perhaps be allowed to say a few words now.

The bulbous Irises naturally fall into certain groups. The best known group perhaps is that which includes the popular so-called Spanish (*I. Xiphium*) and English (*I. xiphoides*) Irises. These are too well known to need description, and I may only say that while they both like light but rich open soil which is not too wet in winter, the English Iris needs much more water when it is growing in the spring than does the Spanish Iris. In dry localities, as on the barren hill which I with great irony call "my garden," where the Spanish Iris does remarkably well, the English Iris withers up and goes "blind" if, as often happens, the rainfall in May is scanty.

Very closely allied to, though quite distinct from the Spanish Iris, is *I. filifolia* from the south of Spain and north coast of Africa, with flowers more funnel-shaped than the Spanish Iris, of a reddish purple colour with a golden blotch on the fall to serve as the insects' signal. *Iris tingitanum*, on the other hand, also from North Africa, I am inclined to regard as more nearly parallel to the English Iris, and this is also a very handsome plant. Though both these Irises are fairly abundant in their native home, it seems, as in so many other cases, impossible to persuade anyone to bring or send them over to this country in any quantity, so that they are both very rare. *I. tingitana* appears to be common amongst us here, but this is chiefly in name only, for by some means the typical wild form of the English Iris has been distributed under the name of *I. tingitana*. Both of them seem more difficult of culture than the Spanish or English Iris, for they are even still more susceptible to the baneful effects of our wet English winters, and appear to need a cold frame. At least this is Mr. G. Maw's experience.

Of *I. Fontanesii*, apparently allied to the above, and also from North Africa, I can say nothing, as I know nothing. I have for years past been endeavouring to get living bulbs of it, but neither bribes of money nor the most flattering and insinuating appeals have hitherto been of any use. To my best charms there has been always turned the deafest ear. It is really very curious to reflect how determined the world in general is that a gardener's hobbies should not be satisfied. Your friend, who would be ready to sacrifice himself to any extent for some of your other interests, absolutely refuses when on his travels to go half a mile out of his way to dig up a root for you; and it is a mournful truth that, while many of us at home are hungering and thirsting for the beautiful flowers which abound in Palestine (and in particular for some most lovely Irises), hundreds of our countrymen go there every winter and spring, and will not bring these things back. But to return. Belonging to this same group, and coming also from South Spain and North Africa, is the charming *I. juncea* with its graceful bright golden

yellow flowers of a delightful fragrance—to my mind by far the loveliest and best of all the bulbous Irises. This, like the English Iris, needs a rich but light soil, which, while fairly dry in winter, must have ample moisture while spring growth is taking place.

Somewhat allied to the above, and yet deserving to be placed in a group by itself, is the charming *Iris reticulata*, which blooms so early in the year that it may almost be spoken of as a winter bulb. Of this two varieties are already known so distinct as almost to deserve separation as species—viz., *I. reticulata* var. *Krelagei*, with plum-coloured flowers having broader segments, and the typical *I. reticulata*, with deep blue-purple flowers of narrower longer segments. Of the two the former is the earlier, and the one which takes most readily to diverse conditions. The colour varies a good deal in both forms, and when the raising from seed has been carried on a few more years we shall probably have some very striking flowers. Closely allied to the above, and certainly belonging to the same group, is the still rare *I. Histrio* from Palestine, which flowers even before *reticulata* itself. I say still rare, for the price in catalogues stands at something like 7s. 6d. a bulb, though any enterprising person might if he like make it almost as common as now is the once rare *Chionodoxa Luciliae*. These Irises of the *reticulata* group do not seem to need any special care. It is true that they are capricious, and bought bulbs often disappear after the first year; but I have seen them flourishing equally well in sandy peat, in loam, and in clay. They cannot bear being waterlogged, and, like all bulbous Irises, they object to being kept out of the ground; but beyond this they will, if they see fit, do almost anywhere.

Of all the bulbous Irises the most widely spread is the little *Iris Sisyrinchium*. It stretches from Spain and north-west Africa right away to eastern Asia. It is very pretty, but the flowers are terribly short-lived, and the plants do not take kindly to our English climate. Our wet winters confuse them so, that planted in the open they sooner or later, according to my experience, vanish, though they may be managed in a frame where they can be kept dry in winter.

Intermediate between *I. Sisyrinchium* and the *reticulata* group comes the charming little *I. Kolpakowskiana*. As far as a short experience will enable me to judge this charming little Iris will adapt itself readily to our climate, and I believe that a considerable future is before it. As yet, however, it is very rare.

All the above bulbous Irises may be spoken of as Xiphions. That will distinguish them from a wholly different group of bulbous Irises often spoken of under the name of Junos. The most common and best known of these is the little sweet-scented *Iris persica*, flowering with us in early spring. All these Junos are distinguished from the true Xiphions both by the form and characters of the flower, and by the fact that the bulbs are not only different in structure from Xiphion bulbs, but also possess permanent large spreading fleshy rootlets, not unlike those of *Hemerocallis*. With *I. persica* itself in a light soil and a sunny situation, where there is thoroughly good drainage in winter, no great difficulty will be found; but another common Iris of this group, *I. scorpioides*, also called *I. alata*, is a very troublesome plant. This, which comes from South Spain and North Africa, flowers in late autumn and early winter, and makes its foliage, like many other bulbous Irises, after it has done flowering. Hence the difficulty, for it wants to be growing fast in our dark and short winter days when we rarely see the sun. Moreover, when growing it needs abundance of water, and how can water be supplied freely in midwinter? Hence as an outdoor plant, save in some few favoured spots, it seems to be hopeless. Still it is so handsome with its large blue flowers of varied tint, and oftentimes pleasingly fragrant, that it is worth growing in pots or in a frame.

Very different in its power of resisting our climate is another plant of this group, *I. caucasica*, from Central Asia. This, especially the variety known as *I. caucasica major*,

with its spike of yellow, often golden, flowers, is really worth growing, and as far as my experience goes needs no special care. It does not push until winter is nearly over, and it has the early spring before it in which to expand its leaves busy with the task of making next year's bulb. An Iris of recent introduction known as *I. orchoides splendens* is closely allied to *I. caucasica major*, but yet both in foliage and flowers is sufficiently distinct to deserve a separate, perhaps a specific name; but my knowledge of this is slight.

These are the more common forms of the Juno group; but besides these are many forms growing in the East, especially in Central Asia, already known, and probably many more yet to be discovered and, let us hope, introduced. *I. Palæstinæ* from the Holy Land belongs to this group, but is hardly handsome enough to be much desired for our gardens. This, however, cannot be said of *I. Aitchisoni* from the Punjab, especially a variety with bright full golden-yellow flowers. And I have just received from a generous friend a bulb of a new Juno with bright blue flowers from Bokhara. But of these rarer forms there is not much to be said, save perhaps to reiterate the lamentation that our travellers in Persia, in Beloochistan, in Afghan, and nearer home in Palestine and Syria, think so lightly of the desires of gardeners such as we whose circumstances compel them to stay at home.—M. FOSTER.

THE HEREFORDSHIRE ORCHARDS.

WOOLHOPE CLUB.

To the many benefits the Woolhope Club has rendered to the district in which it exists, it has added another, which in our opinion far exceeds in importance and lasting good to the country any of its former achievements, important and useful as these may have been. It is an old cry that the varieties of cider Apples which made the reputation of the Herefordshire orchards had died out, and that even their progeny had so far partaken of the senility and effete-ness of their parents that they, too, had lost all the vigour that was necessary even to existence. This is an idea which we have always fought against; we have denied over and over again that there was any truth in the theoretical views that have from time to time been propounded by those who professed to base them on what they vaguely term scientific and physiological principles. We are glad to know that the Woolhope Club have discarded such views, and have entered upon the work of restoring to the Herefordshire orchards the old orchard fruits which have added fame and fortune to the county. Since the Club has engrafted pomology on their constitution attention has been given to this all-important subject, and willing hands and sound heads have not been wanting to help in furthering the good work. There have always been in the country a few trusting men, firm in their own convictions, who either disbelieved the prevalent error, or were so sceptical on the subject that they have been silently doing their own work and perseveringly preserving some of the best sorts of cider Apples, grafting and re-grafting from young and vigorous trees, till they have established and fixed a progeny which possesses all the vigour and health of the original trees. Witness, for instance, what has been done by Mr. John Bosley of Lyde in the case of the Foxwhelp. He has proved conclusively that these old varieties can be restored; and although the cider from young trees cannot be expected to be of a quality equal to that made from old and matured ones, any more than fine wine can be obtained from a young vineyard, still every year these trees live they are approaching nearer maturity, and every year becoming of greater value. We are convinced that landowners who will now set to work and plant orchards of Foxwhelp and Skyrme's Kernel Apples and Taynton Squash Pears of the true sorts, such as are being supplied by the Woolhope Club, will add greatly to the value of their estates—a value which will every year increase with wonderful rapidity.

We have been led to make these remarks from having received the following circular from the Secretary of the Woolhope Club:—

SPECIAL NOTICE TO MEMBERS OF THE CLUB.

The Pomona Committee have the great satisfaction to inform the members that the experiments they have caused to be carried on during the last four years for the restoration of those valuable orchard fruits, the Foxwhelp and Skyrme's Kernel Apples and the Taynton Squash Pear have completely succeeded. They have now upwards of 800 young trees in vigorous health—viz.,

	Foxwhelp.	Skyrme's Kernel.	Taynton Squash.
One-year maidens, about 3 feet high ...	500	100	30
Two-years-old trees, 4 to 5 feet high ...	80	30	18
Standard Foxwhelp trees, 5 to 6 feet high ...	...	...	100

The prices of these trees are 2s. 6d. each for maidens, 3s. 6d. each for two-year-old trees, and 5s. each for the Standard Foxwhelp trees. They are offered, in the first instance, to members of the Club, who will be allowed a reduction of 10 per cent. on these prices.

Members desiring to have any of these trees should apply immediately to Mr. Theo. Lane, the Secretary, who will register the list for the Committee in the order of application up to the end of August, when the list will be closed. The trees will be sent out in October.

The Committee are very desirous that every care should be taken to maintain the vigour of the young trees. They beg therefore to suggest:—

1. That the trees should be planted on fresh ground, well drained, and deeply trenched.
2. That holes 1 yard square, or trenches 1 yard wide, be dug at once in readiness.
3. That the loam from the ground be mixed with turf parings and a little lime rubbish to fill the holes, and be firmly trodden down.
4. That the roots be carefully spread out immediately below the surface, and covered with fine soil, thus avoiding the error of deep planting.
5. That the young trees be firmly staked when planted; and lastly,
6. That a thick layer of rotten manure be placed on the ground above the roots to preserve moisture and keep out frost.

CAULIFLOWERS FOR SPRING, SUMMER, AND AUTUMN.

THESE by many persons are sown too early. In the southern part of the kingdom, as far as my experience goes, the first week in September is the most suitable time. Small plants have many advantages over large ones for standing the winter, and not the least of which is that a greater number can be protected in a frame of a given size.

I sow the seed broadcast on a south border where the soil is light. The plants as soon as they have made one rough leaf are pricked out 4 inches apart each way in a frame slightly raised above the ground level by means of a little litter or rubbish, more to secure perfect drainage than anything else, about 6 inches of light soil being placed inside the frame. The variety preferred for this purpose is still a good selection of Early London. This Cauliflower seems almost as hard to surpass as the old Ashleaf Potato. The said Potato was raised or sent out in 1804. Reputed earlier and better varieties have been brought out almost annually ever since, but still the old Ashleaf holds its ground, and it is not only a week earlier than any other variety, but as a new Potato to be used fresh from the ground and before it is quite ripe it is still very far in advance of any other.

If it is fine autumn weather when the Cauliflowers are pricked into the frame they will be best with the lights off night and day during the continuance of such weather. We merely want them to become a little established before winter. They will have to remain in their present quarters from four to five months, and at the end of that time we do not want their leaves to be so close together that we cannot see the soil between them. It is plain, then, that this must not grow fast. Moreover, small plants are decidedly preferable in February for planting out permanently, but still they must not become stunted. Stunted plants will button—*i.e.*, will make small insignificant premature heads, and so will large ones from the check they receive by removal. What we want is just to have them sufficiently large that the ball of earth we are able to take up with them may be able to support them without flagging, and if the soil is suitable all the 4 inches in breadth as well as 4 inches in depth may be carried with them.

Handlights are expensive, and I expect are becoming less used than they were formerly. What I have used for many years to transfer the plants to in February or early in March is simply two boards supported by a few stakes driven into the ground with some old lights laid across. In the severest weather they have an additional covering of some shutters, but all through winter as well as spring they are covered only sufficiently to prevent injury by frost. For the final planting the soil should contain abundance of vegetable matter, such as old Mushroom-bed manure, or from a hotbed previously exposed to the air and sweetened, or good leaf soil, such as was described in this Journal by Mr. Wright some time ago. Plants are placed about 20 inches apart, and some are cut while the heads are very small, so as to admit light and air to the remainder.

In the event of the autumn-sown plants failing seed may be sown at almost any time during winter in an intermediate house. The treatment as to temperature and airing which will suit bedding Pelargoniums will suit young Cauliflowers admirably. If the sowing is deferred till February a pinch of Veitch's Forcing Cauliflower should be sown at the same time; for although this variety can hardly be said to be equal in quality to Early London, it comes in very much quicker, and for that reason it is a decided acquisition. It requires to be kept growing freely and pricked out very early, otherwise the heads will be too small. It will do well if pricked out on a slight hotbed any time during February, and by this means it may be made to come in as early as an autumn-sown crop of Early London. We generally have sufficient plants from the autumn sowing to allow of

a few being planted on a south border in addition to those placed where they can be protected with lights, and these form a succession.

A second batch of Early London is always sown early in February either on a hotbed or in an intermediate house, is pricked off into a cold frame, and after the plants become established they are only slightly protected in order that they may become perfectly hardened before they are planted out. A few of Walcheren and Autumn Giant are treated in the same way. A third sowing of the same three varieties takes place under slight protection in March, a fourth and a fifth consisting of Walcheren and Autumn Giant outside in April, a sixth of Walcheren only the first week in May, and a seventh consisting of Walcheren and Early London during the third week of the same month. This arrangement furnishes us with Cauliflowers from the middle of May to the middle of December, and overlaps the season of Broccoli at both ends.

The reason for sowing Autumn Giant as early as February is, that in a hot dry season it is an advantage to have some plants established as early as it is safe to get them out, otherwise the months of July and August might find us without a supply, or with a very indifferent one.—WM. TAYLOR.

GARDEN CHEMISTRY—MAGNESIA.

(Continued from page 111.)

MAGNESIA is seldom used in practical agriculture as a manure, and the effects following its use in scientific experiments seem to indicate that in ordinary soils the fact that it is an essential plant food may be ignored, as almost all soils contain enough of it. That it is essential may be regarded as proved, for plants grown in calcined sand from which it was excluded and everything else supplied, failed, and from the fact that it is never absent from ordinary plants, more especially their seeds. M. Ville, though his experiments were conducted on soil to which the application of potash was necessary, found that applications of magnesia were without effect. In looking over the tables of the Rothamsted experiments we do not find the plots to which magnesia was supplied giving more favourable results than those from which it was withheld. In the experiments by the Sussex Association it does not appear to have exercised any favourable influence, and though the fimus plots at Easter Ardross gave much better results than the other series, it cannot be certain whether this was brought about by the magnesia or not. The likelihood is that the peculiar form in which the phosphoric anhydride was presented was the cause. The late lamented General Scott, whose opinion was the result of long study and observation as well as experiment, put much value on it; and the late Professor Johnston mentions instances when magnesia sulphate (Epsom salts) increased the yield of corn. Beyond the fact that fimus—ammoniacal phosphate of magnesia—exercises a very favourable influence on garden crops generally, I am not aware of any trials with any particular form of magnesia in the garden, and am, therefore, unable to refer to its use, beneficial or otherwise.

Though constantly present in plants, it is not so to the same extent as lime, potash, soda, or phosphates. In the ash of ordinary garden vegetables it is only occasionally above 10 per cent., and is often as low as 1. It is removed from the soil to the extent of one-eighth of the amount of potash in an ordinary rotation of kitchen garden crops. Many ornamental plants, however, remove it in large quantities comparatively. According to Ivison Macadam of Edinburgh, it is sometimes present in the ash of certain Fuchsias to the extent 16 per cent., and in Ficus elastica to 11. In greenhouse mould, which before being used contained 0.248 of magnesia, only 0.182 remained after use. In fruits it is not largely present; in Grapes there are nine grains of potash present for every one of magnesia. In the ash of white Mustard 11 per cent. of magnesia occurs and only 9 of potash.

In most soils magnesia is as plentiful as is potash, and in a few even more so. In consequence of this, where there are equal supplies of both, if there be enough potash for ten years there will be enough magnesia for a hundred, even when no ordinary manure is given. In ordinary manure, when 0.446 of potash is present, 0.047 magnesia is generally present. Yet, according to Liebig, the ash of horse droppings contains as much as 36 per cent. of phosphate of magnesia. According to the same authority it is largely present in sewage. In cowdung Liebig gives 10 per cent. as the figure representing the quantity, and phosphate of lime as the same. Much, of course, depends on what the animals are fed on; but some samples of meadow hay, in the ashes of which potash was present to the extent of 2 per cent. only, magnesia amounted to 8 per cent., 60 of the whole being silica, and 16 phosphate of lime. It is

largely present in Oats, Wheat, Wheat straw, and some feeding stuff, also in the ashes of Pine leaves and Beech bark.

It is always present in large quantity in dolomite, in many mineral waters, in sea water, especially that of the Dead Sea; in most rocks which contain lime, and (in manure) in kainit as sulphates and chlorides. In kainit it occurs to the extent 13 per cent. as sulphate, and 14 as chloride. It may be had as pure Epsom salts (magnesia sulphate) at about 10s. per cwt., and in an impure form much cheaper. When used it should only be sparingly, especially in the chloride form, and even then only when plenty of lime is present. Some waters contain it to a destructive extent, and we have heard of Vines being ruined by using such too plentifully. The inexperienced, therefore, had better use it cautiously or not at all, till someone shall have experimented with it and proved its worth.—SINGLE-HANDED.

(To be continued.)

BRODIÆAS.

(Continued from page 113.)

B. Howelli, Watson.—This is closely related to *B. lactea*, resembling large forms of that species. Scapes 1 to 2 feet high, stoutish, smooth, umbellate. Flowers very numerous, turbinate-campanulate; the tube rather longer than the segments, of a pale purple colour. Native of Washington Territory. I have only once flowered this rather scarce species, as imported bulbs have frequently succumbed to the effect of



Fig. 24.—*Brodiaea laxa*.

removal from their native habitat. They are thickly coated with a fibrous tunic, and it is likely that after being planted this causes the bulbs to decay. I have found it a successful plan to place the bulbs singly in small pots, covering them with sand, and when root-action is resumed plant them out or shift into larger pots.

B. ixioides, Watson.—This is usually cultivated in our collections as "Pretty Face" (*Calliprora lutea*, Lindl., *Bot. Reg.*, t. 1590); but structurally it belongs to the same section of Brodiaeas as *B. lactea*. Mr. Baker has named it *Milla ixioides*, while in Aiton's "Hort. Kew," 2, 257, it is named by no other name than *Ornithogalum ixioides*, and the writer recently received it from North America as *Bloomeria aurea*, which is, however, a distinct plant. *B. ixioides* produces scapes from 6 to 18 inches high, umbellate at the top. Flowers few or numerous, with a short tube and spreading segments from three-quarters to an inch across the top, golden yellow, with a distinct brown midrib; upon slender pedicels. It is an extremely pretty plant, easily grown, quite hardy, and one of the oldest denizens of our gardens, flowering in June and July. Native of the country from Santa Barbara to Oregon.

B. laxa, Watson.—Leaves one-quarter to one-third of an inch broad, slightly glaucous. Scapes from 6 to 20 inches high or even more, usually smooth, umbellate. Flowers definite, usually few in number, 1 to 1½ inch long, funnel-shaped, blue-purple; the narrow tube equally as long as the acute segments. This is also known as *Triteleia laxa*, Benth.; and *Milla laxa*, Baker; and is well figured in "Lindl. Bot. Reg.," t. 1685. Like *B. congesta* it has a wide distribution, affecting the coast from San Fran-

cisco to Washington Territory. It is a very charming and easily grown species, flourishing well in a warm border of light rich soil, its sparsely flower umbels being particularly striking and durable. The woodcut (fig. 24) represents a fine truss of the natural size.—J. T. R.

APRICOT BRANCHES DYING.

Cultivation.—We very often attribute failure to soil and climate where it is sometimes more traceable to error in cultivation. I have before alluded to the practice of encouraging a too vigorous growth in the first few years after planting, with a view to cover the allotted space as quickly as possible and to secure profitable returns speedily. The extension system, or rather the long-growth principle, is more likely to succeed under glass than in the open; but even under glass periodical lifting becomes a necessity in many cases—indeed, it enters largely into the practice of the most successful cultivators.

Since 1875 the seasons have been very unfavourable to outdoor fruit culture, but before this Apricot trees had suffered from the branches dying, yet it increased of late years, simply because the seasons were more unfavourable to ripen the growths, and the disasters were more marked. It is no use grumbling about the soil or climate if the cultivation be of such a kind as not to counteract its baneful tendencies. Too rich and loose soil induces a strong soft growth, and so does a dull wet summer. The soil ought not to be of this description, but sweet and firm, and the tendency to over-luxuriance checked by judicious root-pruning. This latter is practically of no use in preventing either gum, canker, or dying of the branches if performed after a strong growth has been made in late autumn, nor indeed at all if such growth is allowed to remain; for although it may ripen somewhat it never does so thoroughly, succumbing to the first severe weather; and though the evil may not then show itself, the sap vessels are so much ruptured that the sap can only rise by the internal layers, and the branch collapses when the tree is in full growth, and perhaps laden with fruit. The mischief was done irreparably during the year of the formation of the wood, that at some future time cankers, gums, or withers.

Young trees must be commenced with if a remedy is to be found, and they usually grow freely in their early stages. Any trees, even the first year after planting, that exhibit a tendency to make wood not likely to ripen thoroughly should be operated on early in August, as they will then have completed the main growth, and any further effort may be counteracted by taking out a trench about one-third the height of the tree from the stem, cutting off all roots, filling it again, and making the soil thoroughly firm. If the weather be moist and dull it may not be necessary to water and shade, but if bright it will be advisable to give water if the leaves become limp, and shade for a few days from bright sun. If the late summer be favourable the wood will ripen to the point and the prospect of fruit insured; but if the autumn be cold and wet it is possible the wood may not ripen to the extremity, and must be cut back to firm, brown, well-ripened wood. This procedure should be continued year by year until the tree has filled its allotted space.

Trees that are full grown often produce much breastwood, and as this is strong it should be removed, and that reserved for laying-in ought to be of moderate vigour and short in the joints. This will to a certain extent equalise the sap and throw more support into the short stubby shoots, spurs, and shoots of moderate growth trained in, and allow sun to have access to the wall, thereby securing more warmth to the growths, resulting in their more perfect maturation. Yet this, good as it is, will fail to effect the object in view unless the supply of nutriment be proportionately lessened. This can be done most safely, as the Plum stock is a most prolific rooter, and emits roots freely from the root-stem abundantly, especially if encouragement be given by mulching and keeping the soil moist. The best time to operate with trees that are fully grown or nearly so is as soon as all the fruit is gathered, or if there be no crop it may be performed during the first fortnight in August. A third the distance from the stem that the growths extend is a safe distance to take out a trench and there to detach all roots, and if the weather be dull and moist the trench may remain open, which will cause roots to be emitted freely in the part undisturbed; but it must be filled again if the weather be dry or upon a return to bright weather, the undisturbed part thoroughly watered if it becomes dry, and the tree shaded from powerful sun, as it is important the foliage be retained. At the time of operation all useless spray and long spurs should be cut back. If a mulching of short manure be given over the undisturbed part it will lessen the necessity for water and encourage surface roots; but it must be borne in mind that "dry-as-dust" mulchings are as

impotent for that purpose as a baked surface soil. The value of mulching consists in its being kept moist, especially where surface-rooting is a desideratum, as it unquestionably is in fruit culture.

I have purposely avoided making allusion to the "borer" (as advanced by Mr. Crossling in your Journal some years ago) being the cause of Apricot branches dying. I have been on the look-out for this destroyer of Gooseberry and Currant bushes ever since, but in no instance have I found any evidence of the drill hole in the branches that have died too often on Apricot trees.—G. ABBEY.

ZONAL PELARGONIUMS.

"ONCE upon a time" Fashion made its way into the flower garden, and said that the beds were to be ablaze with bright colours in summer, and that scarlet Pelargoniums were to predominate. The fickle tryant's word was law for the moment in this as in all other matters; and although her fiat induced much vulgar display, yet the rage which it created for a class of plants of such easy culture "meant money," and the idea was seized upon, and promptly turned to account by many a shrewd clever man of business. The annual demands for Pelargoniums by the tens of thousands led to an improvement in the guise of new varieties, which also became an annual event, and may be said to have become permanent, for it has continued ever since, till a degree of excellence has been attained that is far beyond the conception of the originators of the work. In proof of this I may refer to the "Floricultural Cabinet" for 1850, which contains a coloured plate published in July of that year of a pink variety called Tom Thumb's Bride, described as "a very lovely variety, and merits a place in every greenhouse, dwelling-room, window, or flower bed," but which is a mere weed in comparison with any of the best sorts now in cultivation.

The fashion for glaring masses of scarlet Pelargoniums is now a thing of the past. Good taste soon led to the introduction of quiet tones and softer tints; yet never were Pelargoniums more valued or turned to better account than now, nor were really good sorts ever so numerous. I have lying upon my desk a catalogue of the present year containing nearly five hundred varieties offered for sale by an enterprising firm of nurserymen. Many of them are doubtless too much alike in colour, but the majority possess distinctive features calculated to please individual taste, and all of them are undoubtedly of considerable merit. A certain proportion of Pelargoniums are still, and probably always will be, valued for flower beds in summer, but they are of even greater use for culture in pots throughout the year, making as gay a show at Christmas as at midsummer if a suitable glass house can be spared for them, as is done now in every garden where it is possible. Plants potted now and brought on slowly in the open air or in a spare pit where the lights can be put on during much rain, are removed to a light span-roofed house in autumn, and a temperature of 55°, say from the end of September, keeps them in full bloom till spring. It is not, however, my purpose to enter upon such familiar details of culture, but rather to call attention to the merits of a dozen or two varieties good either for pot culture or beds selected from a considerable number which I have tried. Of these the first place is worthily taken by

Eureka.—Quite indispensable for its pure white flowers, free from blotch or tinge of any other colour, and with compact handsome trusses of well-formed flowers. This is a great acquisition, and quite supersedes all other single white sorts.

Right Ahead.—Very bright glowing scarlet, with a bold white eye. The truss of medium size is compact, and very useful for cutting.

J. C. Musters.—Has a grand truss of large circular flowers, deep scarlet in colour, with a charming delicate bluish tinge on the edges of the lower petals.

Apple Blossom.—Grown under shade this lovely variety has white flowers delicately tinged with pink, but in a light sunny position the colour deepens to a charming bright pink that is very attractive. It makes a neat compact plant, is very free flowering, and is so choice as to be worthy of a place everywhere.

Mrs. Pearson.—Has very handsome flowers, large, and of an attractive soft shade of orange scarlet.

Evening Star.—This is so distinct and lovely that everybody should grow it. Its well-formed white flowers with a bold pink eye are quite unique. It should not be fully exposed to the sun, but is best in a soft light.

Laura Strachan.—A fine sort with salmon-coloured flowers, very large handsome trusses.

Louise.—A deep rich glowing scarlet, very striking and attractive, with large flowers, and a very large truss.

Lady Eva Campbell.—Handsome flowers, of a delicate salmon tint, light near the edge and shaded inwards to a much deeper hue.

Henry Jacoby.—A deep rich scarlet, sometimes described as a

dark crimson; very effective. It is as good in beds as in pots, very free flowering, and distinct from all others.

Captain Nares.—Of a soft light shade of scarlet, with large handsome trusses. A useful variety for cut flowers.

Mrs. Mellish.—An old but very good variety, with large flowers, so elegant in form and so richly coloured as to surpass many newer sorts.

Guinea.—Bright orange scarlet flowers, elegantly shaped and very handsome trusses. A very good variety, bright and attractive, but not yellow as it has been fancifully described.

Dazzler.—Large handsome flowers, of a deep rich shade of scarlet; a fine variety.

Circulator.—A very useful pot plant, with abundant trusses of a soft rosy hue.

Fanny Catlin.—This is a lovely salmon-coloured variety, of a deep hue in the centre of the flowers, shaded to a much lighter hue outwards, and the petals have a pretty pencilling of a dark salmon colour.

Sophie Birkin.—Flowers "like a picture," so charmingly varied are the tints of salmon, and so handsome are they in form. I know none of its colour equal to it as a pot plant.

Edith Pearson is another lovely variety, having a tinge of salmon on a rosy red ground.

Mrs. Leavers.—Pink varieties are so numerous and so good that selection is not easy. This old sort still holds a leading position for pot culture, for which purpose I have frequently heard it pronounced to be the best. It is somewhat dwarf in habit, and bears a profusion of its handsome richly coloured flowers.

Mrs. Wright also continues to hold a high place; its shell-like petals so elegantly disposed, its compact truss, and colour of a bright pleasing shade of pink combine to render it very valuable.

Mrs. Turner.—Has very large trusses somewhat loose, but of a distinct shade of pink, and worthy of a place.

Mrs. Lancaster.—Very deep pink flowers of medium size, in large trusses of from seventy to eighty flowers in each.

Lady Sheffield.—A peculiar shade of colour, described in the catalogues as a violet purple, but commonly termed pink; the flower truss is very large.

Mrs. Strutt.—This has very large flowers of pale pink, is of stout and compact growth, and very free flowering.

Mrs. Parker.—This is a remarkable variety, with large green leaves having a broad white margin. The flowers are double, of a light, delicate, yet most pleasing shade of pink; the trusses are of medium size, are freely produced, and blend charmingly with the foliage.

Dr. Denny is distinct by having purplish flowers with a bold scarlet blotch at the base of the upper petals.

Hettie.—A large truss of somewhat small flowers of a soft rosy scarlet, very freely produced.

Candidissimumplenum.—An excellent variety with pure white double flowers, which proves very useful both for pot plants and cut flowers.

Wonderful.—A bright orange scarlet, with semi-double flowers and small trusses; very attractive and useful.

Jewel.—This old and well-known variety has proved so extremely useful to me this year, both for plants in pots and cut flowers, that it must have a place. As the plants gain age and size they become crowded with the pretty little trusses that are rich in colour and neat and compact in form. The cut flowers are most useful for a variety of purposes; they pack closely, travel well, and keep fresh for a long time. The plants had liquid manure regularly after the first flowers appeared, and they were certainly much benefited by it, for the abundant flowers were remarkably handsome.—E. LUCKHURST.

JUDGING COTTAGE GARDENS AND THEIR PRODUCE.

FROM time to time in these pages I have tried to draw the attention of gardeners and other interested persons to the want of some definite rules for the guidance of both judges and exhibitors, and it is with pleasure that I notice the editorial remark about a few general rules. I would go for more than this: I would have the rules specific and definite. They are already too few and too general, without being at all binding or calling for close observation or adherence; in fact, instead of any binding rule, judges are, in a measure, left to their own whim and caprice, thus placing the exhibitor entirely at the mercy of the local dignitary in the gardening world or the parish priest; not that I would not willingly place myself in the hands of either of the gentlemen named, as far as honour or integrity is concerned, but for the simple reason that they are not bound by any specific rules of guidance, their prejudices in favour of this or that particular "fad" guide or misguide them, and we are told that "Prejudice squints when it looks,

and lies when it speaks." A "Reader's" question came at an opportune moment for us in this north country, where we are just entering upon the flower show campaign, and the remarks that it is hoped will be elicited will be read with interest.

Respecting the first portion of "Reader's" question, I am decidedly in favour of the "well-stocked and nicely managed kitchen garden." In this utilitarian age, when our leading politicians and public orators are impressing upon our minds that the number of the population is continually pressing against the verge of existence, how can we get away from the fact that to the cottager or the artisan his garden should be a source of profit? I do not by any means despise the flower garden of the cottager; on the contrary, I would encourage him by awarding prizes for that also, but there cannot be any degree of comparison set up between the two. It ought not to be thought of, and the judge who would pass a good kitchen by in favour of a flower garden, however good, which both belong to cottagers, would, in the opinion of the writer, commit a gross error.

The easiest and the safest solution of the "collection" difficulty would be to name the number and the varieties of articles to be exhibited. This applies to the large as well as small shows. Nothing that I know of causes so much dissatisfaction at flower shows as the "collections" either of fruit or vegetables. At a local show a splendid collection of vegetables was disqualified because it contained a dish of Tomatoes. The winning collection had in it two Cucumbers. In one lot the Tomato was called a fruit, in the other Cucumber was allowed to be a vegetable. Definite rules would prevent all this; simplicity and perspicuity in the wording of the rules and the prize list would obviate many difficulties; all ambiguous words and sentences should be eliminated, and nothing left that could be construed into anything else than what it was really meant for. The parish priest would be of great service here, and would, by use of vigorous Anglo-Saxon, so simplify the local schedule that grumbling would soon be an unheard-of quantity. Nothing tends so much to accentuate the acerbities of exhibiting as the ambiguity of some of the flower show schedules. Indefinite terms like "collection," "dish," "basket," and many others, only create confusion and bring about differences. Lay down some good and safe definite rule to be universally applied and followed; let it be done by some competent authority, and then, once for all, we shall have the question of exhibiting and judging put upon a sound basis. The Royal Horticultural Society ought to do this. If it will not, or cannot, it still ought not to be difficult to formulate a set of good and efficient rules for the guidance of both interested parties; at any rate, the scheme is worth a trial.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

I HAVE long been convinced that in districts where cottage garden shows are held a marked improvement has been effected both in the appearance of the gardens generally, and also in the quality and quantity of the vegetables grown. Whether the chance of winning a small sum, or the rivalry, not always very friendly, existing, are the all-powerful factors in the matter, is immaterial, the result is highly satisfactory. Men who take great interest in their gardens deserve encouragement, as such are seldom to be found wasting the hours of daylight, at any rate in a beer-house. Judging their handiwork, however, I am not fond of. It is really an unthankful task, especially when the society for whom the judges are acting is niggardly with prizes, particularly with regard to the number offered. All cannot have prizes, but many more deserve them who do not get them.

In many cases the societies comprise a large district, and the last time I assisted to judge we had to go through fourteen parishes. In such cases, if funds are available, prizes should be offered in each parish, and a champion class may well be provided. It is scarcely possible to fairly judge many gardens without some agreement at the outset among the judges acting, or by directions from the committee as to the number of points to be given. For my part, I would not interfere with the liberty of the subject. Every man ought to be allowed to grow what best suits himself, whether it be Cauliflowers, Celery, or Red Cabbage. If it does not pay them to grow such we may safely trust them to discontinue their culture. For vegetables of all kinds, if very good all round, I would give a maximum of three points, if fairly good two points, and one point for a serviceable crop. I would take into consideration the extent of each crop, and not give the highest number of points to a few overgrown or unduly favoured specimens. Encourage them to grow a proportionate number of each serviceable vegetable, and this will, of a certainty, result in superior culture and double cropping.

After taking the crops singly, their proportionate arrangement, the cleanliness of the garden as well as the fruit trees

and bushes, should be noted. Superior arrangement and cleanliness should each receive a maximum of four points, and a garden stocked with well-managed fruit trees and bushes I would give a maximum of six points, a less number to be given in each case according to merit; the flower garden, or border devoted to flowers, to be judged similarly to the fruit trees. It may be a mistake to encourage large flower gardens; but here, again, we may suppose the cottager to be the best judge of his own circumstances. If by any chance the total number of points be equal in two or more cases, it may be necessary to settle the matter by comparison, but I never found it necessary to remember anything about the gardens inspected. The gardens ought to be judged not later than August.—W. IGGULDEN.

AMERICAN BLACKBERRIES.

It is very good of Mr. Ward (page 118), to give information about these, but the cultural details he mentions represent the treatment to which the plants have been constantly subjected here, and the results have not been satisfactory. Being captivated with the grand-looking picture which accompanied the solicitation for our order, and the prospects of securing such a splendid addition to our dessert fruits, led us to give these Blackberries more attention than our best and most fertile Raspberries ever had, and then only to be rewarded with a quantity of hedgerow-like fruit is, I think, enough to prevent us jumping again at any bait of the kind. Ever since I can remember American Blackberries have from time to time been glowingly pictured and praised, and by this time it might have been expected they would have been found in at least every parish, as anything really good is never long in being generally cultivated; but instances of their successful culture are still as rare as the song of the nightingale. Speaking of autumn-fruiting Raspberries, I may say they are most useful and deserve to be generally grown.—J. MUIR.

WHITE BORDER FLOWERS IN AUGUST.

THE following are a few white flowers blooming in my flower borders that I think, for decorative purposes inside or outside, should have a place in every garden.

HYACINTHUS CANDICANS.—A noble flower with handsome pendulous bells, cream-coloured, with a shade of green, and reaching with me about 3 feet high. Single bulbs in 10-inch pots reach close on 4 feet high, with twenty-five perfect blooms on an average to each flower stem. Those outside not yet fully expanded I do not expect to be so good.

MATRICARIA INODORA FL.-PL.—This beautiful double white Camomile should have been placed first if purity of colour, perfectness of bloom, or persistency in flowering until frost comes, be taken into consideration. I should hardly have mentioned frost, as even that it defies, and has been planted in the same bed for the past three years with me. I cut it down in October, taking cuttings in September, and its handsomely cut foliage in rosettes forms the brightest green tufts through winter and spring, except *Saxifraga atro-purpurea*.

ACHILLEA PTARMICA FL.-PL.—Another deserving favourite for cutting purposes, and as perfect a double and persistent a bloomer as the last, and, like it, merely requires to be cut down in autumn and top-dressed.

CAMPANULA PERSICIFOLIA ALBA FL.-PL.—This combines all the qualities named in the last two, with this qualification—it produces no seed; so when the first flowers show signs of degeneracy cut it down, and it will bloom again by the aid of liquid manure at least three times. Many have not the true flower. It must be of the purest white, as double as a white Camellia, and fully 1½ inch in diameter, with a number of blooms produced along the stem. Possibly by allowing only one stem to each plant blooms much larger could be produced, but liquid manure must be used. I have a number of Campanulas including the double blue, but none can compare with this.

PHLOX PANICULATA ALBA.—A real satin-white beauty, but does not last like the foregoing. Except the first these can all be propagated by division, and now is a good time to do it.

THALICTRUM AQUILEGIFOLIUM.—Handsome in foliage and pretty in flower, and no border should be without it. Like most perennials it should be lifted and receive something to feed on for the coming season either in late autumn or spring.

SPIRÆA FILIPENDULA FL.-PL.—Of this double Dropwort it is not easy to decide whether foliage or flowers are most deserving admiration. It increases rapidly, and once had is not readily lost. Planted alternately with the hardier of the new pink kinds the contrast is very effective.

CATANANCHE ALBA.—Handsome and effective for cutting, as the flowers, which resemble the single *Aeroclinium* and single white *Helichrysum*, last a long time in water.

PYRETHRUM PARTHENIUM FL.-PL.—This gives perfect little balls of white flowers, some of them shaded yellow. Wherever cut flowers are much required a small bed should be wholly given to it.

LILIES.—Among the white species and varieties I may include *L. candidum*, *L. longiflorum*, and *L. lanceifolium album*. Noble flowers, but the two last I grow in pots. I am sure they would do well in a deep bed of peat loam.

SINGLE DAHLIAS (White).—I have Cannell's *Avalanche*, Ware's *White Queen*, and Kelway's *Alba*, all splendid, and to my mind all alike. The one shortcoming they seem to have as compared with the fine hardy perennials mentioned is that the petals drop quickly; but then the flowers are produced in profusion.

GLADIOLUS COLVILLI ALBUS [THE BRIDE].—This has opened within the past week, and of the white outdoor flowers named for bouquet or vase decoration with a mirror or dark background, I cannot think any can compare with it. The flower is wonderfully large for the size of the bulb, and the comparatively slender stem and sparse foliage contrasted with the hybrids of *gandavensis*.

MALVA MOSCHATA ALBA and NICOTIANA AFFINIS.—The former a pure white Mallow, and the latter night-blooming and sweet-scented. I have had these for two years, and grow them potted inside, though a friend of mine has them outside.—W. J. M., *Clonmel*.

A VINE MYSTERY.

I SHALL be very glad if any of your readers can suggest a cause for my Vines being in the following unsatisfactory condition. The leaves of the leading shoot while they are small become shaped almost like an umbrella, their edges look as if they were scorched, and in time the foliage drops off; the point of the shoot also seems as if it was scorched, and the points of the tendrils too. Yet the Vines seem to be in good health as regards making good canes. The *Madresfield Court* seems to be most affected, next *Lady Downe's*, and then *Bowood Muscat*. *Black Hamburg* is very little affected, and *Buckland Sweetwater* not at all. In consequence of the state of the leading shoot I have allowed the laterals to grow a little. They do not seem to be affected except when I allow a lateral to take the lead, and then it becomes affected in the way I have named. I have a number of Vines growing in pots (fruiting and otherwise) that are not the least injured. The border is composed of sods roughly broken up, lime rubbish, fresh lime, charcoal, inch bones, and a little stable manure. The Vines, one year old, were planted at the beginning of March last, they are making good canes, and yet I feel anxious about this shrivelling, and any information about the cause and cure will be greatly appreciated.—R. H. R.



WE learn that an INTERNATIONAL HORTICULTURAL EXHIBITION is to be opened at NICE on the 1st of December next in connection with an agricultural exhibition.

— "B." writes:—"Those who had not known of the cleaning qualities of CHLORIDE OF LIME ought to be grateful to Mr. Bardney for calling attention to it. My way of applying it is somewhat different from that recommended in his article. Whatever is to be cleaned is moistened with water, and the chloride dusted over it; but edges of steps require painting. I find the best way to purchase it is in jars which contain 9 lbs. each. These are hermetically sealed, and the chloride turns out of them in a dry powdery state. We have had it in 1 lb. packets almost worthless."

— A NORTHERN correspondent writes:—"DOUBLE ZONAL PELARGONIUMS were recommended a few weeks ago as being better adapted for travelling than the singles. I find no difficulty with single varieties when gummed and packed in single layers in flat wooden boxes. Doubles at the best are "dumpy" unattractive flowers, though some people are fond of them. To such allow me to recommend the double Ivy-leaf varieties. These are now numerous, and some of them are decidedly pretty. The trusses are looser than in the Zonal doubles; they grow very rapidly, bloom profusely, and are of the easiest cultivation."

— MR. THOMAS S. WARE, Hale Farm, Nurseries, Tottenham,

writes:—"Accompanying I have the pleasure of sending you a box of the beautiful and white CLOVE GLOIRE DE NANCY, which is at present making my beds very gay. It is remarkably free-flowering, of a strong vigorous habit, producing grass very similar to that of the old Crimson Clove. The flowers you will observe are very strongly Clove-scented." They are both beautiful and sweet, and this variety can scarcely fail to become popular.

— MR. H. YOUNG writes:—"At page 92 Mr. A. Harding calls attention to *POLEMONIUM CÆRULEUM VARIEGATUM*; and in reference to it I may state that when at Holme Lacy, Hereford, we used it with excellent effect for edging the beds of Tuberous Begonias, and found that a damp season suited it, but the plants were lifted in November and placed thinly in an old frame. The lights were removed, except in very bad weather, for although the plant is moderately hardy, it was killed in such winters as 1880 and 1881. About the commencement of April the crowns were divided and planted on an east border, where they grew to a suitable size for the flower garden by the end of May."

— MONDAY was one of the hottest days of the season in and near London. The thermometer stood at 73° in the shade at nine in the morning at the Royal Observatory, Greenwich, and rose during the afternoon to 83.3°. In the sun's rays the mercury rose to 148.2°. From York southwards the weather generally appears to have been very fine. In Scotland and the north of England, on the other hand, the day was wet and cold, though improving towards evening.

— WE are informed that the whole of the grounds round the AMSTERDAM INTERNATIONAL EXHIBITION buildings were sown with Sutton's grass seeds. The result has been most satisfactory, and Messrs. Sutton have just received the announcement that the highest recompense—viz., the *Diplome d'Honneur*, has been awarded them. It will be remembered that in connection with the recent Melbourne Exhibition the Reading firm received a special gold medal for lawns produced from their seeds.

— MANY visitors to the Southampton Show last week expressed their admiration of the handsome example of CHARLOTTE ROTHSCHILD PINE APPLE, shown by Mr. H. Ward of Longford Castle Gardens, Salisbury, in his premier collection of eight dishes of fruit. In shape, colour, size, and general appearance this was one of the finest fruits we have seen this season, and the weight—viz., 6 lbs. 2 ozs., was similarly satisfactory. Writing respecting this variety Mr. Ward observes, "It should be included in every collection of Pines, but being shy in producing suckers it is therefore not so extensively grown as it deserves to be. As regards flavour The Queen stands first with us, but for size and handsome shape Charlotte Rothschild is unequalled."

— AN extremely fine variety is PHILLIPS' PERFECTION TOMATO, which is at present known only to a few gardeners, but is likely to become a great favourite wherever this fruit is in request. It was raised by Mr. Phillips, The Gardens, Deodars, Meopham, Kent, and has been several times exhibited at Kensington both in competition and before the Fruit Committee, and on every occasion it has been greatly admired. One of the finest dishes of it, however, that we have yet seen was that shown by Mr. Iggulden at the Southampton Show, for in shape, colour, and flavour these fruits were admirable. The fruits are of moderate size, very even, of a rich deep red colour, and the flavour is excellent.

— WE are glad to hear that the WARMINSTER COTTAGERS' GARDEN SOCIETY is in a flourishing condition, and the recent Exhibition proved very successful, the competitors being numerous, and the exhibits of creditable quality. Plants, flowers, fruits, and vegetables were provided for in numerous classes, in addition to numerous others of local interest. In reference to the prizes for wasps' nests and queen wasps, Mr. J. Horsefield writes:—"Prizes were given for the greatest number of queen wasps taken this year, the first prize being won with 510. Last year the same exhibitor was awarded first with the astounding number of 1265. The total this year from all exhibitors was 732, as against 2083 of last year. Taken altogether, the money given away in prizes for queen wasps is deservedly earned by the prizewinners. Would that other societies could be induced to encourage the same thing."

— PART 85 of Boswell's "ENGLISH BOTANY" gives a continuation of the Cryptogamic plants, being occupied with the Ferns, of which very full descriptions are given, together with carefully determined

synonyms and coloured plates. These represent the following species, —*Phegopteris Robertiana*, *P. polypodioides*, *Lastrea thelypteris*, *L. oreopteris*, which, by the way, is spelled *L. orespteris* under the plate, *L. Filix-mas*, *L. rigida*, *L. remota*, *L. cristata*, *L. uliginosa*, *L. spinulosa*, *L. glandulosa*, *L. dilatata*, *L. æmula*, *Polystichum lonchitis*, *P. lobatum*, *P. angulare*, *Woodsia ilvensis*, and *W. hyperborea*. All these are beautifully executed, and mostly with enlarged representations of fertile pinnae or pinnules, and magnified sori or sporangia. Of the small-growing Ferns whole plants are shown, but of the large ones a frond or a characteristic portion is depicted.

— MR. JOSEPH MALLENDER informs us that the mean temperature for July at Hodsock Priory, Worksop, was 58.1°, which is colder than any of the previous eight Julys except 1879, when the mean temperature was 0.1° lower. The minimum temperature is also the lowest recorded since 1877. The warmest day was the 2nd, 75.7°; the coldest night was the 24th, 34.5°. Mean temperature of air at 9 A.M. 59.1°, mean temperature of soil 1 foot deep 59.9°. Total duration of sunshine in the month was 149.4 hours, or 30 per cent. of possible duration. Maximum duration in one day was the 1st, 12.9 hours. Sunshine shows a decrease on the last two years. In the four months, April to July, we have had this year 609 hours of sun against 709 last year, and 718 in 1881. The total rainfall of the month was 2.34 inches. Maximum fall in twenty-four hours on the 20th, 0.74 in. Rain fell on nineteen days.

— IT is surprising that in such an enthusiastically horticultural district as that around Southampton ORCHIDS do not receive more attention than appears to be the case, judging by the very moderate competition at the recent Show, when only three collections were staged, and one of these was from Kingston-on-Thames. It is true that the season was not the most fitting for such plants, yet there are many fine Orchids in flower now that would have greatly improved the display. The premier group from Mr. Osborne, gardener to H. J. Buchan, Esq., Wilton House, Southampton, was indeed praiseworthy, and Mr. Buchan deserves much praise for so perseveringly endeavouring to educate the local growers in a taste for these charming plants. His collection was distinguished throughout by the health of the plants comprising it, and several were flowering extremely well. No doubt other gentlemen will take these plants in hand, and the display will be ultimately much extended.

— GARDENING APPOINTMENT.—Messrs. J. Laing & Co., Forest Hill, inform us that the following appointment has been recently made through them:—Mr. Geo. Dickson, late of Farnborough Park, Hampshire, to be head gardener to Henry Lamson, Esq., J.P., Colley Manor, Reigate.

— THE ASTWOOD BANK (WORCESTERSHIRE) HORTICULTURAL SOCIETY'S SHOW, held last week, was brought to an abrupt termination. A few moments after the Judges had commenced their duties there was a heavy fall of rain, and the wind rose to such an extent that a sudden gust blew the tents down and damaged the exhibits to a considerable extent. A number of dishes, plates, glass, and other stands were also broken. The whole collection was thrown into such confusion that the Committee decided that the Show could not be held, and the fruit, flowers, and vegetables were taken away. Thus a very excellent exhibition was virtually destroyed, and for the first time in the history of a flourishing Society the Committee had to forego their annual Show. The Society was started ten years ago, and ever since they have been most successful in their annual gatherings. The exhibits were this year both more numerous and better in quality than in any previous year—everything was good, but the vegetables were particularly fine, and there is no doubt that had the elements been favourable the Exhibition would also have been more successful than any previous one from a monetary point of view, whereas they are now appealing to "kind-hearted persons to help them in their calamity." Mr. J. Hiam is the Secretary. Among the curiosities of the Show he exhibited a dish consisting of two "White Elephant" Potatoes, one weighing 2 lbs. 2 ozs., the other 1¼ lb.

— UNTIL the DEATH of DR. MOFFAT the great missionary and father-in-law of Livingstone, it was not generally known that he commenced his career in a garden. When he was about twelve years of age he was ambitious to become a sailor, and at the request of a ship's captain his father consented that he should accompany the skipper on a coasting voyage. He did not find much to enchant him on board or during the voyage, and so the youngster returned to school, and began

the study of botany and horticulture, in order to qualify himself for the position of a skilled gardener. Some time after this his father removed to Inverkeithing in Fifeshire, and the young man obtained employment in the gardens of the Earl of Moray, at Donibristle House, in the same county. There he remained for some time, and then accepted a situation in Cheshire which had been offered him, continuing there two or three years, all the time pursuing his botanical and horticultural studies with the greatest avidity. But while so engaged a desire came upon him to become a missionary to the heathen, and in October, 1816, he (with eight other young men accepted as missionaries by the London Missionary Society) was ordained in Surrey Chapel, Blackfriars Road. With four of these eight he sailed to the Cape on the last day of the month. Ultimately settling at Kuruman (New Lattakoo), Dr. Moffatt commenced what was his great life-work. He thoroughly mastered the Bechuana language, reduced it to written characters, compiled a grammar, school books, and a dictionary, finally translated the Bible into what was practically a new tongue, and as printers were scarce volunteered himself to compose the type at the Government Printing Office, the type being kindly placed at his disposal by the Governor. He proceeded with his task, and before he had completed it had the pleasure of receiving from England a supply of type, a press, paper, and ink, which had been forwarded for his use by his friends in the mother country. These, with the newly acquired skill to use them, he returned with to his home at Kuruman, thus possessing the means of supplying the long-needed knowledge to the natives. After some fifty years' labour in South Africa Dr. Moffatt was compelled by ailing health to leave Kuruman and to return to England. To smooth his declining years his friends presented him in 1873 with a sum of £5800 in recognition of his services, and some two years later, on St. Andrew's Day, 1875, to show the great respect in which he was held by other communions, he, at the request of the late broad-hearted Dean Stanley, lectured in the nave of Westminster Abbey on African Missions. On December 20th, 1877, he was presented with the freedom and livery of the Turners' Company, and on May 7th, 1881, a crowning honour was offered to him in a banquet at the Mansion House, given by Lord Mayor McArthur, and attended by the late Archbishop Tait and a large number of Bishops. He was born at Ormeston near Haddington, East Lothian, on December 21st, 1795, and died at Leigh, Kent, on the 9th inst., having thus attained the ripe age of eighty-eight years. This remarkable career of a "garden boy" deserves record in our columns.

TOMATOES.

In reply to Mr. Cakebread and "R. M., Swanley," on page 118, let me say that the Tomato we grow is Hathaway's Excelsior. They will find a compost made up of, say, two good barrowfuls of maiden loam, one large shovelful of bone ash, one of dissolved bones, half the quantity of finely ground bones, and 2 lbs. of muriate of potash, or, instead of the latter, a shovelful of wood ashes, will grow splendid Tomatoes, far finer than can be produced by horse manure or any nitrogenous manure; at least such is my experience. I send by this post to Mr. Cakebread two Tomatoes, one weighing about 1 lb. from a cluster of fine fruit, and one from a plant grown in the loam and horse droppings, which he will find diseased, and small compared with the other. The fruit that weighed 21 ozs. had all the others cut from the cluster except itself. We have had scores about and over 1 lb. weight from those grown with phosphates, but not one half that weight from the other compost.—WM. THOMSON, *Clovenfords*.

A GIGANTIC FLOWER GARDEN.

THE extensive seed farms of Messrs. J. Carter & Co. at Dedham and St. Osyth, in Essex, have during the summer months an appearance which well entitles them to the above designation, and the present season is no exception to the rule, for brilliant masses of colour are distributed most liberally over an estate of about 1500 acres, forming a flower garden of surprising dimensions and beauty. Scarlet, crimson, pink, yellow, blue, and purple are all represented in courtless varying shades, and, set in a framework of rich green meadows, fields of waving grain, and a charmingly picturesque landscape, the effect is most impressive. It has, too, the additional recommendation of comparative novelty to the floriculturist, who may be, perhaps, in some degree wearied of the monotony of conventional flower gardens, and who gladly welcomes any departure from the prevailing combinations of Zonal Pelargoniums, Calceolarias, and Lobelias. But of course this beautiful effect which is so striking to the visitor is unstudied; the object of this "flower garden" is more utilitarian than is usually the case, and the magnificent beds of annuals and other plants have a value which to the uninitiated would appear enormous. Hundreds of acres of the best and most carefully selected varieties or strains, each as true as unwearying attention and skilled experience can render it, the plants vigorous and the flowers large, giving reliable promise of bountiful crops of well-developed and matured seeds that will possess a monetary

value that it would be difficult to estimate. But flowers are by no means the only occupants of these farms, as standard vegetables, especially Peas, are grown in large quantities, and amongst the general farm crops Wheat and other cereals form an important feature—fine selections being grown very extensively. Flowers, however, were the most conspicuous, and we may therefore briefly point out some of the best of those which contributed chiefly to display at the various farms visited.

TROPÆOLUMS.

Uncommonly brilliant were these, and one of the first indications we had of the proximity of the flower beds was a grand band of a dwarf scarlet variety upon the side of a hill, which proved to be the Tom Thumb Scarlet, a most floriferous form, glowing in colour, and when seen covering a space of nearly 1½ acre it was positively dazzling. Elsewhere Tom Thumb Spotted was a notable variety, the flowers bright yellow spotted with maroon. Spotted King is another magnificent variety, wonderfully free, dwarf and compact, the flowers brilliant clear yellow with rich maroon blotches. King of Tom Thumbs is perhaps the finest of the dark scarlet varieties, intensely rich in colour, and with very dark green foliage; this is an established favourite, and can be safely recommended as thoroughly reliable and satisfactory. But a superb selection from this is being grown, and as a later-flowering variety is undoubtedly superior: this is denominated Empress of India, and has even darker flowers than its parent. Golden King of Tom Thumbs, Crystal Palace Gem, and other favourites are similarly largely grown; but one of the most remarkable of all was a novelty named cæruleum roseum, a dwarf, free and beautiful variety, with bold flowers of a curious and striking combination of ruby and scarlet, the former having a slight tendency towards "cærulean," almost sufficient to justify the title.

GODETIAS.

Very beautiful were the beds of these upon the St. Osyth farm, where they are grown in great numbers. They are charming plants, and it is not surprising that they are fast becoming so popular wherever the really handsome annuals are appreciated. Easily grown, not particular as to soil or site, they are both accommodating and attractive as border plants, and should have a place in every garden. The lovely Satin Rose, which was deservedly certificated last year, was in grand condition, and amply proved that too high an opinion had not been formed of its merits. It is very compact in habit, and for this reason is admirably adapted for culture in pots, the flowers being large and of a bright rose colour, possessing quite a satin-like gloss, as the name implies.

Godetia Spotted Carpet is a distinct novelty, very dwarf and free, with large white flowers spotted with scarlet, which produces a most peculiar but pleasing effect when viewed in a mass. This variety is likely to become a great favourite, and should be certainly added to every collection of hardy plants. Godetia Whitneyi striata is an exceedingly pretty form of a well-known type, the flowers of great size, very freely produced, pale rose with rich crimson stripes. The charming pure white Godetia Duchess of Albany, which is already so popular, is grown in large quantities, and well deserves the attention it receives, for it is one of the best of the group.

SWEET PEAS.

Another telling feature was formed by the broad patches of Sweet Peas, that not only presented a great number of varied soft and brilliant shades, but also loaded the air with a most delicious perfume that was noticeable at a considerable distance, though in this respect they were outvalled by the beds of bright flowering Stock, *Mathiola bicornis*, the fragrance of which is perceptible at a distance of half a mile or more; indeed, the whole village of St. Osyth seems as if it had been converted into a Rimmel's manufactory when this plant is in flower and the wind is the right direction to carry the perfume over the houses. The Sweet Peas, however, possess a most pleasing fragrance, and the careful attention that has been paid to selection has resulted in obtaining a series of superb varieties that cannot be excelled. The Invincible Black, really a very dark purple, and the Invincible Scarlet are still to the fore as leading varieties, the latter being one of the brightest coloured and most floriferous forms in cultivation. Adonis is a newer one, with soft pure pink flowers of great size, and very free—a charming delicate variety, with everything to recommend it to favour. Painted Lady presents an agreeable combination of pink and white, which has a fine effect in a mass, a good companion for this being found in Butterfly, the flowers of which are blue and white and as freely produced as the others. There are a few only, for the unnamed varieties, which are kept in separate beds, representing nearly every imaginable shade of colour from pure white to the darkest purple, are very handsome, as was recently proved by the collection staged by Messrs. Carter at South Kensington, when they were admired by all who saw them.

ESCHSCHOLTZIAS.

Large space is devoted to these beautiful and showy annuals, and the effect they produced fully equalled that of many others already noted. Particularly handsome was Rose Cardinal, a lovely variety with bright rose-tinted flowers, large and profuse, perhaps the most charming of all. Mandarin is, however, a grand variety, with rich orange-red flowers, the outer surface of the petals being much darker than the inner, and having a peculiar appearance when some of the flowers are partly turned on one side. The ordinary yellow crocea and californica are grown in proportionate quantities, as the demand is very great for them, and they seem to thrive remarkably well at St. Osyth.

MISCELLANEOUS PLANTS.

It would fill a volume to enumerate in detail all the beautiful flowers

grown upon these wonderful farms, and for the majority a passing reference only can be afforded. Double Rockets of a score shades are grown by acres, both dwarf and tall in habit, while Rhodanthes of most approved strains are in similar force. Petunias are very abundant, very strong and very sweet, a strain of hybrid blotched varieties being especially noteworthy, and Messrs. Carter have gained much well-deserved fame for these amongst many other plants. Virginian Stocks are another feature. Pygmy, very dwarf, as the name implies; Fairy Queen, rosy scarlet, exceedingly bright and constant, and a white variety are the best amongst a fine collection. Lupins, such as *L. nanus*, *L. coccineus*, *L. bicolor*, and *L. luteus*, are grown in broad bands occupying several acres, their brilliant blue tints, especially the first-named, being unrivalled. Clarkias are again very striking. Mrs. Langtry, with rose and white petals, dwarf and free, is one of the most beautiful. The double white *C. elegans*, *C. integripetala* Tom Thumb with fine rosy purple flowers, a *C. integripetala* limbata also being most effective. Poppies, Nemophilas, Mignonette, Corn-cockles, the blue Woodruff (*Asperula azurea setosa*), Saponarias, Sweet Williams, Silenes, and dozens of other established favourites are all in superb condition, and reflect the greatest credit upon the care with which they are grown and selected.

GARDEN PEAS.

A brief commendation must be accorded to the Peas so extensively grown at St. Osyth, for the name of this firm is inseparably connected with some of the varieties that have already obtained a world-wide fame. The redoubtable Telephone is especially prominent, and the quarters devoted to them had magnificent crops of handsome well-filled pods. Stratagem is another thoroughly useful and most valuable variety, extraordinarily prolific, with even and regularly filled pods, the flavour being all

to form spurs, instead of their being removed in disbudding. Great care, however, was taken to prevent overcrowding, and young growths were secured to the trellis at intervals for bearing on the young wood.

In the formation of spurs it is usual to top the growths when they have made four large leaves, not counting the incipient leaves that have no buds in the axils, and as further growths issue they are stopped at one or two leaves. The process is shown in the engraving. In this figure it is easy to distinguish how the four leaves of the first summer stopping have fared. In either shoot only the point-bud has made a second growth, which has been stopped to two leaves, and a third growth, which has been stopped at one more leaf. The junction-buds (where the point-bud burst) appear full and healthy. One of them, in the right shoot, even shows a disposition to become a cluster-spur. This specimen was drawn from nature, and well illustrates the subject of spurring Peach trees.

FANCY PANSIES.—No. 2.

MR. WILLIAM DEAN'S contribution to the, as yet, imperfectly written history of the Fancy Pansy was of exceeding interest, and with the data in his possession he must be able to make still more valuable additions. I was glad to find that in many particulars he corroborated the story I reported from the lips of Mr. John Downie, but I must leave the divergences to be



Fig. 25.—SPURRING PEACH TREES.

that could be desired. Pride of the Market is also a variety distinguished by its great prolificness and good constitution, indispensable to all who are largely engaged in the culture of Peas.

CURRENT BLACK CHAMPION.

Last, but by no means least, comes the grandest Black Currant in cultivation, which, unlike many novelties, improves on further acquaintance with it. When branches were first shown at Kensington, the great size of the berries and their number was thought by some to be due to superior cultivation and not to any inherent qualities possessed by the variety. The Fruit Committee, however, thought otherwise, and awarded a first-class certificate for it. Now, too, after many years' trial the plants at the Dedham farms amply prove the grand character of the variety, for some dozens of bushes there have the branches loaded with large black fruit almost like small Plums, in large bunches, and surprisingly regular both in berry and bunch. The flavour, too, is peculiarly soft and agreeable, and altogether the variety is superb—one that well deserves popularity.

—VISITOR.

SPURRING PEACH TREES.

A CORRESPONDENT, Mr. A. Higgs, asks "if Peaches will really bear on spurs the same as Apricots and Pears; he has been told they will do so, but cannot credit the story." The "story" is true, nevertheless, but the system of forming spurs is not general, neither is well adapted to Peaches in the open air in this country. Under glass we have seen some of the finest fruit borne on spurs; indeed, we are not sure that the finest crop we have seen this year was not produced on a tree on which several growths had been pinched

made straight by the veterans themselves, and remain perfectly satisfied with having raised the subject in such a way that an authoritative solution appears probable. Perhaps Mr. James Grieve, who is recognised as one of the best authorities in Scotland, could throw some useful light on the subject.

In making a selection of the best Fancy Pansies exhibited at the Scottish Society's late Show, it ought to be remembered that I saw them at their very best. Never before had there been so many stands of undoubted excellence shown at Edinburgh, and never before had the judges had so much trouble in awarding the prizes. To this must be added the consummate skill of the exhibitors in dressing their blooms. I saw many a refractory flower subjected to a few minutes' manipulation, with the result that the crooked was made straight and the rough smooth. It is all very well for the uninitiated to condemn dressing, but I fail to see why a flower should not be improved after it is cut. While growing, all is done that is possible to improve it, and surely it cannot be wrong to give it a few finishing touches in the way artists do at the Royal Academy. I saw a second-prize stand of eighteen which would assuredly have been first if it had been dressed by the same hands. I do not for one moment advocate the flat appearance which we sometimes see attained in England, but prefer the convex form which a Pansy naturally takes when fully blown. Frequently the bottom petal is stubbornly curled, and requires most delicate touching to cause it to recurve like its fellows. In doing this the petal will frequently split, but I have found it advisable to leave such blooms out of water for an hour or so before setting them up, as the slight flagging which is caused

makes them pliant and amenable to treatment. By the time the judges see them they will have fully recovered their quality, while the added smoothness is all in their favour.

No attempt has yet been made to divide the great family of Fancies into classes, but some regulation of the kind will soon have to be adopted. At present it is bewildering to have no arrangement other than alphabetical order, and the sooner selfs, narrow-edged, broad-margined, laced or picotee-edged, and bizarres are grouped, the better for all concerned.

In compiling the following list I have been guided only by beauty and distinctiveness, and only hope that when the shows again come round I may be able to stage good representative blooms of the varieties named.

Capt. Houstoun, mulberry blotches, upper petals crimson shaded with violet, golden margins, fine eye; large and very showy. Charlie Stansell, large dark blotches, edged pure white, upper petals rosy purple, laced white; large and extra fine. James Gardiner, deep rosy crimson; extra fine form. Mrs. Jamison, beautiful deep golden yellow self, with large solid black blotches. Evelyn Bruce, dense mulberry blotches, good eye, centre of upper petals yellow, with broad crimson margins; of finest form. Bob Montgomery, large solid black blotches edged with yellow, upper petals rosy purple, edged white. Mrs. W. M. Welsh, large violet blotch, edged carmine, upper petals yellow; smooth and very distinct. Mrs. M. H. Miller, large mulberry blotches, margins and upper petals carmine, narrow gold edge round all the petals; smooth and beautiful. Mrs. R. K. Mitchell, maroon blotches, edged white; a remarkably smooth and beautiful flower. Earl Beaconsfield, yellow self, dense dark blotches, and very smooth. Robert Conglaton, dark indigo blotches, edged white, upper petals deep purplish crimson; large and extra fine. Happy Thought, neat eye, claret self, violet purple blotches; large and fine. David Malcolm, lemon, rich solid maroon blotches, distinct pink edge round all the petals; very large and smooth. Perfection, mulberry blotches edged yellow, upper petals violet purple flaked with yellow; very smooth. Mrs. General Grant, deep golden yellow; very smooth, and fine form. Agnes Mitchell, large dark blotches, edged pure white, upper petals white banded with clear purple. R. S. Milne, chocolate blotches, edged clear yellow, upper petals yellow, banded with narrow crimson and edged yellow. Jubilee, violet blotches, upper petals mulberry; large and fine. G. O. Trevelyan, claret self, violet blotches, Picotee edge of white all round. Conquest, crimson self, very dark blotches, broadish Picotee edge of white; very distinct.

Nellie Black, very dark purple blotches, margined yellow. Lady Falmouth, lemon, yellow, and bronze. Catherine Agnes, purple blotches, edged white; a gem. Mrs. Taylor, belted with yellow. Dreadnought, large crimson self, with immense dark purple blotches. Mrs. Barrie, golden yellow self, black blotch; one of the very best. Mrs. Hugh Hunter, beautiful cream self, with very large solid blue blotches; of perfect form. Mrs. Forrester, deep bronzy crimson, edged with yellow and red. Mrs. Geo. Wood, claret, dense black blotches, all the petals surrounded with neat yellow wire edge; large and very fine. Mrs. J. Thomson, fine eye, upper petals flaked violet, Picotee edges; very pretty and distinct. James Grieve, one of the best claret selfs, with beautiful purple blotches. J. H. Stratton, orange buff, shaded with red. May Tale, yellow, shaded with red; a large bold flower. Telephone, maroon blotches, fine eye, velvety crimson margin. Walter Houldsworth, upper petals and margins yellow, flamed crimson; very attractive. Mrs. Russell, dense dark blotches, edged with white and veined with pink. Wm. Robinson, black velvet blotches, edged crimson, lemon margin round all the petals. William Cranston, rosy lilac, mauve blotches, edged white. Countess of Holme, yellow and bronze. Geo. Wyness, maroon blotches, edged with a ring of bright crimson with an outer ring of gold round all the petals. John Emslie, chocolate blotches, edged yellow, upper petals banded with violet purple. Tom McComb, rich dark crimson, with dense violet blotches. T. C. Fulton, dark blotches, edged with bright crimson.

It would be easy to add many beautiful varieties to the above forty, but no greater mistake can be made than to grow too many kinds. I have had upwards of 400 at one time, but I have found more pleasure and success from growing largely of about half the number. "Find out good sorts that will thrive and stick to them till they are distinctly improved upon," was the advice given to me by an old florist, and I am bound to say, after running after the new ones as they came out, that the advice was sound. Pansies are like Roses, they like certain soils and situations, and to grow them elsewhere is labour thrown away. Some good varieties I have never been able to grow

well, while others do better with me than where they were raised.—M. H. MILLER, *Leek*.

THE LINCOLN NURSERIES.

NOT great in the same sense as such establishments as Messrs. Veitch of Chelsea, Smith of Worcester, the Dicksons of Chester, Fisher & Sibray of Handsworth, Rivers of Sawbridgeworth, the Pauls, Cranston, Backhouse, and some others are, yet the Lincoln Nurseries are of a respectable size—approaching altogether 80 acres, and, what is more, appear to be growing healthily. The home nursery in the ancient city appears to have been entirely remodelled and greatly enlarged during the past few years, while the proprietor has erected a handsome and commodious residence and formed a pleasant approach. Thus all around bespeaks prosperity. New seed warehouses, large, well arranged, and substantial, have also been erected to meet the demands of this important branch of the business, and Potato stores formed, for the trade connections of the firm of Pennell & Son extend far beyond the bounds of horticulture, agriculture receiving a large share of attention, as might be expected in a district so noted for its high farming and for the excellent custom of tenure which practically renders such disturbing influences as agricultural holdings bills works of supererogation. A nurseryman and seedsman who can live and flourish amid a constituency so critical and discriminating must have something in him, and there is; indeed there are few representatives of commercial horticulture who combine greater business capacity with a more thorough and practical knowledge of the various branches of their calling than does Mr. Charles Pennell of Lincoln.

No attempt will be made to enumerate the contents of this nursery, as the result would simply end in a catalogue of almost any other provincial nursery, doing as provincial nurseries must do, a mixed business. They must possess a little of everything to meet local demands, and there certainly seems something of most things in the houses and frames in the nursery under notice. The roof of one large structure is covered with Roses, and in season there must be a splendid display of blooms. The roofs of other houses are utilised by Vines in pots, producing excellent canes both from eyes inserted this season and cutbacks from last year. The houses in which those Vines are grown are pattern erections either for nurseries or private gardens, being strong, light, durable, and economical. They are sunken span-roofs with very low sides, the glass being affixed to horizontal bars and covers all the wood-work, thus dispensing with external painting. Where the sides of the squares join each other narrow strips of glass, an inch wide or so, overlap the edges of both squares, thus excluding all the rain that falls, while admitting all the light; and it is not easy to conceive what more can be expected in any glazed roof.

Outside the houses, of which there are a considerable number, Chrysanthemums are prominent. The Chrysanthemum fever has only lately spread to Lincoln, a society having been formed to encourage the cultivation of this flower, and the first show will be held in the ensuing autumn. Evidently there is a great and good assortment of varieties in this nursery, but the plants were not taken in hand soon enough either for forming grand specimens of noble blooms of the character of those seen at the leading shows; but with generous culture, no more topping, and careful disbudding they will make a good display arranged in groups; and it is hoped the first Lincoln Chrysanthemum Show will make a good beginning, and, like the Lincoln Nursery, go on improving. A good assortment of hardy plants are grown, one of the most effective being the free and vigorous border Carnation Lord Beaconsfield.

Fruit trees, forest and ornamental trees, shrubs, Conifers, and Roses are grown at a distance of some two miles from the city, about 65 acres of good land being devoted to them and to seed-growing, and the position being exposed the trees assume a sturdy habit of growth. In the increase of fruit trees the wise plan is adopted of giving prominence to those varieties that long experience has proved thrive best in the locality and the counties surrounding, and sorts that flourish in Lincolnshire, Yorkshire, Nottinghamshire, and Leicestershire will succeed almost anywhere. Roses are very extensively grown, all the best varieties being included, and their blooms figure prominently at local exhibitions.

But though everything is flourishing now, Mr. Pennell has had difficulties to combat. He has been the victim of noxious gases from brick kilns, which swept across his nursery like a plague, leaving destruction in their track. Yet, if a victim, he proved a conqueror, and gained an injunction against the transgressors, one of the first in a case of this kind, and thus conferred a benefit on the trade. Because of his experience in these matters he was summoned as a witness for Mr. Foster, who won a case of the same nature last year for injuries done in his nursery at Stroud; and a formidable witness Mr. Pennell must always be in similar cases, in which, however, he has no desire to figure, being better employed in the conduct of his business at home; but with precedent on precedent against them, kiln-owners will be more careful in future in injuring other men's property and taking their chance of escaping the consequences in actions that may be brought against them.

Horticulturists passing through the old city, the Lindum of the Romans, who have a few hours to spare will find a genial host in Mr. Pennell, who is a worthy member of the craft and one of the most competent and respectable of English nurserymen. If during the same visit they would like to see one of the most interesting of fruit gardens in the country they will find it at Bracebridge (Rev. C. C. Ellison's); and if they want to see one of the best town gardens in England they may call at East Cliffe House, the residence of N. Clayton, Esq., whose gardener,

Mr. Wipf, grows the Duke of Buccleuch Grape so splendidly and does everything else well that he takes in hand.—A TRAVELLER.

P.S.—An omission may be noted. In Mr. Pennell's seed shop in the city a brisk trade is being done in "Inga" seed as a wholesome and nutritious food for cage birds. Failing to obtain the botanical name of the plant that produces this seed the manager, Mr. Buffham, raised plants and flowered them. An example submitted and examined at Kew has resulted in the following simple solution of the problem, and if synonyms are an indication of merit this "Inga" seed certainly ought to be good. The names of the plants are *Anthemis mysorensis*, *Herb. Madr. ex Wall.*; *Bidens Ramtilla*, *Wall.*; *Bupthalmum Ramtilla*, *Hamilt.*; *Guizotia abyssinica*, *Cass.*; *Helianthus oleifer*, *Wall.*; *Jageria abyssinica*, *Spr.*; *Parthenium luteum*, *Link.*; *Polymnia abyssinica*, *L.*; *Polymnia frondosa*, *Bruce*; *Ramtilla oleifera*, *D.C.*; *Tetragonotheca abyssinica*, *Led.*; *Verbescina sativa*, *Rowb.*; *Heliopsis platyglossa*, *Cass.* As Mr. Buffham can scarcely be expected to write them all on the seed packets he may content himself with *Guizotia oleifera*, which is now the accepted name of the plant in question.

BRASSAVOLA PERRINI.

EARLY in the present year Sir Trevor Lawrence, Bart., exhibited at South Kensington a plant of the above Orchid from his grand collection at Burford Lodge, Dorking, and from a drawing of that plant taken at



Fig. 26.—BRASSAVOLA PERRINI.

the meeting the woodcut (fig. 26) has been prepared. The specimen was remarkable for the number of flowers it bore; and though these individually are by no means showy, yet collectively they had a most striking appearance, as can be judged from the engraving. The lip is broad and somewhat heart-shaped, as in other species of *Brassavola*; it is pure white, and the narrow green sepals and petals spread regularly round it. When grown upon a block, a mode of culture that suits all the members of this genus, it has a pleasing appearance, the large narrow green leaves drooping gracefully with the abundant flowers. It is related to *B. nodosa* and *B. cordata*, but is readily distinguished by its smaller flowers, which are generally borne singly, by its more slender leaves, and a branching stem. Under the figure in the "Botanical Register" in 1833 it is stated that the plant was introduced from Rio Janeiro by Mrs. Arnold Harrison of Aigburth, after whose gardener it was named; but in the "Botanical Magazine," 1839, it is said that plants were sent from Brazil to the Glasgow Botanic Gardens. The first account, however, appears the most probable.

ROYAL HORTICULTURAL SOCIETY.—AUGUST 14TH.

THE conservatory was on this occasion devoted to the exhibits, which were, however, not very numerous, the Gladioli and Dahlias forming the

most conspicuous features. The former were very fine, both from Messrs. Kelway and Vilmorin, while the Slough and Swanley Dahlias were similarly attractive.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The following were present: Messrs. G. Goldsmith, S. Lyon, J. Burnett, J. Willard, G. Bunyard, A. W. Sutton, L. A. Killick, F. Rutland, W. Denning, J. E. Lane, R. D. Blackmore, J. Smith, and T. Woodbridge. Messrs. Lane & Son, Great Berkhamstead, sent several Apples, comprising Red Juneating, Eve, and Duchess of Oldenburgh. For *Apple Mr. Gladstone* a first-class certificate was awarded. It is a small Apple, very bright red on the side exposed to the sun, and plentifully streaked all round. It is globular in form and of excellent flavour. Messrs. Cheal & Son, Crawley, sent fruits of a seedling Apple named *Early Lowfield*, a neat conical fruit dull red in colour. Mr. J. Bolton, Coombe Bank, Sevenoaks, sent samples of a white Gooseberry named *Bolton's Prolific*, which is said to be very early and always very free. The branches sent were heavily laden with fruits. The Committee expressed a desire to see the variety again earlier in another season. Mr. J. Hardeman, Lynne Hall, Stockport, sent a green-flesh seedling Melon; and new Melons were also sent by Mr. A. Taylor, Apperley Bridge, Leeds, Mr. Burnett, and Mr. Jackson, Putney Heath, London, but none was sufficiently distinct to merit notice. Mr. Rutland, The Gardens, Goodwood, Chichester, exhibited a fruit weighing 21 lbs. of a *Melon* named *Goodwood*, raised from seed sent from the Cape of Good Hope. It was large, with greenish-white flesh, very evenly netted, but of poor flavour, yet a first-class certificate was awarded.

Mr. A. Faulkner, Inkpen, Berks, sent fruits of a very large *Raspberry*,

Lord Beaconsfield, which was much admired, the flavour being very rich and the colour good. A first-class certificate was awarded for it. Mr. L. Killick, Maidstone, exhibited a collection of Apples in very good condition, comprising *Duchess of Oldenburgh*, *Golden Spire*, *Yorkshire Beauty*, *Early Julien*, *Mr. Gladstone*, *Ecklinville*, *Weaving Apple*, *White Transparent*, and *Emperor Napoleon*.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. The following were present:—Messrs. J. McIntosh, H. Bennett, H. Cannell, J. Wills, J. Dominy, J. Hudson, J. James, J. Laing, F. R. Kinghorn, W. Bealby, J. Douglas, G. Duffield, A. Ballantine, A. Turner, J. Cutbush, and Shirley Hibberd. A silver Banksian medal was awarded to Mr. C. Turner, Slough, for a large and beautiful collection of *Dahlia* blooms, comprising *Show*, *Fancy*, *Pompon*, and single varieties, and representing a great number of shades. Of the *Show* varieties some of the best in colour, substance, and form were the following:—*Cardinal*, scarlet; *James Vick*, crimson purple; *Mr. Saunders*, pale yellow; *Mrs. Harris*, pale mauve; *Harry*, rich crimson; *Mrs. Henshaw*, white; *Prince Bismarck*, rosy crimson; *Drake Lewis*, scarlet; *Bessie*, lilac pink; *Duke of Albany*, bright scarlet. Of the *Fancy* varieties the most conspicuous were *Grand Sultan*, crimson streaked on a yellow ground; *Magic*, fine scarlet streaks on a yellow ground; and *Peacock*, purple-crimson tipped with white. The *Pompons* were exceedingly beautiful, the most distinct varieties being *Garnet*, scarlet; *Lady Blanche*, Fair Helen, and *White Aster*, white; *Little Arthur*, orange scarlet; *Little Princess*, pale mauve; *Prince of Lilliputians*, dark maroon; *Lewis Rodani*, bright purple; and *Titania*, yellow buff. Single varieties were similarly well represented, the brightest and most effective varieties being *Benedick*, purple; *Glory*, scarlet; *Yellow Queen* and *Morning Star*, scarlet; *Olivette*, orange red; *Alba*, white; *Duke of Teck*, rosy purple; *Rob Roy*, rich maroon, and the well-known *Paragon*.

A silver Banksian medal was deservedly awarded to Messrs. Kelway and Son, Langport, for a superb collection of Gladiolus spikes comprising some very handsome varieties. Especially fine were Ball of Fire, large flower and spike, rich scarlet; Pritum, bright salmon, very beautiful; Queen May, white, with the lower petal purple; Belgica, streaked with rose on a lighter ground; Victory, bright scarlet; Admiral Willis, dark scarlet; Lady Aberdare, blush pink with a few crimson streaks. An extensive collection of single and double Pyrethrums was also staged, including a large number of superb varieties. The best were the following—Single: Democrates, rich crimson; Hadrianus, pale pink; Laon, rosy crimson; Pan, white; Pelope, bright rose; Flaccus, rich crimson; Abantis, white; Nearchus, dark rich red; and Halia, blush white. Double: Capt. Boyton, dark crimson; Madame Benary, white; Le Dante, soft pink; Jeanette, white; and Capt. Nares, dark crimson.

Messrs. H. Cannell & Sons, Swanley, exhibited a collection of Show and Fancy Dahlias, some large Sunflowers, and Fuchsia Phenomenal, an enormous double purple-flowered variety. A vote of thanks was accorded. Messrs. J. Carter & Co., High Holborn, had a fine collection of Petunias, for which a vote of thanks was accorded. They were chiefly single varieties, comprising Stars and Stripes, white and crimson; Queen of Roses, bright rose; White Pearl, white; King of Crimson, rich crimson with a white eye; Cerise Brilliant, crimson-purple; Mrs. Sharman, white tipped with crimson; and Blue Perfection, rich purplish blue. A vote of thanks was also accorded for *Hæmanthus puniceus* with a dense head of scarlet flowers. Mr. H. James, Castle Nursery, Lower Norwood, sent a flower of a new *Cattleya* named provisionally *Jamesianum*. It has pale lilac sepals and petals, the lip white blotched with yellow in the centre, and tipped with pale purple. A vote of thanks was accorded to G. F. Wilson, Esq., F.R.S., Weybridge, for a spike of *Lilium Batemanniæ* cut from the open ground, and several *Gentians*. Similar recognitions were awarded to Mr. J. Douglas for a fine spike of *Calanthe sylvatica*; and to Mr. Noble, Bagshot, for flowers of *Clematis Jackmanni alba* and *Duchess of Connaught Rose*. A cultural commendation was awarded to Mr. Humphrey, The Gardens, Nash Court, Faversham, for a number of extremely handsome *Lapageria rosea* flowers, some being 5 inches long and 2½ inches broad at the mouth. A cultural commendation was also accorded to Mr. Hudson, The Gardens, Gunnersbury House, Acton, for a plant of *Gloxinia Lilian* in a small 60-size pot and bearing six fine flowers.

Mr. T. S. Ware, Tottenham, sent a beautiful collection of single Dahlias, for which a vote of thanks was accorded, also a fine plant of *Francoa ramosa* with about three dozen spikes of white flowers. A vote of thanks was accorded to Mr. Todman, gardener to J. Connell, Esq., Bushy Down, Tooting Common, for several seedling Zonal *Pelargoniums* with large trusses of scarlet and salmon flowers, and a free-flowering *Fuchsia* named *Condor*. Messrs. Francis & T. Smith, West Dulwich, were accorded a vote of thanks for a group of double Balsams, the flowers large, well formed, and varied in colour. A large group of *Achimenes*, *Begonias*, *Tydæas*, and *Ferns* were sent from Chiswick.

First-class certificates were awarded for the following:—

Lilium Wallacei (Ware).—A pretty Lily in the way of *L. elegans venusta* and *L. elegans Batemanniæ*, but better than either of them. The flowers are bright orange with a few dark spots at the base of the petals. They are clustered near the summit of the stem.

Gladiolus Duke of Teck (Kelway).—Pale blush streaked with rich crimson; flower very large, and spike massive.

Gladiolus Her Majesty (Kelway).—A lovely variety, very delicately tinted with purple, almost white, streaked round the margin with purple; flower of great size, and spike also.

Begonia Virginalis (Bealby).—A tuberous variety, with large double pure white flowers.

Pelargonium peltatum Jeanne d'Arc (Bealby).—Flowers very full and good in form, white faintly tinged with purple.

Gladiolus Grand Rouge (Vilmorin).—Very handsome; flower of great size, colour a brilliant scarlet, spike massive.

Gladiolus André Leroy (Vilmorin).—Deep rose, with a white central streak in each petal; flower and spike large.

Sweet Pea Carmine Rose (Hurst & Co.).—A delicately coloured variety, very pale rose, clear and good.

ROSES ON THEIR OWN ROOTS.

THIS subject has often been written upon in your pages, but I wish to add a few remarks. It is not, I think, generally known that most of the Teas do well on their own roots. I have grown plants and cut blooms from them fit for exhibition in less than a year. Cuttings of short-jointed well-ripened wood were inserted in September under bell-glasses, and the young plants so obtained were planted out the last week in March or the first week in April (choosing a showery day, if possible) into deeply dug light soil, with a moderate quantity of manure. Water is supplied in dry weather until they are well established, a mulching of long stable manure being of great assistance to them. They succeed best in light soil where the Briar will not grow.

Some of the advantages to be gained by growing Roses from cuttings are—no time is lost or room taken up in preparing stocks. Starting both together you have flowering plants from the cuttings by the time you can bud the stocks, gaining thus one clear season; less manure is required by own-root Roses, and they are easier to manage in winter, a shovelful of cinder ashes being all they require to keep the frost from the roots.

The following are some of the varieties I have found succeed in this way. *Hybrid Perpetuals*.—Abel Carrière, Baronne de Rothschild, Charles Lefebvre, Capitaine Christy, La France, Le Havre, Mons. Boncenne, Rosy Morn, Penelope Mayo, Richard Wallace, Dupuy Jamain, and Cheshunt Hybrid. *Teas*.—Catherine Mermet, Devoniensis, Gloire de Dijon, Madame Berard, Madame Lambard, Madame Falcot, Marie Guillot, and Souvenir d'un Ami. I have more Teas on trial,

but the buds are not quite open, and I cannot say what they will be, although they promise well.—H. E. M.

THE GREENHOUSE AND ITS INMATES.

(Continued from page 123.)

IMANTOPHYLLUM MINIATUM.

THIS is one of the first plants which an amateur with a greenhouse should possess, because it grows freely if potted in turfy loam, well drained, and kept in the greenhouse, and because it flowers in the spring. Even when not in flower the plant is ornamental. It is grand for exhibition, and should be grown by all amateurs who exhibit in spring.

KALOSANTHES COCCINEA.

This is a good old-fashioned plant which is not so much grown as it deserves. Cuttings are easily rooted, and if these are potted, using sandy loam and leaf soil as may be necessary, handsome plants may be produced in one year. Repeated pinching during summer to produce a bushy habit should be practised, but must be discontinued by August, so that flower-buds may form in autumn. During winter the plants should be kept very dry in order to induce the formation of firm flower-producing wood. This plant is of a succulent nature, and, like all other succulents, must be kept dry while resting. It, however, should not be dried off, but a little moisture kept in the soil just to prevent shrivelling. If large plants are wanted they may be pruned back lightly after flowering is over, and after growth has commenced shifted into larger pots. Like other succulents, large plants may be grown in comparatively small pots, and care must always be taken not to overpot. Liquid manure will prove very beneficial to root-bound plants which are making growth. If small plants only are wanted cuttings can be struck annually.

LACHENALIA TRICOLOR.

This is a neat, attractive, bulbous Cape plant, well worthy the attention of amateurs. If growing plants are bought they should be simply placed in the greenhouse and supplied with water in moderate quantities until the foliage begins to wither, when it must be gradually withheld until the bulbs ripen, which they do in the manner of Onions. They may then be placed in a cool situation without being removed from the soil until potting time.

If they are wanted to flower in early spring pot them in fresh soil about the end of July or beginning of August. Shallow pans 6 inches in diameter are very suitable for growing them in, as 2 or 3 inches of soil is better than a greater depth. Drain well, and use sandy loam and manure, and press the large bulbs an inch apart into the soil, so that only the apex of the bulbs remains above the soil. The pans should then be placed in a cold frame and carefully watered until the bulbs begin growing, when water may be more freely given. In October the pans should be removed to a shelf in the greenhouse near the glass to prevent "drawing" as much as possible. If it is desirable to increase the stock any bulbs which may be too small for flowering should be planted in a shallow box in quantity, and treated in the same way as the other. They will make fine flowering bulbs by another season. The plant increases rapidly. *L. luteola*, *L. orchioides*, *L. pendula*, and *L. quadricolor* are also well worth growing.

LAPAGERIA.

No greenhouse should be without these charming climbers. They rank among the very best plants ever introduced, and they are by no means difficult of cultivation. For training over back walls or up rafters or on trellises for exhibition this is the first plant we would mention. For bouquets, epergnes, or vases the flowers are specially suitable. We do not know whether the rosy or the pure white variety is the more beautiful, but we are quite certain that both are indispensable. If plants are bought it is economy to secure plants with strong breaks—recent growths—for stunted ones are much trouble, although the plants cost a shilling or two more. After securing plants the next thing to do is to see if there is any mealy bug or scale on them. If they are obtained from respectable nurserymen there will be none, for they are by no means liable to these pests. Still, we have seen them on the plants; and if any are to be seen we strongly urge their instant and careful destruction with sponge and warm soapy water. Spring, just as the plants start, is a good time for buying, for then they should be potted, or at least repotted. The best soil to use is light, rough, tough, turfy loam, with the fine soil shaken out of it; and we would strongly advise the amateur to secure this, although it should cost a special pilgrimage or a special order to the seedsman. Many persons grow this plant well in peat, or in peat, ordinary loam, and pieces of sandstone; but we would urge everybody to grow, not ordinary plants, but vigorous plants, with strong shoots and flowers twice or three times the ordinary size, and this needs loam such as we have described mixed with pieces of bone and charcoal instead of the orthodox sandstone.

Drain well, and water carefully; train each shoot on a wire or thin cord by itself, and cut out all wood as it gets over three or four years old. Should green fly appear on the growing shoots sponge them off. Pot on every spring, at least if the previous pots are well filled with roots, and in a very few years your plants will be worth more sovereigns than they cost shillings, besides furnishing you with untold wealth in the shape of gorgeous blossoms.

LILIUM.

This is a very extensive genus, but in the present place we only

mention two species, with their varieties, for cultivation in pots for the decoration of the greenhouse. They are the indispensable *L. auratum* and *L. speciosum* and vars. As the amateur gains skill and experience others may be added, but the above are quite enough for a beginner to commence with. The bulbs are generally to be had during winter and early spring. As soon as they come to hand they should be potted in rough lumpy loam and well-decayed manure, with some broken charcoal or sandstone and a little sharp sand. Comparatively large pots should be used, as they are strong rooters. A little sand may with advantage be placed around each bulb, which must be covered with soil about an inch. The pots need not be too full of soil, but room should be left for a top-dressing afterwards. As soon as the bulbs are potted they should be stood in a cool place (a shed or cellar) from which frost is excluded. When they commence growing in spring they may be removed to a cold frame, and still protected from frost. Up till this stage no more water need be given than just to keep the soil a little moist; but after the tops make some progress, and the roots take possession of the soil, water must be given more freely, and once a week a weak dose of liquid manure should be given. Meanwhile ventilation must be freely given on all favourable occasions. By the end of May the plants will thrive better out of doors, and should be plunged in ashes in a sheltered spot. When young roots appear at the base of the shoots a little rich loam may be placed over the roots, and over and around that a good dressing of rich cow manure partly, but not over, decayed. As the shoots run up stakes should be put to each, and before the flowers open the plants should be removed to the greenhouse. At this stage liquid manure will be of great service to them.

After they have flowered they should be removed to a cold frame or other glass structure to be carefully ripened off—not dried, that is the mistake which kills so many Lilies yearly; but as the foliage ripens water should be gradually withheld until after it has decayed. No more must be given than just to keep the soil moist and the bulbs fresh and plump.

Repotting should take place about December. In performing this operation care must be taken not to injure a single root, but at the same time all inert soil may be taken away and fresh material supplied. Pots slightly larger should be given year by year if the plants are in a thriving condition, for then they double themselves yearly. Until growth commences the soil must be kept just moist, after that the routine we have laid down should be followed.

NERINE.

Nerines are easily grown bulbous plants, somewhat resembling *Amaryllises* and belonging to the same order. Good loam, decayed manure, and a dash of sand through it suits them as far as soil is concerned. When growing the plants may be kept near the light, and well supplied with water, and occasionally with liquid manure. When the foliage turns yellow the supply of water must be diminished gradually until no more is given than will merely keep the bulbs from shrivelling. While resting the plants should be kept dryish and cool. When the flower-stems appear more water should be given, and the plants removed to a warm corner of the greenhouse again. The best time to pot is just as the plants push up fresh leaves. In potting all inert soil may be removed, but no roots should be injured. Overpotting must be avoided. *N. Fothergillii* and *N. F. major* are the forms most commonly grown, and next to that *N. sarniensis* (the "Guernsey Lily"), but *N. coruscans*, *N. flexuosa*, *N. undulata*, and *N. venusta* are well worth growing.—A. H

NATIONAL GOOSEBERRY SHOW.

THIS was held in the Royal Botanic Gardens, Old Trafford, Manchester, on the 6th inst. The respective prizewinners, with the names and weights of the varieties that were exhibited, are as follows:—

PLATE OF TWELVE RED BERRIES.

John Boot	Lord Derby.
James Bower.....	Lord Derby.
E. Salsbury.....	Bobby.
J. Warburton.....	Lord Derby.
B. Bradley	Blucher.

PLATE OF TWELVE YELLOW BERRIES.

A. Tomkinson	Leveller.
J. Bower.....	Leveller.
D. Bower.....	Thatcher.
C. Leicester	Thatcher.
W. Riley.....	Leveller.

PLATE OF TWELVE GREEN BERRIES.

J. Boot	Telegraph.
F. Jameson.....	Diadem.
J. Torkington	Not named.
C. Leicester	British Oak.
B. Cheadle	Surprise.

PLATE OF TWELVE WHITE BERRIES.

G. Beckitt	Transparent.
C. Leicester	Antagonist.
J. Boot	Transparent.
J. Warburton.....	Careless.
J. Weston	Fascination.

TWINS, TWO ON ONE STEM.

J. Boot	Red.....	Lord Derby.....	dwts. grs.
F. Jameson	Yellow	Drill	42 5
B. Bower	Green.....	Telegraph	42 20
W. Riley	White.....	Antagonist.....	33 6
			38 21

SINGLE BERRIES.

John Boot.....	Premier prize	red	Lord Derby.....	29 0
B. Cheadle	" "	yellow	Garibaldi.....	25 8
J. Bower	" "	green.....	Shiner	25 17
G. Beckitt.....	" "	white.....	Transparent	29 15
E. Salsbury	Steward's prize	red.....	London	28 5
J. Warburton	" "	yellow	Thatcher	24 17
D. Bower	" "	green	Stockwell	23 14
A. Tomkinson	" "	white	Hero of the Nile ..	23 14
J. Carter	" "	red.....	Bobby	26 0
F. Jameson	" "	yellow	Ringer.....	24 0
C. Leicester	" "	green.....	Seedling	21 1
J. Threfall.....	" "	white	Mitre	22 22
B. Bradley.....	" "	red... ..	Blucher	24 22
J. Dennerley.....	" "	yellow	Leveller	23 11
W. Riley	" "	green.. ..	Mary Ann	20 22
J. Torkington	" "	white	Antagonist.....	22 13

RED CLASS.

G. Beckitt	Bobby.....	26 13
J. Boot	Jumbo, seedling	25 16
J. Dennerley	Lord Derby	25 6
J. Birchenall	London	24 22
B. Cheadle	Dan's Mistake	24 19
F. Jameson	Maccaroni	23 6
F. Jameson	Beauty	24 12
D. Bower	Seedling.....	22 21
B. Bradley	Blucher.....	22 14
J. Torkington.....	Ploughboy.....	21 18
J. Boot	Dr. Wooley	21 16
J. Boot	College Lane, seedling	21 6

YELLOW CLASS.

G. Beckitt	Ringer	24 10
J. Warburton	Leveller.....	23 11
E. Salsbury	Mount Pleasant	23 7
C. Leicester	Lady Haughton	23 3
J. Torkington	Thatcher	22 19
F. Jameson	High Sheriff.....	23 0
F. Jameson	Hit-or-Miss	22 14
J. Torkington	Pretender	22 7
W. Riley	Garibaldi	22 6
W. Riley	Go'-bye	22 1
B. Cheadle	Nelly, seedling.....	21 17
G. Beckitt	Lancashire Hero	21 6

GREEN CLASS.

J. Warburton	Surprise.....	25 6
E. Salsbury	Stockwell	23 15
F. Jameson	Diadem	23 5
F. Jameson	Plunder	23 0
G. Beckitt	British Oak	21 0
J. Warburton	Shiner	21 8
J. Boot	Telegraph	20 10
B. Bradley	Green London	19 17
C. Leicester	Seedling.....	19 10
S. Birchenall	Hospool.....	18 18
C. Leicester	Plumbley Lass.....	18 12
J. Threfall	Cheerful	18 10

WHITE CLASS.

G. Beckitt.....	Transparent.....	25 9
J. Boot	Antagonist	24 8
G. Beckitt	Fascination	22 18
R. Downs	Careless	22 6
F. Jameson	Marchioness	22 4
J. Warburton	Hero of the Nile	21 22
J. Salsbury	Postman	21 33
D. Bower	Princess Royal	20 15
F. Jameson	Snowdrop	20 12
A. Tomkinson.....	Faithful.....	20 10
J. Fisher	Succeed	19 11
J. Carter	Snowdrift	19 14

—CHARLES LEICESTER (Secretary), Nurseryman and Florist, Macclesfield.

ANEMONES.

HARDY spring flowers are favourites with most people, and in the spring they seem to have a special charm. The Anemone is a great favourite; the flowers also last a long time when cut. Like many more old-fashioned flowers there are named varieties, called florists' Anemones, and these as the foliage decays are lifted and kept in a dry place, being again planted in November. The beds should consist of good friable loam, with a little sand about the roots. Anemone fulgens has beautiful bright scarlet flowers with a dark centre, well adapted for clumps in the herbaceous border, on the margins of the shrubberies, in grassy nooks, and woodland walks. At Holme Lacy, Hereford, we had a beautiful variety, which I preferred to *A. fulgens*, but found it succeed best when the roots were lifted as the foliage decayed, and planted again in November. The double and single varieties have bright and varied colours.

In the cottage gardens around Hereford numbers of fine single and double self varieties of almost every colour are grown, and some have not been disturbed for years. I remember seeing a beautiful bed of the double scarlet variety in a cottager's garden. The occupier informed me that he lifted them up every year when the foliage had decayed. Seeds may be gathered from all the varieties, and may be sown in pans or in the open ground in spring. If sown in pans the plants should be kept growing as long as possible, as the foliage decays. Keep them dry, and plant them out singly in November. *A. apennina* is a very pretty little blue-flowered species, and the Wood Anemone (*A. nemorosa*) should not be despised.—A. Y.

IN THE BOGS.

It was with pleasure that we read in the Journal of the wild Orchids grown by the Marchioness of Huntly's gardener, and we can only hope that the example may be copied. Foreign lands in every latitude and longitude and at every altitude are ransacked for the plants they produce, while those of our own country are overlooked. To-day I gathered a bouquet of bog flowers of beauty no way inferior to those of numbers of plants imported at great expense.

The first and most conspicuous was the *Orehis maeuiata*, and this was growing not only in wonderful profusion, but in endless variety, from almost pure white to deep red-purple. Some were banded transversely, some longitudinally, the majority in both ways. Numbers were not banded at all, but simply speckled and spotted. Some had leaves deeply barred and blotched with black, and others, again, were nearly green. A dozen or two of the best of these I gathered and basketed in sphagnum moss. Interspersed with these are some of the greenish-tinted white *Orehis*, gathered from a damp bank. Though not very showy, this white scents our room when the shades of evening fall with an odour not surpassed by that of the most exquisite exotic. And darkening all are a few spikes of the velvety *O. pyramidalis*. It would be difficult to surpass that rustic basket with its sphagnum-lined, Sundew-carpeted, Orchid-stocked profusion of blended colours and odours.

Almost past now, but when in bloom one of the handsomest of flowers, "decked with frills and furbelows," and beautifully coloured with faintest pink on a snowy ground, is the Bog Bean, and on the banks near by grows the most lovely of British Forget-me-nots (*Myosotis palustris*). Bewildering in variety, with every change of position, are these Forget-me-nots; but no variety and no species in any position is so lovely in its tender blue as is the one whose home is in the bogs.

These are not glowing, glaring beauties; but, as if providing for all tastes, early in spring the wet marshes seem almost as if on fire by their display of Marsh Marigold. Even now the moss beneath the feet seems tinted with the dull red of smouldering embers, but it is only a profusion of that little plant with a history—the *Drosera rotundifolia*. Near by, where a bank of mud has been deposited by the mountain stream that just now sings dreamily in the hot sunlight, when overfed with pouring rains and melted snow on the heights above, another neat little "Beef-eater" swings its Violet-looking flowers in the June air—the Butterwort (*Pinguicula vulgaris*).

Here in the dry trench dug to drain the bog, are patches of the Ivy-leaved *Ranunculus*; and near by, in the stream, is its near relation, the aquatic *Ranunculus*, forming "trout beds." And here, where earlier the Bluebell or wild Hyacinth tried to make amends for the fading glory of the Wood Anemone, and where the towering Foxglove rears his head are now indescribable myriads of graceful Grasses and wild Ferns, forming a garden, wild and unkempt it is true, but yielding a soothing influence that hard-drawn lines, hard-cut lawns, formal shrubs, and foreign flowers crammed in masses, banish. We might speak of the handsome Heaths and shining Stitchworts, the Bluebells, Queen of the Meadows, Valerians, numerous Woodruffs, Golden Saxifragas, and hundreds beside, but that would only be a matter of multiplication. By the wayside, the hillside, the side of the brook, in the pools and in the bogs of our own land are growing beauties that have too long blushed unseen; but the time is coming soon, as we hope, when many of the now neglected British plants shall find a place in cultivated gardens.—S. H.

MECONOPSIS WALLICHII (THE BLUE POPPY).

THIS handsome *Meconopsis* is remarkable as being one of the very few plants, if not the only one, of the order with blue flowers. It was discovered in the Sikkim Himalaya by Dr. J. D. Hooker, who sent seeds to the Royal Gardens, which produced flowering plants in June, 1852. The plant attains the height of 2½ to 3 feet, and is everywhere of a pale glaucous green, covered with long reddish bristle-like hairs. The root-leaves are very large, often 12 to 18 inches or more long, stalked, and much lobed and cut. The stem-leaves are small and without stalks. The flowers are rather numerous produced from the axils of the upper

stem-leaves, on short drooping peduncles, and are of some size; the ring of yellow stamens round the seed vessel contrasts charmingly with the blue colour of the petals. The seed vessel is more elongated than in the true Poppies, and is densely clothed with erect bristle-like hairs or setæ; the stigmas are elevated on a thick cylindrical style as long as the ovary, as shown in our figure.

In *Meconopsis Wallichii* and the other species of this genus the capsule opens when ripe by six or seven valves at the top of the style, which appears to be rather a mere elongation of the ovary than what is generally understood to be a true style. The numerous seeds are arranged on thin membranaceous plates, radiating from the inner walls of the capsule.

It is regrettable that this beautiful plant has been found so difficult of culture in England, and if it could be obtained in similar proportions to some shown in one of Miss North's admirable paintings at Kew it would be a grand ornament for our gardens.

A LONDON GARDEN.

"PLANTS and flowers will not flourish in London" has almost become an established fallacy, and would have been entirely so had it not been for the splendid examples of flower gardening in the parks and the most beautiful window boxes in the kingdom that may be seen every day in the summer in some of the prominent thoroughfares in the metropolis, where the affluent locate themselves during the butterfly season.

There are also some attractive gardens in London, necessarily not



Fig. 27.—*Meconopsis Wallichii*.

large, yet undeniably enjoyable, and most creditable to the owners and their gardeners. One of the best of these undoubtedly—if not, so far as regards keeping, the very best—is the enclosure at Alpha House, the residence of Captain A. L. Patton. This is a true town garden, as it is within rifle-shot of Baker Street station on the Metropolitan Railway, and it may be said without fear of contradiction that there are few gardens, even in the country, more variedly attractive, enjoyable, and more admirably kept. The lawns and walks are as perfect as they can be, the herbaceous border richly furnished, the flower beds bright, the Grapes excellent, and not a weed can be found in the enclosure.

The enclosure is an oblong of about 2 acres, the central portion lawn with splendid Weeping Ash and a few other deciduous trees; the side borders, of a length of from 200 to 300 yards, and from 10 to 30 feet wide, being occupied with herbaceous plants, brightened with summer flowers, and margined with Golden Feather. The end, an oblong of some 60 by 20 yards, is a bulb garden, and how many thousands of bulbs are planted there he would be a bold man to estimate. The beauty of these are, of course, over, the only flowers being a bright residue of a splendid named collection of English and Spanish Irises; but flowers can be cut from the mixed border in basketfuls, and it is quite certain that plants well managed will thrive in London.

Shrubs are also planted in the border for effect in winter; but there are only four or five kinds that succeed the best in towns—namely, Aucubas, Rhododendrons, Hollies (mostly variegated), Rhododendrons, and Variegated Box, with a few of the pretty green upright-growing Hands-

worth variety. All these grow well, and may be regarded as the best shrubs for smoky districts.

Flowers are too numerous to enumerate, but Carnations are prominent, the leading named varieties in pots, and Cloves and free-growing sorts in the borders. These must rank among the very best of town plants, and are as fresh and fine as in the country. Foxgloves thrive well in towns, and their stately spikes are most effective earlier in the season in the background. Helianthus appear to luxuriate, as do Pyrethrums, Potentillas, Japanese Anemones, Sweet Williams, Campauulas, Michaelmas Daisies, Enotheras, summer and autumn Chrysanthemums, Verbascums, Clematises, Fuukias, Pentstemons, Achilleas, and Spiræas, *S. lobata* being very beautiful. Robust and brilliant, too, is *Lobelia cardinalis ignea*, showing that these effective herbaceous Lobelias are well adapted for town decoration. Grown for affording elegant foliage for cutting as a substitute for Adiantums are *Thalictrums*, *T. adiantoides* being worth growing everywhere for this purpose; and also most elegant and valuable for vases are the slender sprays of *Gypsophila paniculata*. Stocks and Asters succeed well in towns, but not better than *Phlox Drummondii*, of which, from Veitch's seed, there are some splendid varieties. Nearly all kinds of annuals succeed—Sweet Peas, *Eschscholtzias*, Candytuft, and Mignonette being particularly fine, the latter, indeed, extraordinarily vigorous. Beautiful in this border are Fuchsias, bushes and standards. Old plants were kept as dry and cool as possible in winter, and were planted in late spring or early summer just when commencing growth. It is not often Fuchsias under glass are seen growing so sturdily and flowering so freely as these are, and plants might with advantage be similarly treated in other gardens. They may be wintered in any dark or light place from which frost is excluded. *Aralia elata*, a noble and stately species, is very handsome by its robust growth and grand spreading leaves. It was obtained from the Continent, and is distinctly ornamental.

All the above flowers show to advantage by the ample relief afforded by the comparatively great extent of smooth lawns. The greater part of these were obtained by sowing seeds, and the advantages of thick sowing are apparent. On one portion the seed was sown of twice the thickness recommended by Messrs. Carter, who supplied it; and on this portion the lawn in six weeks was excellent, and in seven resembled old turf. The seed was sown in April. The other portion, sown thinner, was some weeks longer in forming a close surface, but both portions are in the best possible condition now.

There is but little glass, but what there is is well utilised. As before remarked, the Grapes are excellent; the berries of the first size and quality, but imperfect in colour. Of Lilliums there is a great collection, these plants being fine for towns. In frames are massive Cockseombs, the Scotch variety (McLachlan's) and Young's variety; the former is the brighter, but the latter is very close and compact. It has been grown by Capt. Patton's gardener for forty years, and ought not to be lost. In another frame is the finest stock of young plants probably to be found in the country of *Lisianthus Russellianus*, and some small plants are flowering. Mr. Young is an adept at growing this plant, which so few persons seem to manage well. He has small plants flowering, but has grown specimens bearing upwards of 500 Tulip-shaped purple blooms, and they were grand, such as have probably never been surpassed, if equalled. He is undoubtedly a first-rate cultivator, and the garden in his charge is a credit to him, both his employer and himself having good reason to be proud of it, and they have certainly shown in the most conclusive manner that plants and flowers *can* be grown in London.—INSPECTOR.

CULTURAL NOTES ON ORCHIDS.

Rooting Material.—Kentish peat, brown, fibrous, and lasting, with healthy-growing sphagnum moss, surpasses every other material I have seen or tried; but unfortunately we do not all live in the midst of Kentish peat, and when we order it we are not sure of securing the real article. Half peat and half moss, with a liberal admixture of charcoal nodules, form a compost which the great majority of Orchids will grow in. One of the best substitutes for brown peat is the roots of our strong-growing native Ferns. This material is practically peat. When I first employed it some eight years ago the roots were pulled in pieces by the hand; I now chop it into pieces. It is also necessary to employ more sphagnum with this than Kentish peat. Coarse turf from heathy soil is very commonly used, but it is greatly inferior to either of the above materials, as it is wanting in those lasting properties so necessary for Orchid culture. I have seen plants do well in ordinary black peat and sphagnum, but in this instance they were very large, and were carefully watered by a skilful cultivator. For *Vandas*, *Acrides*, *Saccolabiums*, and *Phalænopsids* I use only sphagnum and charcoal. Then there are kinds like the winter-flowering *Calanthes*, which thrive in ordinary turfy loam; but these and others which succeed in loam may be satisfactorily grown in a peat and sphagnum compost. I have seen very grand examples of *Calanthe Veitchii* growing amongst charcoal and corks alone. Plenty of water and a Pine-stove temperature were the main factors of success. Many sorts do best on blocks, while a large number which are grown in pots or baskets grow equally well on these. The best kind of "blocking" material is Fern stems, and the best kind of Fern stem is found in our own woods. The stems in these are covered with a thick matting of fibrous roots, which may be shaved off as closely, or left as rough, as the cultivator considers best.

Mode of Potting.—Much depends on the way an Orchid is potted. In mixed collections of limited extent we occasionally find examples of

such bad potting that none of the other conditions necessary to the plants thriving have any good effect, through the potting being so badly done. I have tried experiments with several kinds of Orchids as to whether any difference would follow from the mode of potting. As examples, *Lycaste Skinneri* and *Odontoglossum grande* may be named as having been tried potted like ordinary plants. The surface of the soil was kept slightly convex, but everything was beneath the level of the rim of the pots, at the edges half an inch or more. They succeeded very well thus, but not so well as when kept well above the rim, and for most kinds that is the best plan. The usual mode of potting is to fill the pot to within an inch or two of the rim with drainage, then place a layer of the potting material, and on that the roots of the plants. I find it a great mistake to bury any surface roots. It is much the better plan to keep these out of the ordinary potting material altogether, and work them in amongst the living sphagnum moss, which forms a top layer. It may be noted as a safe plan to keep any young growths just clear of the compost; if the moss touches the base of the growths that is sufficient. A better root-growth will be made when the young growths are clear of the compost than when they touch it, or, worse still, are covered in some degree with it. I like to make the compost firm. If a plant when being repotted shows signs of being unsteady when moved it should be staked at once. Two stakes put down the sides of the pot opposite to each other is the best way of securing the plant. Of course more stakes may be necessary, and when they are they must be given. Plants put on Fern stems must also be made quite steady. This may either be done by tying with wires, or in the case with strong-bulbed plants by staking with stout galvanised wire. One end of the wire is pushed into the Fern stem, and the pseudo-bulb is tied firmly to the wire.

Time to Repot.—A simple and good rule is to repot when root-action commences, no matter whether that time is spring, summer, or early autumn. If the roots lay hold of the compost as soon as potting is over there is slight danger of anything going wrong if ordinary care is taken. In the case of *Odontoglossum Alexandrae*, plants of which are coming into flower at all seasons, it will be necessary to pot at the different times fresh root-action commences with the various plants. This fact may be pointed out to beginners, that this Orchid and very many others have two periods of root-growth in one season—one when fresh roots are protruded from young growths, and another later, a set of roots being formed about the time the flower spike commences to elongate. The time to repot is when the first set of roots are made. A surfacing of fresh moss is sometimes advantageous at the time of the second root. It is quite possible to repot too often. Small plants doubtless require to be shifted annually—that is, if they require more root room, as most small plants do; but good-sized established plants, so long as they continue in vigorous health, are better without potting. In the case of *Vandas* the old sphagnum requires removing and the drainage washed clean with tepid water, but in doing that there is no occasion to interfere with the roots.

Watering.—This is a matter of very great importance. I find among young men very hazy ideas on the subject. Some of them will water plants until serious mischief is apparent, or, on the other hand, will dry them up, and on scientific principles too. Common sense and experience, however, point out the necessity of watering Orchids much like other plants. If a plant is newly potted it will be safe to err rather in allowing the compost to become overdry than to water too often. On the other hand, a plant well established in a pot, and roots filling every particle of available space, dryness will be just as dangerous. Liquid manure is advantageous to root-bound Orchids.

Insects.—Orchids suffer extremely from these. A *Cattleya Skinneri* and a *Lælia* fell into bad condition with us, and it was only on a close examination that the cause was found to be a minute scale, which, hiding underneath the loose upper skin, had almost killed the plants. Green fly on some young *Odontoglossums* has been very troublesome this year. A simple mode of getting rid of any intruder is to remove it at once with the finger and thumb. I do not know any better means of destroying slugs than to search for them at night and morning and on wet days.

Various Remarks.—Orchids seem to like an early start; a long season of growth, in which term is included the period of ripening, which is, perhaps, of more importance than many think it to be; and a definite period of resting. The matters of air-giving, shading, and damping are questions of locality. With new hothouses our own practice has materially altered. Far less ventilation is required, more shade, and also more moisture, though in that, again, it may be explained that very often damping is only performed in the evening, and never oftener than twice a day.—B.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

No. 6.

NOT a few of our cultivated plants have to endure the visitations of a variety of insects all through their season of growth, so that the gardener has hardly had time to congratulate himself upon the removal of one enemy before he has to be upon his guard against the attacks of another. Thus Peas and Beans, after having their young leaves nipped by beetles of the genus *Sitona*, when they have arrived at full foliage and are coming into flower become the abiding place of swarms of aphides. It is a common remark amongst growers that the Pea suffers from the green fly, and the Bean from the black

kind; but it has been observed in several districts that a largish green species of aphid, the same as the Pea species, or perhaps a near relative to that and to the Rose aphid, occasionally infests Beans. Of all the varieties of Bean the Broad Bean suffers most, and, both in fields and gardens, the plants are during some seasons so severely attacked (should the first appearance of the insects have been unnoticed) that it is needful to pull them up ere they are turned into a festering mass, with scarcely a sound shoot or leaf discoverable. Dry summers are believed to be particularly conducive to the multiplication of the Bean aphid, and to an extent it is the case with all varieties of the fly. Rains, especially if heavy, wash them off the plants, to which many of them cannot afterwards return.

The Bean aphid, *A. Rumicis*, also called the "Collier" or Black Dolphin, often swarms upon the Curled Doek—hence its Latin name—and upon Thistles. As Beans cannot, like other plants or trees that are infested with aphides, furnish a suitable place for the eggs of the species to winter, it is plain these creatures must arrive upon the plants in the early summer. Wingless females of *A. Rumicis* have also been observed clustering upon Furze about April or May; and the foundation of the colonies that try to smother our Beans is laid by winged females, descended from these, I believe, though it may occasionally happen some wingless aphides are carried by the winds and effect the same end. Now and then the plants escape attack until July, only to suffer more severely if left to themselves. When they are in "full play" we see upon the Beans a mixed multitude, made up of the greyish young, the black wingless females, and other females also black, but with yellowish-brown wings. Towards the end of the season there appears a sprinkling of male flies, winged, and slimmer in the body than their female companions.

Since the first indication of an attack of the fly is shown by the drooping of the tops, a good remedy is the prompt cutting-off these, which must be at once destroyed with the insects on them. Later on a dry dressing—say of soot—is sometimes used, but most gardeners prefer to drench the Beans with some one of the numerous solutions recommended and approved for killing aphides. Miss Ormerod advises the application of a little liquid manure wherever an irruption of the "Collier" is imminent, because strong-growing Beans suffer much less from them than stunted feeble plants. One of the correspondents of the Journal advocates mixed cropping in fields, as is often done in gardens, his experience being that when Beans and Peas are drilled together, if one plant is attacked by the fly the other generally escapes.

With the Pea it is seldom of advantage to cut away the tops, although in this case, as in that of the Bean, the aphides quarter themselves amongst these at first; and if it happens to be just at the period of flowering, neither syringing nor any other method can be relied upon to save the crop. What one might designate the middle-flowering Peas receive most damage from the fly. Early kinds may in a good season have advanced beyond this stage before the aphides arrive, and late kinds have been noticed to be seldom affected. Several species of "green fly" may visit the Pea, that which is believed to be its particular foe is *A. ulmaria*, the "Green Dolphin" of some, which to the unassisted eye looks similar to those attacking the Rose or Hop, and in habit is kindred to them. Some have recommended the application of quassia water to Peas troubled by this "fly," but others prefer compounds of soft soap and tobacco. Whatever applications are selected it is inevitable that they should kill both our friends and foes. This cannot be helped, but all encouragement possible should be given to the various insects which make aphides their prey. Our Peas in the summer months will be found to have "ladybirds upon them. These insects, the *Coecinellæ*, are great devourers of "flies," firstly while they are in the grub or larval state, and then as mature beetles. About May *Hemerobius perla*, a pretty fly, with golden green eyes and netted wings, settles upon the Peas to deposit its eggs, and the larvæ subsequently hatched help to thin out the aphides. Many of the "Colliers," or black flies upon Beans, may be seen to have a tiny hole in their bodies; from these has emerged a small ichneumon fly, which makes their plump carcasses the abiding place of its eggs, and the maggot dwells within until ready to appear as a winged insect.

In addition to those beetles of the genus *Bruchus* that destroy Peas while in the pod, the plant is liable to the attacks of the caterpillar of a small moth which has been called the Pea Moth, or *Grapholitha pisana*. The expansion of the wings is about half an inch; these are shiny, of a greyish brown, with white streaks along the upper edge, and near the hind margin of the fore wings is a silvery ring enclosing some black lines. When full fed the maggots quit the pods and descend to the earth, upon which, or just beneath, they form silken cocoons, from which the moths issue in June, perhaps earlier if the season is forward. Some continental entomologists have watched these moths in the act of egg-laying. They enter upon this work after sunset, one to three eggs being put upon each young pod visited by the moths. A portion of them might be easily captured by a small gauze net used with a lantern; and it has been suggested that

the Peas might be sprinkled with an insect-deterrent, dry or wet, so as to repel the moths just at the time when they are led by instinct to the deposition of eggs upon the Pea bloom. The maggot, which we not unfrequently eat without intention, is rather stout, slightly hairy; head brown or black, and body yellowish, having a few brown dots. I fancy this species seldom visits field Peas, in most districts seeming to prefer those under cultivation within gardens, where, the crop being gathered green, excepting the pods left for seed, only a few of the caterpillars can live to become moths. Turning up the soil well during winter brings to the surface many of the grubs, and it is probable they will then be eaten by birds. Of course to sow the crop each year on new ground is advantageous, because the moths that may emerge will not have the Peas handy to them.

Although we propose to give the full history of the troublesome grub of the *Tipulæ* in connection with other plants, it may be fittingly mentioned here that they will sometimes seriously injure Peas and Beans. As a specimen of what they can do I note that in November, 1879, a gentleman resident at Maldon, Essex, sowed about twenty acres of Peas for early podding, which went on very well till April. In that month a number were killed and all weakened by a severe visitation of a *Tipula*, presumably *T. olivacea*. The grubs gnawed round the young stem just below the surface, four often occurring at a single plant. And to add one more foe, both vegetables are liable to be attacked by millipedes in autumn or spring, which eat the seeds while they are germinating.—ENTOMOLOGIST.

THE CHRYSANTHEMUM.

[A paper read before the Sheffield Floral and Horticultural Society, June 6th, 1883, by Mr. J. Udale, gardener to J. Watson, Esq., Shirecliffe Hall, Sheffield.]

(Concluded from page 101.)

SPECIMEN BLOOMS.

THE plants to produce these should be potted in the same way as detailed for specimen plants; but they should not be pinched more than once, after which they should be encouraged to make solid and sturdy growth, leaving as many shoots as the number of blooms required. Some varieties can only develop two or three first-class blooms: others may be able to bring four, five, or six to perfection. Therefore in this matter it is not possible, nor would it be judicious, to lay down a hard-and-fast rule, so much does it depend upon the varieties and the strength of the individual plants; but a safe average is from three to five, although I have occasionally cut good exhibition blooms from plants carrying considerably more than that number.

Assuming, then, that the plants have been potted as required and placed out of doors at the end of May, they will make rapid progress through the months of June and July, when we arrive at the critical time of bud-formation. Some varieties will produce buds about the end of July; but these as a rule are worthless, and when attended by a ligulate leaf are termed "strap" buds. Occasionally a first-class flower is obtained, but it is the safest plan to allow the three shoots at its base to grow, and these will produce well-formed flowers. It is a good plan to stop them or shorten them back in the month of June, provided they have not been pinched previously. As soon as the centre bud is well formed those around it should be carefully removed, along with all incipient and lateral growths, so that the whole strength of the plant may be concentrated in developing and perfecting the buds that remain. Watering must be carefully attended to and liquid manure administered three or four times a week. Look carefully after caterpillars, aphides, and leaf-borers, or the season's labour will be partly or entirely lost. Nor must vigilance be relaxed after the plants are placed in their winter quarters at the beginning of October. A light and well-ventilated structure heated by hot water is the best place for them, with a temperature between 40° and 50°, the flowers being brighter and the petals finer if expanded in a warm and buoyant atmosphere. Should it be necessary to cut flowers that are required for exhibition some time previously, they may be kept in a dark cellar until required. They keep very well for six or seven days.

PLANTING OUT.

This effects a great saving of time and labour, and where extra fine blooms and specimen plants are not required it may be practised with advantage. In such cases it is a good plan to excavate trenches, as for late Celery, fork in some well-decayed manure, then spread 2 or 3 inches of the surface soil on the top. Plant the Chrysanthemums about 20 inches apart and give them a thorough watering. An occasional drenching in hot dry weather is all the watering they will require. The points of the shoots should be pinched out to keep them bushy, as in the case of those grown in pots. Ten days or a fortnight before it is desired to lift them for placing into pots or boxes it is advisable to run a sharp spade down each side of the plants at distances from the stem according to the size of the pots, &c. They will then bear transplanting with a smaller sacrifice of foliage. A dewing with the syringe or watering pot several times a day will be beneficial until the roots have taken to the new soil, after which time it may be discontinued. Useful plants and cut flowers may be grown in this way with little trouble, and should cut flowers only be required valuable space may be saved by planting them moderately closely together in deep brick pits, such as are sometimes used for Pine-growing.

INSECTS.

Chrysanthemums are frequently infested by aphides, caterpillars, and leaf-mining insects, which latter is the pupæ of a fly called *Phytomyza nigricornis*. This little pest eats the interior green portion of the leaves, thus not only disfiguring but actually eating away the very life of the plant. This insect in embryo should be carefully watched for and crushed between finger and thumb; but should it get a firm foothold before it is observed

the safest and most certain cure is to remove the infested leaves and burn them.

Caterpillars can only be kept in check by careful hand-picking. The large green-and-yellow ones quickly denude a shoot of its most healthy foliage, and are very partial to a fine plump exhibition bloom when expanding, completely disfiguring it in a night. The small brown caterpillar, if not equally voracious, is certainly quite as injurious—getting into the points of the shoots as soon as the buds are formed, and either destroying them entirely or taking a portion of the bud, and so spoiling the whole. Tobacco powder is distasteful to them, but I have not observed that it has killed them, and the only effective remedy I have yet found is to catch them by hand. Green fly is more easily dealt with, and may be kept entirely in check when the plants are under glass by means of fumigation, but when they are out of doors other preventives and remedies must be used. Frequent syringings with soapsuds is very beneficial, and soft soap dissolved in rain water at the rate of 2 ozs. to the gallon will effectually destroy them. Tobacco powder is an efficient remedy when the former is not practicable. This should be applied to the parts infested whilst the shoots are wet, so that it may adhere more readily.

MILDEW.

This is very troublesome at times, and in bad cases almost deprives the plants of foliage, and as it spreads very rapidly under certain atmospheric conditions flowers of sulphur should be applied on its first appearance; but as it is invariably developed on the under side of the leaves there is some difficulty in applying the sulphur in its dry form. Therefore a weak solution of soft soap and sulphur is recommended, which may be applied by means of the syringe. If only a few leaves are affected it may be entirely destroyed by sponging them with the soap-and-sulphur solution. Sulphur dusted on the hot-water pipes after the Chrysanthemums are housed is of great service in preventing mildew or holding it in check, but it should not be allowed to remain on the pipes (if they are likely to become very much heated) till the flowers expand, or their colour is liable to be affected.

VARIETIES.

The best thirty-six varieties of Chrysanthemums for exhibition as cut blooms, arranged alphabetically, are Angelina, Alfred Salter, Barbara, Beverley, Bronze Jardin des Plantes, Beauty, Cherub, Emily Dale, Empress of India, Golden Empress of India, Golden Queen of England, Hero of Stoke Newington, Inner Temple, Isabella Bott, Jardin des Plantes, John Salter, Le Grand, Lady Harding, Lord Wolseley, Mr. Bunn, Mr. Brunlees, Mr. Corbay, Mr. George Glenny, Mrs. Dixon, Mrs. G. Rundle, Mrs. Heale, Nil Desperandum, Novelty, Prince Alfred, Prince of Wales, Princess Beatrice, Princess of Wales, Princess Teck, Refulgence, Venus, and White Venus.

Twenty-four good Japanese are Agrément de la Nature, Bismarck, Bouquet Fait, Baronne de Prailly, Bronze Dragon, Comte de Germany, Curiosity, Comtesse de Beauregard, Dr. Masters, Elaine, Ethel, Fair Maid of Guernsey, Fulgore, Garnet, Gloire de Toulouse, James Salter, La Charmeuse, Lady Selborne, La Nympe, Madame Andignier, Magnum Bonum, Mons. Ardene, Peter the Great, and The Cossack.

Eighteen good Pompons are Aigle d'Or, Brunette, Champs Elysees, Ernest Benary, Cedo Nulli, Lilac Cedo Nulli, Madame de Vetry, Mdle. Marthe, Marabout, Pablo, Polycarp, Princess Mathilde, Proserpine, Rose Trevenna, St. Justia, St. Michael, Salomon, and Snowdrop.

Twelve good Anemone-flowered are Bijou, Fair Margaret, Fleur de Marie, Georges Sands, Gluck, Lady Margaret, L'Africaine, Miss Eyre, Mrs. Pethers, Prince of Anemones, Princess Louise, Princess Marguerite, and Virginal.

The foregoing lists may be considerably lengthened or altered according to tastes and opinions. I have only made a selection. I have not attempted to name all the varieties enumerated or said to be good in catalogues, but have mentioned such varieties as I know to be of sterling merit. Much more might be written and said upon the genus Chrysanthemum, as the subject is a comprehensive one, and I have endeavoured to cover as great an area as would be consistent with a general review and history of some of the species. In conclusion I may say that, as in most other things, there is no royal road to the successful culture of the Chrysanthemum; but there are at least three things essential—First, a liking for the flower; second, an object aimed at; and, third, steadfast purpose to attain it. Given those three things, a fourth point—viz., attention to details, will follow in natural sequence.



KITCHEN GARDEN.

Lifting Potatoes.—Second early and midseason Potatoes are now full grown and fast gaining maturity, and lifting them from the ground should be no longer delayed. So far we have been remarkably free from disease, and the crop is much above an average one in quantity and quality. Much, however, depends on how they are harvested, and this should have the best of attention. No greater mistake could be made than lifting the tubers when the soil is pasty and wet, as they do not come out of it clean when in this condition, and they are a long time in drying, which is all against their long and successful keeping. We always allow at least two fine days to occur before attempting to lift any quantity of them, and then the soil falls away from them and leaves them clean and dry. They should be taken up in the early part of the day, and should be allowed to remain on the ground until the evening,

when they may be placed under cover. It is in collecting them from the ground that they can be most easily sorted into their sizes, and this we always do by selecting the large tubers first and housing them for eating, then the second-sized tubers are collected for seed, and the very small tubers are gathered for pig-feeding. A dark airy shed is the best place in which to store the largest tubers, and the seed Potatoes may be kept anywhere, as light does them no harm, but the "greening" process to which many are subjected is treatment we do not approve of to any extent. This consists in allowing the seed tubers to remain out in the open and on the ground until they are quite green or almost black, and then they are thought to be hardier for wintering and planting again; we have known great quantities of fine Potatoes spoiled through doing this, as strong sunshine blisters and softens them, and then they will not keep.

Autumn Turnips.—These are now growing fast, and they must have timely attention in thinning. From the time the first four rough leaves are formed they should never touch each other. Our latest batch has just been thinned to 3 inches apart; in a week or so they will be thinned again to 6 inches, and finally to 1 foot apart, and after each thinning the hoe should be run between the rows.

Winter Radishes.—A large patch of these should now be sown. The best variety for winter use is the China Rose. We always have this variety in fine condition from October until April, and we do not grow any other. The seed may be sown after any Potato, Pea, Bean or other crop. The rows should be 1 foot apart. Sow thinly, and thin out the plants when large enough to 3 inches apart.

Runner Beans.—These are now in full bearing, and where the produce exceeds the demand the pods should be gathered when about half grown and salted in jars for the winter. We annually about this time preserve some bushels of them, and find them most acceptable during the winter. The process of salting is quite simple, and is done by placing layer after layer of the Beans or pods in the earthenware jars with a little salt on each layer until the jar is full, when it is corked and made airtight.

Endive and Lettuce.—More seed of those may be sown, and any plants large enough for handling should be planted in their bearing quarters. As they may have some backward weather to contend with in late autumn and winter their position should be a sunny one, such as that afforded on a south border. The rows should be 1 foot or so apart, and the plants 8 or 10 inches asunder.

Celery.—Many of these plants require earthing up, and for the next month or more the best of attention must be paid to the crop. Good Celery is always appreciated in winter, and no labour should be spared which will produce it. The best plants can easily be spoiled through careless or negligent earthing, the main point being to prevent the slightest particle of the soil from finding its way into the centre of the plants. This, however, will seldom occur if one person holds the plants while another banks up the soil; or a piece of matting tied firmly round each until earthing is finished answers the same purpose.

FRUIT-FORCING.

FIGS.—Early-forced Trees in Pots.—When these have been cleared of the second crop of fruit the foliage should be thoroughly cleansed from red spider and dust by the free use of the garden engine. A soaking of tepid liquid manure may be given to the roots, and if the roots at the surface become exposed a little short manure may be laid on them as protection. After destroying all insects, which must be effected, if necessary, by the use of an insecticide, a rather dry warm atmosphere with free ventilation is best calculated to effect the complete maturation of the wood intended to produce fruit next season. Fig trees in this stage are benefited by a reasonable amount of heat, and with this the young shoots may be allowed to make growth whilst the glass is over the trees, but when the foliage shows signs of going to rest the roof lights should be removed.

Planted-out Trees.—Where Fig trees are planted out for filling large houses the roots should be restricted and the borders thoroughly drained. Surface or stem roots should be encouraged by surface mulching, as the best results are obtained when the trees root into rough moist calcareous matter, as that of old wall rubbish kept well supplied with liquid manure through the growing season; but though the Fig is a gross feeder and will take large supplies of water, a water-logged sour soil is even more fatal to the crop than the want of water, as in the latter case the roots may be abundant in materials that are not very dry.

STRAWBERRIES IN POTS.—All plants that are potted and are growing fast must be well supplied with water, keeping them free from runners and weeds, and the plants should be thinned out if they are at all crowded, it being important to accord the foliage room for development with full exposure to light and air, and do not change the position of the plants, but keep the same side to the sun throughout the season. If worms are troublesome dislodge them with lime water, free the drainage if it has become clogged, and stand the pots on slates or boards.

Unpotted Plants.—From observations extending over many years we have invariably found the plants that are moved into their fruiting pots early in August are the best fruiters, doing better than those transferred to those pots a fortnight or three weeks earlier, as, from making and ripening an early growth, they are often influenced by a warm and moist autumn to start into second growth, which, if not fatal to a good show of fruit after being introduced to heat, is more or less wasteful of the energies of the plant and disastrous to the ensuing crop. All plants should be transferred to their fruiting pots with as little further delay as possible, but any weakly plants should be left attached to the

parents until they are well rooted, when they should be potted, and every possible encouragement given them. In potting, the size of the pots should be proportioned to the condition of the plants, strong plants requiring more root space than those that are only moderately vigorous.

Autumn Fruiterers.—Plants that have been retained for autumn fruiting should be taken to a warm sheltered situation, encouraging a fruiting condition as the requirements demand. Any that have the fruit set and swelling should be encouraged with liquid manure, and when the fruit gives indications of colouring it will be greatly improved in flavour if the plants can be accommodated in a light airy position in a cool house, being careful to exclude birds by netting over the apertures. Later batches of plants should be still kept in cool quarters, so as to continue the succession, transferring them at intervals to warm sheltered situations preparatory to accommodating them under glass when the cold autumn rains set in.

PLANT HOUSES.

Roman Hyacinths.—Where these are appreciated as early in the season as it is possible to obtain them, no time should be lost in having a number potted. For purposes of decoration five bulbs placed in 5-inch pots are the most useful for the majority of purposes. In addition to these, where baskets and vases of various shapes have to be filled with plants, it is a good plan to place a number thickly together in pans or boxes, and then lift them out as they are required. The pots should not be overcrooked for these bulbs, one fair-sized piece placed at the bottom being ample. The soil should be light yet rich, and nothing being better than a mixture of old potting soil, good loam, leaf soil, and a little coarse sand. In potting place a little dry cow manure over the crocks, and just leave the top of the bulbs above the soil. After potting place them outside and cover them with 3 or 4 inches of ashes.

For succession pot another batch in about three weeks, and in a few weeks afterwards the main stock can be potted. These, after they are taken out of the ashes, can be forwarded or retarded at will. The last batch should be potted late in October, and will be found most valuable, as no Hyacinths are so useful to supply flowers for cutting.

Large-flowering Hyacinths for Early Forcing.—Two of the earliest are La Tour d'Auvergne, double white, and Homerus, single red. The former is about three days earlier than the latter, and is one of the most valuable that can be grown. It produces a good spike and large double pure white bells, which are useful for bouquet and buttonholes. The last-named is only valuable on account of its earliness and of the useful side shoots, which are generally and freely produced. For general purposes it is not one of the best, because its colour fades very soon after the flowers are fully expanded. There is no difficulty in having these two Hyacinths in full bloom before Christmas without hard forcing if the bulbs are obtained as early as possible. The remarks given about potting Roman Hyacinths apply with equal force to these.

Narcissi.—Where these are appreciated pot them without delay, placing five or six bulbs into a 6-inch pot, and treat them as advised for Hyacinths. Paper White and double Roman are both very useful for early flowering, and will with little trouble yield abundance of flowers. The single flowers are valuable when wired for bouquets. It is generally believed that the Paper White is the earliest of all Narcissus, but the double Roman is fully ten days earlier. These can be succeeded by States General and Newton, the best of the yellows, and then Grand Monarque and Grand Primo will follow.

Early Single Tulips.—Where these are in demand as early as they can be produced they should be potted as soon as they can be obtained, which is in most instances towards the end of this month. The varieties of Duc Van Thol are the earliest, and the scarlet one is much superior to any other; it is sweet, a good flower, and the earliest of all. A few of the yellow and white may be potted for early forcing, but they are poor in comparison with the scarlet. Canary Bird, yellow, and White Pottebakker are two of the best that can be grown to succeed the few yellow and white Duc Van Thols used for early forcing. The flowers of the two last named are grand for bouquets when about half expanded. Four bulbs of these should be placed in a 4-inch pot when used for early work. A good plan, and by far the most preferable where these are required for decorative purposes in dwelling rooms, is to place the bulbs in pans or boxes and then lift them when forced into flower, and make up pots according to the size required. Early in the season these bulbs often flower irregularly, and it is difficult to obtain creditable pots of Tulips without this system is adopted. It should not be carried out when the season has fairly well advanced.

Lilium candidum.—This is the most useful and beautiful of all Lilies for cultivation in pots to flower in the spring. A good batch should now be obtained and placed in 6-inch pots without delay. Good loam, a seventh of manure, and sand will suit them well. After potting stand them outside, and in a very short time they will commence producing foliage and roots. They can stand outside until the approach of cold nights, when they should have a temperature of 45° to 50° at night.

THE FLOWER GARDEN AND PLEASURE GROUND.

Sowing Annuals for Flowering in Spring.—There are several kinds of hardy annuals available for growing in the flower garden in spring, and which, grouped in conjunction with a few perennials, are really more pleasing than the summer occupants of the beds. The time for sowing depends upon the position, some gardens being fully a fortnight earlier than others in the same locality. As a rule sowing is deferred too long, and the seedlings resulting are not sufficiently strong to stand through a severe winter. The first to be sown are the white and rose forms of *Silene pendula compacta*, which in late districts or

gardens ought already to be growing. Those, therefore, who have not sown ought to sow in handlights or boxes and cover with glass, taking care to harden and prick out before the seedlings become drawn and weakly. *Eschscholtzia* in variety should be similarly treated, or they will be too late to be serviceable. About the middle of this month sow *Saponaria calabrica* and the white variety, also the white, crimson, and purple Candytufts, *Gypsophila elegans*, and *Alyssum maritimum*. At the end of this month Venus's Looking-glass, *Nemophila insignis*, *Limnanthes Douglassii*, *Lasthenia californica*, *Collinsia bicolor*, *Calandrinia speciosa* and *umbellata* should also be sown. A light soil is necessary, and an open yet sheltered spot should be selected. Sow thinly in shallow drills drawn about 10 inches apart. To check the ravages of slugs dust the plants with soot and slaked lime when the dew is on them.

Sweet Williams, Wallflowers, and Myosotis.—Seedlings and rooted cuttings of these should be pricked off or hedged out before they become crowded. All are serviceable and effective when grown on sheltered borders, more especially for providing flowers for cutting, and in these positions they are much more hardy than when disposed in the flower beds. A light rich soil best suits them, and they may be pricked out in rows 6 inches apart and about 6 inches asunder, every other row and every other plant in the reserved rows being eventually lifted with a trowel and replanted in the flower garden.

East Lothian and Brompton Stocks and double German Wallflowers may be pricked out in a manner similar to the preceding. In the case of the former, half of the stock may well be potted during September, or planted out in frames or warm well-drained borders to flower during the winter. None of them will succeed in cold badly drained positions. Seedlings of any kind when first pricked out are liable to be damaged during bright sunshine, and should be lightly shaded with branches of trees or evergreens, and watered occasionally during the evenings till established.

Newly planted Trees and Shrubs.—Many of those transplanted during the winter and spring months with small balls of soil attached must still be closely examined, as if dry the trees will make no progress and may yet die. If the old soil prove dry remove that near the stem so as to form a basin, then pierce the ball with a sharp iron rod, and repeatedly soak with pond water if available. Shrubs, more especially Rhododendrons and Belgian Azaleas, that have been transplanted from a peaty soil to a site in which loam prevails, are particularly liable to perish before becoming established. Any of these presenting a sickly yellow appearance should be examined, and if the soil around the roots prove very dry lift and soak them in a tub of water, and replant as firmly as possible in a compost consisting principally of either peat or good leaf soil. On the other hand, if sickly owing to the old soil being too wet and sour, it is advisable to nearly free the roots of this and replant in good gritty and peaty compost.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 1.

IN penning a few notes on each of the above subjects the writer is aware that he enters on debatable ground, and that what new light he may be able to let in will be taken for exactly what it is worth and no more. This is as it should be; so while endeavouring to add to the knowledge sought after by all earnest bee-keepers, it is desirable to bear in mind a few important facts in considering the construction of a bar-frame hive.

First, then, it is impossible for anyone, be his experience ever so great, to design a hive that will be equally well suited to all the various conditions under which it may be worked. Locality, pasture and season, as well as the capacity of the apiarian, his system of management, and his opportunities of carrying that system out, all exercise such an influence over final results that to attempt to lay down a fixed rule is simply impossible. It will be acknowledged that of late years a wonderful impetus has been given to the art of bee-keeping, and the various associations established throughout the country have done excellent work in spreading abroad information on the subject. So general has been the interest taken in the work of these associations, and so rapidly the knowledge acquired, that most of the feats of Wildman and others in the olden time, which were then considered little short of miracles, can now be performed by numerous experts, while the manipulating tents at the various shows have probably done more than anything else in arousing a desire for apiarian knowledge among those who have witnessed the ease with which bees can be handled by the skilled bee-master.

The first exhibition at which the manipulation of living bees was made a special feature was that held at the Crystal Palace in 1874, and we well remember the surprise with which the operations were watched by a crowd of astonished spectators.

We had kept bees for some years prior to this, and had driven hives in the usual way, but to see the bee-master unprotected by either veil or gloves, drive his bees and watch them ascend, capturing the queen, tossing them about with his naked hands like so many peas, and apparently able to do as he pleased with them, was a new revelation to us in bee-management. Now, however, we suppose there is hardly an association in the country which does not number among its members several who can do the same thing with the greatest ease. Hive-making soon became quite an important industry. Manufacturers increased rapidly, and the fact that many makers were not practical bee-keepers themselves had the effect of placing some ill-constructed and almost unmanageable hives on the market. Later on, as bee exhibitions received more encouragement from horticultural and agricultural societies, prizes were offered for hives, &c., and the competition became very keen. The amateur bee-keeper, with more zeal than knowledge, entered the lists as a competitor, and designed hives in his study or workshop, some of them "fearfully and wonderfully made," but nearly useless in practical operation. Strange to say, hives of this description have not seldom been awarded prizes to the exclusion of really good and useful ones, made by men who are accustomed to work among bees regularly, and who should be supposed to know what is required. The evil did not end here, for in some instances men of great experience as apiarists, who were bee-dealers and hive-makers, but from the very nature of their business could not be honey-producers, actually made and sold hives which were most defective from the honey-producer's point of view.

Bee-dealing may be, and most probably is, the most profitable branch of apiculture, especially when combined with the manufacture and sale of hives and appliances. On no other ground can we explain the fact that nearly all our most prominent apiarists, who make a business of it, end by becoming bee-dealers and not honey-producers; while many who manufacture and sell hives have never been either one or the other.

Now we take it that the great object of bee-keeping is, or ought to be, the production of honey in the greatest quantity and in the most saleable form, and all we have to say on the subject will be from the honey-producer's point of view. We should give up bee-keeping altogether if success in the pursuit necessitated our giving up the pleasure of honey-harvesting. At the same time we hold a very decided opinion that bee farming for the production of honey in the United Kingdom will not pay him who depends on it entirely for a means of livelihood. Newly-fledged bee-keepers (they are invariably novices) who become enthusiastic, and fancy they have discovered a mine of wealth after a good season with a profit of £3 or £4 from a single hive, generally become wiser men after the experience of a few years. They find out that our climate cannot be depended on; that our honey season is too soon over; and that the weather in June and July, upon which everything depends, is so unreliable. In short, they find their best-laid schemes "gang aft aglee," and that a very delightful pursuit, as bee-keeping undoubtedly is, may become a delusion and a snare if depended on as a sole means of subsistence.

Having relieved our mind of this conviction, let us say how strongly we are convinced that intelligent working men, whose occupations lead them to reside in suitable localities, will before long find out that they may make the keeping of a few stocks of bees very profitable in some seasons. While gardeners are rapidly acquiring a knowledge of apiculture, these latter possess unusual facilities for bee-keeping, and have a ready market for their honey if it is produced in a form fit for their employer's table. The great bulk of bee-keepers, so far as our experience goes, who keep bees on modern principles, consist of the upper middle classes, whose means and tastes lead them to welcome anything which will add to the pleasures of their gardens, and yet who are sufficiently utilitarian to hope for a balance on the right side of their bee account. We comparatively seldom see one of these bee-keepers who is not ready to welcome any improvement either in hives or appliances. He visits shows, and as his experience is generally somewhat limited he allows the hive-maker to guide him in selecting the best. He is shown one which works like clockwork—on the show bench, and purchases it, only to find a vast difference when the hive is peopled with bees and encumbered with all the accompaniments of a stocked hive. He becomes nervous, gets stung, and the thing is voted a nuisance. There is hardly a pursuit in which the avoidance of hitches in manipulating is more necessary than bee-keeping. The comfort of working with hives and appliances of the right kind is beyond expression, while the annoyance, indeed the disastrous results which sometimes occur through inexperience coupled with faulty materials, are not pleasant to think of.

This brings us to consider how a hive should be constructed so as to be of the most practical use to the ordinary bee-keeper. By the latter term we mean nine out of every ten who keep bees. It is well known that the greatest divergence of opinion exists even among high authorities on the subject. One ignores the use of distance guides of any kind, preferring to space frames with his fingers; another advocates the use of close-ended frames of the Giotto type instead of the ordinary open-ended ones; a third prefers the Stewarton hive to any of a later type; a fourth goes in for the most elaborate and costly article; while a fifth makes simplicity and cheapness desideratum, a sixth thinks that nothing can compare with straw skeps, &c. Of course there may be much to say in favour of each one's opinion, but we think the greatest weight should be attached to those emanating from honey-producers, because honey is after all the object every bee-keeper has in view.—W. B. C., *Higher Bebington, Cheshire.*

TRADE CATALOGUES RECEIVED.

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Bulbs and other Flower Roots.*

Wm. Paul & Son, Waltham Cross.—*Catalogue of Bulbs.*

Dickson, Brown, & Tait, 43 and 45, Corporation Street, Manchester.—*Catalogue of Bulbs.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Hyacinths and other Bulbous Roots.*

Edmond Van Coppennolle, Meirelbeke-lez-Gand, Belgium.—*General Catalogue of Plants.*



TO CORRESPONDENTS

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

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

Books (J. W. A.).—Ville's work on artificial manures is published by Messrs. Longmans, Green & Co., and can be obtained through a bookseller. Its price is, we think, about half a guinea, but we have not seen it advertised.

Transplanting Evergreens (H. W. M.).—All the kinds you name grow well, when the work of removal and replanting is properly done, towards the end of October or early in November. They may be transplanted early in October if the weather is dull and showery.

Indian Muslin for Shading (J. M. C.).—Judging from samples we have seen, we have no doubt this material would be suitable for shading greenhouses, as it would subdue the rays of the sun without seriously obstructing the light. We scarcely know what you mean by "draperies." You had better procure samples of the muslin, and you will then be able to judge for yourself as to the suitability for that purpose, which we apprehend is very much a question of taste.

Mildew on Rose (H. E. B.).—Your Maréchal Niel is infested with mildew, and, if you do not destroy it, it will kill the plant. We never saw a worse example than in the spray before us. You will find the method to adopt described in answer to another correspondent. See that the roots are well supplied with water, and probably liquid manure would be of service; but on this point we cannot advise, as you have not stated any particulars about the plant, not even indicating whether it is in a pot or planted out.

Rose Exhibitors' Text-book (J. E. H.).—This is a designation that has been applied to the catalogue of Roses issued by the National Rose Society, and is sold by the Secretaries of that Society. We do not know of any horticultural society in the vicinity of Child's Hill or Hampstead, except the Highgate Society, with which you are acquainted. Still, we do not assert that there are no other local societies in the district referred to.

Potato Tubers on Stems (G. M.).—We have frequently observed similar productions to that you send, and they can only be regarded as malformations. The tuber itself when under ground is simply an enlarged stem, which serves as a storehouse for nutriment to perpetuate the plant another year, and possibly these axillary tubers might be used in the same way.

Black Hamburgh Grapes (H. S.).—Your bunches are scarcely of the average size. Mr. Barron, in his "Vines and Vine Culture," gives the

average weight of the bunches from 1 lb. to 2 lbs., and the berries from 1 inch to 1½ inch in diameter. The crop you describe is not too heavy, or the fruit would not have finished so well. We like to see the best bunches at the bottom of the Vines, and we are glad to hear of your success with Madresfield Court.

Twin Vine Leaves (*Birkenhead*).—The leaves sent show a case of duplication or multiplication of organs similar to what occurs when the stamens of flowers are increased above their normal numbers, or when the petals become so numerous as to constitute a double or semi-double flower. Such cases are common under cultivation, and it appears as if the richer and more abundant food provided for plants artificially induces these malformations or departures from the natural growth; as a check to the growth is often followed by deformed productions, the sap being forced to take a different course.

Growth of Young Vines (*Cauld Kale*).—Assuming the canes are short-jointed and have prominent buds in the axils of the leaves you may consider them of average quality. They will still improve, and if you ripen the wood well each Vine may safely be allowed to carry one bunch of Grapes next year. The canes we should shorten to within 3 feet of the base of the rafter as soon as the leaves have fallen in the autumn. Heat and air, with only sufficient atmospheric moisture for keeping the foliage fresh and healthy, are the chief essentials for ripening the wood.

Double Poppies (*J. D.*).—The flowers you sent are fine examples of what are frequently termed double French Poppies, but yours are much fuller, more compact, and of better colour than is usual. The garden races of Poppies have been raised by crossing several species, but the two chief are *P. bracteatum* and *P. somniferum*. Crosses have also been obtained between *P. bracteatum* and *P. Rhæas*, between *P. orientale* and *P. somniferum*, and between *P. bracteatum* and *P. orientale*. They are readily increased from seed, and soon produce double flowers under cultivation. The Golden Elder flowers as freely as the common form when it reaches a moderate size, bushes of 3 or 4 feet high being frequently covered with bloom.

Black "Rust" on Myrtle (*F. R.*).—The condition of your plants is the result of insects. The scale insect probably is established on the under sides of the leaves and on the stems, and until you destroy them the plants will never be clean. Sponging such small leaves is a tedious process, and they may be cleansed with a solution of soft soap and paraffin made and applied as described in a reply to another correspondent under the head of "Orange Fungus on Roses." But you must follow the instructions with exactitude, both as regards mixing the solution, preventing it saturating the roots, and shading the plants afterwards. You may possibly have to repeat the syringings, using pure water forcibly half an hour after each application of the insecticide. In using this a syringe should be forced alternately in the vessel and on the plants, to insure as far as possible the mixing of the oil with the soapy water, the former having a natural tendency to float on the surface.

Rose La France (*Idem*).—There is no reason whatever for supposing this excellent Rose is "dying out." We have them equally fine on standard Briar stocks and as dwarfs from cuttings; but they do not thrive so well in a cold heavy soil as in ground of medium texture, yet fertile. Perhaps your Roses are young and not yet established. In such a case a mistake is often made in allowing them to bear too many blooms. If they are not young, then copious applications of liquid manure would probably be advantageous.

Mushrooms in Vinery—Potash for Vines (*Torbay*).—You have misread the paragraph. It is not stated the 800 lbs. were grown in a vinery "without manure." They were grown in beds of manure made as described in Mr. Wright's treatise. Mushrooms cannot be grown in beds without the aid of some fermenting medium. They are grown at Sheffield successfully in the German moss litter after it has been used in stables, and we know of a very able gardener who intends mixing wood shavings with manure for producing the crops. Tree leaves are also suitable for the same purpose—that is, mixing with manure from stables. "Potash in the form of kainit" is very suitable for Vines needing the assistance of the manure indicated. About half an ounce to each square yard of border is a sufficient dressing.

Pansies Injured by Insects (*J. H. H.*).—The Pansies and other plants you mention have been attacked by one of the centipedes (*Geophilus electricus*) in an immature condition. Although they feed upon animal substances they are apt to infest the roots of many species, especially after a mild or damp winter and spring. Some have recommended trapping them by laying on the soil, or just beneath its surface, partly decayed apples or potatoes, into which the insects will burrow numerously. Others have advised watering the plants with clear lime water, or under some circumstances sprinkling soot upon the soil, but they will frequently defy these remedies. More efficacious is a mixture of a fluid ounce of paraffin in 3 gallons of water, thoroughly agitated. This, however, must be cautiously used, first trying it on a few plants of little or no value, and if it does not injure them it can be applied to the others. You will find the particulars you require of the cultivation of Pansies in beds and pots in our manual on "Florists' Flowers," which you can have post free in return for 4½d. in stamps sent to the publisher.

Strawberries for Market (*A Dublin Subscriber*).—We doubt if there is a better early market variety than Vicomtesse Hericart de Thury, which is grown in Kent under the name of Garibaldi. We believe, however, that the most profitable variety this year in Kent was Sir Joseph Paxton, which is undoubtedly a valuable Strawberry. President is very good on some soils. You had better try all these varieties and prove which is the best adapted for your soil and district. For late use Eleanor is grown rather extensively in Kent; the fruits are very large, but the variety is not so prolific as some others. Dr. Hogg is one of the finest-flavoured Strawberries grown, and produces large fruits. In some soils it bears good crops, in others it is not so productive, and generally speaking it is not nearly so prolific as the three varieties first mentioned, but is indispensable in gardens where it will flourish. It is later than President, and just precedes Eleanor, Elton, and Frogmore Late Pine in ripening.

Vine Roots too Deep (*J. T. S.*).—It was rather a strange oversight your covering the roots so deeply. They are too deep by half, but this

alone does not account for the state of the foliage. You have, we suspect been using the syringe too freely and keeping the house too moist; then on some particular morning have not opened the ventilators soon enough then opened them too widely at once, as if to atone for the previous delay. This would cause sudden and extreme evaporation, and leave the foliage as if rusted and browned, especially near the edges of the leaves. Generally you appear to exercise care in ventilation, and your mode of procedure is sound; still we feel convinced there has been a mistake of the nature indicated. The temperatures are right. Unless there are signs of red spider one syringing a day will be ample; this should be very early in the afternoon, as soon as the house can be safely closed, and so that the Vines become dry before night. This is more than we do, our Vines not needing syringing oftener than once a week for keeping the foliage clean, as we provide sufficient moisture in the atmosphere for keeping it healthy.

Flue for Melon House (*J. T. S.*).—We think your plan of conducting the flue will answer provided there are no sharp angles in it. All the turns must be smooth and rounded, as every jutting corner will be an impediment to the transit of the smoke and heat. The flue for bottom heat should be in a chamber, the slabs that support the earth being raised an inch or two above the flue and supported on pillars, the chamber to be nearly of the width of the bed. The heat will then be diffused much more equally on the under surface of the bed, and there would be far less danger of burning the roots than by having the flue in immediate contact with the slab that supports the soil. With the front flue perfectly clear—that is, neither resting against the side wall of the pit nor the side of the bed, it would in all probability afford sufficient top heat without the back flue; this, however, will depend on the size of the flue. Too much dry heat from flues favours the increase of red spider.

Melons Failing (*J. E.*).—As we understand your letter the heat for your Melons is supplied wholly by fermenting materials, the manure being enclosed in a brick pit, and round this pit is a pigeon-holed wall. If this is so there would be very great difficulty in supplying the requisite heat—indeed, in any case, while it is comparatively easy to maintain sufficient bottom heat for Melons in a brick pit, it is almost impossible to maintain a night temperature for the plants of 65° with the aid of fermenting materials alone, especially when the plants are raised early in the season. With strong healthy plants inserted in June good crops of Melons may be had from brick pits, but such pits are quite unsuitable for early forcing. If you had stated the temperature that has been maintained (and we presume there is a thermometer in the pit) we should have been better able to have indicated the cause of failure. It is not improbable it may be as you suggest—too little heat and too much water; but even if this is so, the pit, so far as we understand it, is as much at fault as the man who may have been impelled to raise the plants too soon to be grown satisfactorily in a structure of the kind indicated. Perhaps you may obtain a hint about sewage that may be useful in our little manual, "Manures for the Many," which can be had from the publisher in return for 4½d. in postage stamps.

The Potato Murrain (*J. K. R.*).—In a case of this kind, the varieties being late and very unripe, we doubt if you can adopt any measure that will be of substantial value in preventing the spread of the disease. In the case of early varieties we have proved the great value of early lifting. On the first suspicion of disease we have taken up the crops when the foliage was quite green and the tubers unripe; then, by spreading them thinly in sheds have had sound and good produce. We have also seen the practice successfully adopted with second early varieties, but only where provision was made for storing the tubers thinly and where they would not be greened by too much light, as slight greening, though not injuring them for planting, spoils them for table use. When we could not take up the crop quickly enough we have pulled up the tops; and the tubers, though they have not afterwards increased in size, have kept sound. Cutting off the tops we found quite ineffectual; indeed, pulling them up is of no use unless done before the disease has been established in the plants. The late sorts to which you refer are not usually attacked seriously, and there is the probability of drier weather occurring that will prevent the spread of the murrain. If you have not ample convenience for storing the tubers as indicated we should not dig them up, especially as they cannot have attained nearly their full size and are yet in a very soft and unripe state. In certain seasons we have found the crops all alike ruined whatever manures were used, and even without any manure having been applied at all. This also, in a measure, appears to be your experience, but we do not anticipate the ruin of your crop. The root of the evil in your case is, we presume, undrained soil.

Orange Fungus on Roses (*Idem*).—Your plants are attacked with this unsightly and injurious parasite. There has been some mistake in management, either in watering or ventilating or both. The plants, we presume, are in pots. Remove them from the greenhouse, lay them on their sides on clean flags or mats, and syringe them freely with a solution of soft soap—2 or 3 ozs. of the soap dissolved in each gallon of water. Apply this at a temperature of 120°, especially to the under sides of the leaves where the fungus abounds, and while wet dust the leaves freely with sulphur. If this fails add half a wineglassful of petroleum to the soap solution, but do not then apply it at a temperature above 100°, and shade the plants afterwards or stand them in a shaded place in the open air. The oil must be well incorporated with the water by constant and violent agitation. We shall be glad to hear if either of these remedies prove effectual, and which. If they fail we can name another plan of destroying the fungus, but it is tedious. The plants will be better in the open air than in the house. If they are not in pots, and thus cannot be removed, you must syringe them where they are; but cover the ground with mats, on which spread some sawdust to prevent the soapy water saturating the soil and injuring the roots of the Roses.

Vine Roots Decayed (*G. E. L.*).—We have examined the three parcels of roots and there are no insects on them, nor do we consider their condition is the result of insects, neither are we of opinion that the roots in the subsoil have affected the newer roots near the surface. We have known the lower roots of Vines to decay wholly, while the surface roots in suitable soil have grown satisfactorily, supporting healthy Vines and fine crops of Grapes. There is either something in the soil and manure you have used that is injurious to the roots, or the border is not efficiently drained.

Abundance of stones placed at the bottom of a Vine border in themselves afford no proof of good drainage. We have seen concreted and so-called "drained" Vine borders positively waterlogged because there were no free outlets for the water, and we have seen drains and outlets provided, and these allowed to be silted up, rendering them useless. You had better look carefully into the question of drainage, and if you find any defects apply the remedy promptly. Your Vines have been also overcropped, and this would affect the roots injuriously. The foliage, too, may be overcrowded. On the important matter of disposing and managing the laterals you say nothing. Overcropping is a relative term. On some Vines such a crop as you name would be light, but considering the condition of yours it is too heavy, and the fruit could not receive adequate support. You must provide healthy roots, even if this involves making a new border, and with good foliage you will have satisfactory Grapes.

Heating Small Houses (D. H. H.).—As you have been twenty years in the same situation you will in all probability find out the best method of building and heating, as no one can understand your own peculiar circumstances so well as yourself. We, however, most willingly aid with such suggestions as occur to us. In the first place, as you have a wall partly built by all means turn it to account, as the aspect is suitable. You may also lessen the necessity for a high wall by sinking the path in the house. As to heating, a portable boiler and pipes fixed with indiarubber rings will be the best, but more costly at the outset than a flue; and a flue well constructed will answer—has, in fact, answered in your existing house. Probably the cheapest flue is formed with sanitary pipes, but the first few feet ought to be of firebricks. At Sedbury Park this mode of heating is adopted, and the Grapes grown there we have seen remarkably fine. The plan was described in this Journal three years ago, as follows: "The vineries are span-roofed, running north and south, the shed walls forming the north end. They are 26 feet long, 22 feet wide, and 13 feet high. The furnace is in the back shed, and the fire is carried on one side of the house in a brick flue 18 inches deep and 12 inches wide, inside measure; then two rows of sanitary pipes 8 inches in diameter are inserted in the flue and carried across the south end. In the opposite corner I built a hole about 18 inches square and 2 feet deep; into one side I inserted the pipes crossing the end into the other, the pipes running up the other side (this arrangement is for cleaning out the pipes expeditiously), which enter the chimney in the shed wall. The pipes are laid one row upon the other, and the heat is equally dispersed through them; the pipes farthest from the fire are warm as soon as the bricks on the side where the fire enters. The pipes are connected with cement. We always keep a small galvanised wire laid through the pipes, and when they require cleaning the corner covers are removed and a bunch of Holly tied to the wire and drawn through; the wire is then drawn back to its place with a piece of string. The fuel used is principally cinders from the Hall. One house was completed in 1870, the other in 1871. The Grapes are ripened in one house in July, the other in September. There are now three cracked pipes which require removing; that is all the repairs that have been needed." Mr. Matthews of Weston-super-Mare, who is a good authority on the subject, subsequently stated that "unglazed sanitary pipes made of fire clay are better than glazed pipes for forming flues, as they produce a better heat and are not so liable to crack as are glazed pipes." The provision above described for cleaning the flues is worthy of particular attention. Perhaps this reply may be of some assistance to you.

Names of Fruit (E. J. B.).—The small red Apple is Margaret; the other is the Sugarloaf Pippin. The former is a very old Apple, and is without doubt the Margaret of Rea, Worlidge, Ray, and all our early pomologists, except Miller. The latter is called Hutching's Seedling by some persons, from being grown by a man of that name at Kensington. (*J. Cheal & Sons*).—Sugarloaf Pippin. See above.

Names of Plants (G. L. R.).—1, *Coronilla varia*; 2, *Lychnis coronaria*; 3, *Chelidonium majus*; 4, *Corydalis lutea*; 5, *Digitalis lutea*; 6, *Ononis spinosa*. (*E. K.*)—1, *Pyrola rotundifolia*; 2, a variegated form of the common *Cytisus Laburnum*; 3, *Alchemilla vulgaris*. The specimens sent crushed into a small cardboard box, without any pains having been taken to keep them fresh, cannot be expected to arrive in very satisfactory condition, and yours were again almost unrecognisable, and it was only by long and tedious examination that we were able to determine their names. (*M. E.*)—*Begonia semperflorens*. You could ascertain the price from any nurseryman, but it is not expensive, as it is readily increased both by seeds and cuttings. (*R. C.*)—1, *Spiraea venusta*; 2, *Spiraea Filipendula* fl.-pl.; 3, *Spiraea arifolia*; 4, *Oenothera missouriensis*; 5, *Lysimachia thyrsoflora*; 6, *Centranthus tuber*. (*Flora*).—*Eutoca viscida*. (*Meopham*).—Perhaps the fungus is a small specimen of *Bovista nigrescens*, but it appears to be more like an immature *Lycoperdon giganteum*, which after it has been growing in the same place for some time produces very small specimens.

COVENT GARDEN MARKET.—AUGUST 15TH.

A GOOD business doing, with prices of soft fruits improved.

• VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	4 0	Mushrooms punnet	1 0	1 6
Asparagus, English bundle	0 0	0 0	Mustard and Cress punnet	0 2	0 3
Asparagus, French bundle	0 0	0 0	Onions bunch	0 0	0 4
Beans, Kidney lb	0 3	0 4	Parsley .. dozen bunches	3 0	4 0
Beet, Red dozen	1 0	2 0	Parsnips dozen	1 0	2 0
Broccoli bundle	0 9	1 0	Peas quart	0 9	0 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots bunch	0 4	0 0	Radishes .. dozen bunches	1 0	0 0
Califlowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 0
Coleworts doz. bunches	2 0	4 0	Scorzenera bundle	1 6	0 0
Cucumbers each	0 4	0 6	Seakale basket	0 0	0 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Fennel bunch	0 3	0 0	Spinach bushel	2 6	3 0
Herbs bunch	0 2	0 0	Tomatoes lb.	0 6	0 0
Leeks bunch	0 3	0 4	Turnips bunch	0 0	0 4
Lettuce score	1 0	1 6			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 0	2 6	Grapes lb.	1 0	3 0
" per barrel	0 0	0 0	Lemons case	10 0	20 0
Apricots box	2 0	2 6	Melons each	2 0	3 6
Cherries ½ sieve	0 0	0 0	Nectarines dozen	2 0	6 0
Chestnuts bushel	0 0	0 0	Oranges 100	6 0	10 0
Currants, Black .. ½ sieve	3 6	0 0	Peaches dozen	2 0	6 0
" Red .. ½ sieve	4 0	0 0	Pears, kitchen .. dozen	0 0	0 0
Figs dozen	2 0	0 0	" dessert .. dozen	0 0	0 0
Filberts lb.	0 0	0 0	Pine Apples, English .. lb.	2 0	3 6
Cobs 100 lb.	0 0	0 0	Raspberries lb.	0 2	0 3
Gooseberries .. ½ sieve	2 6	3 0	Strawberries lb.	0 3	0 6



HORSE LABOUR IN FARMING.

(Continued from page 130.)

THE home farmer may feel assured that keeping his horses in good condition throughout the year is good policy, because it will enable him without injury to the animals to exact some extra labour during the busy periods. At the same time he may also feel assured that anything, whether inefficient feeding or excessive labour, will have a tendency not only to produce diseases in the constitution but eventually to shorten the life of the animals. The latter point is rarely considered sufficiently in the management of farm horses, but is very important, and the cost of it; for in the purchase of horses, or even if they are bred on the farm there are many risks to run, particularly as to the temper and capacity of the animals when they come to take their part in the work of the farm. It is therefore desirable to have as few changes and as few purchases as possible. When it is considered that as a rule a horse will in farm work, when fairly fed and treated, continue in work about nine years, taking four years of age as the starting point, proves that under ordinary management the horse will diminish about £4 in value annually. This at once shows how desirable it is that treatment tending to shorten the animals' capability for work should be carefully avoided.

As farm horses are usually kept upon food produced on the farm we must here observe that food must certainly be regulated by the description of farm, for in some instances pasture or water meadow hay may be very abundant, and in other cases very scarce. In some the amount of straw is enormous, in others being no more than sufficient for the cows or young cattle. However much the quantity and quality of hay and straw may vary, it may be asked, Have we any substitute that will supply the place of Oats? To this the only answer is, No. If a horse is required to be kept in working condition he must have a certain amount of concentrated food, and nothing is more suitable for the stomach or more conducive to health than Oats. To justify this statement let us consider the construction as well as the functions of the stomach of the horse as compared with that of the ox, an animal which is capable of subsisting on a large amount of innutritious food. The stomach of the horse is comparatively small, holding about three gallons, while the ox possesses no less than four stomachs, the first of which is considerably larger than that of the horse. This difference shows, what indeed the habits of these animals also demonstrate, that whilst the ox is so constructed as to consume a large quantity of food at a meal, the horse is adapted to consume a moderate quantity and often. Bearing these facts in mind, we consider the smallness of the stomach of the horse. It appears evident that he was intended by Nature to consume concentrated food, such as grain, principally. Under these considerations, although we have for many years advised the use of Carrots for feeding in the winter months, yet it must be with moderation, and not exceeding 10 or 12 lbs. per day per horse. Under any and every system of feeding we recommend that rock salt be always placed within reach of every horse.

With regard to the medical treatment of horses out of health, there is no better plan than to employ a respectable and certified veterinary surgeon, and pay him a moderate annual composition to attend and find medicines for all the horses on the farm. There is no more dangerous plan than is very frequently pursued of employing the village farrier to attend slight illnesses, with the intention of calling in a veterinary surgeon only in difficult and dangerous cases. It is important that the stabling of farm horses be comfortable, without being too close and hot

and well ventilated without being draughty. In addition to ventilation, there ought to be sufficient light afforded by means of swing windows made to open so as to be used in summer for keeping the stable cool. They should, however, be provided with shutters or lattices to exclude the light, for after horses have been hardworked during a summer's day the sooner they can be induced to lie down and rest by the stable being darkened the better, after they have been fed and curried. In the economy of a stable it is bad policy to stint the room for each horse. A dozen horses may be rendered uncomfortable, being unable to take their proper rest, merely for the sake of making room for one additional animal. Boxes for each animal are much better than stalls, in order not only to avoid accidental injury to the animals, but also to enable them to feed and rest undisturbed. For any further information on this part of our subject we refer the home farmer to our articles on "Farm Horse Management" in this Journal, dated the 10th and 17th January, 1878.

We must now refer to the policy of contracting not only with the farrier as before stated, but also the blacksmith for shoeing and the saddler for repairs of harness. But with regard to implements, it comes hardly within the bounds of a contract, consequent upon the great increase of machinery in farm use; still it may by specification of items for repairs, such as ploughs, including shares and other irons, be a matter for contract; and where possible it is very well, for the charges for labour, not only by the blacksmith but the carpenter also, have been so much increased during the past twenty years, that repairs to implements are a serious item in the farm expenditure, and over which we have no control except by contract.

Before concluding the subject we must refer to a practice of economy which we can recommend to the home farmer. That is, for tillage purposes to employ oxen instead of a certain number of horses, in the proportion of two oxen for one horse. To illustrate our proposal we will take a farm usually working sixteen horses, and reduce the horses to twelve instead of sixteen for the year, and introduce eight oxen for six months' tillage labour only, commencing by the purchase of oxen of the Hereford, Sussex, or Devon breed in good fleshy condition, at four or five years old, and broken into work, in the middle of the month of April, to continue in constant work on the land until the middle of the month of September, the oxen to be fed at the same cost per head per week as the horses, and kept upon suitable food, and stable management as required by them in their labour of tillage. Each pair of oxen will cost to purchase about as much as one four-year-old horse of the breed and size we have before described, say £28 each for the oxen, and the horse at £56. Looking at the value of tillage labour done by the oxen during the period of six months above named as the most important period of the whole year for tillage work, the oxen will not only do work equal to the horses, but will improve in condition and value during the six months quite 30s. each, whilst the horses if continued in work would have depreciated in value for the year £4 each. Thus in every way which this matter can be viewed by a practical farmer it exhibits not only an equality of work done both in effect and value, but also an important gain in money, and leaving the home farmer in possession of valuable animals to go into the box for fattening during the winter months. By using two oxen to the plough and in other summer tillage four horses will be displaced for a year by eight oxen employed for six months. In conclusion, the superiority of steam power is so great when applied at the overcrowded seasons of horse labour, that a much smaller number of horses kept throughout the year will suffice for the annual work of the farm, when a portion of the labour of the spring and autumn months may be thus taken from them—a direct advantage in various ways. Steam power will insure its continued use to a certain extent, quite irrespective of its cost per acre.

WORK ON THE HOME FARM.

Horse Labour.—Turnip seed may now be sown after Oats, Winter Barley, Early White Oats, upon some of the light kind and early soils of the southern, south-eastern, and home counties. Still every day will make a difference, and therefore as fast as the corn is cut and put into shocks or stooks the land may be ploughed between them and seeded by the drill set close, say 14 or 15 inches, between the lines for the purpose of horse-hoeing between the rows. If the plants grow well they may be hand-hoed and singled, leaving them very close, say 12 inches apart, as of course the bulbs are not likely to come a large size, therefore the crop of bulbs must depend upon numbers only. It is, however, a plan now becoming recognised that the plants should not be set out by singling, but be left to produce as much foliage as possible for the purpose of ploughing in as green manure, and which, if done the first opportunity after Wheat-sowing is finished, the land will be found in excellent condition as regards not only manure, but also gives a stale

furrow for Barley at the earliest seed time in the spring. If, however, the roots are required for sheep-feeding very fine crops have been grown where properly manured and singled. We have grown on certain occasions, especially when the harvest has been early after White Canadian Oats fed off with ewes and lambs, and the land sown again with Canadian Oats, each crop of which proving from 9 to 9½ quarters per acre. The latter crop, being seeded with Clover, has frequently produced a full crop for cutting up and soiling cattle, and horses after harvest, continuing until the frost came in November, and we would sooner cut up Clover in autumn than feed it with sheep or cattle, for these are apt to bite out the crown buds of the Clover plants, when they will often die off in consequence.

The Wheat fallows should now be got forward by the necessary tillage in order that the manure may be laid out in fine weather and ploughed in; but in case of the weather proving adverse the dung may be laid out on the Clover leas instead, and the fallow Wheat manured with artificials. This in some cases is advisable, particularly when a long lain of Wheat has to be seeded, for it is well that we should not forget the serious losses of plant of Wheat which occurred last autumn by late sowing; in fact, there really was no Wheat season available on our strong land and best Wheat soils between the 20th of October and the 20th of February. The first opportunity should be taken after the grain crop is removed to sow Trifolium. Let the land be shallow scarified or dragged with Howard's excellent implements, the self-lifting drag. Sow some early Trifolium and some of the latest variety, for ours held out until July 15th this year. In case, however, it is intended to be cut for hay, either wholly or in part, it is well to have some Italian Rye Grass sown with it, as it opens the hay and favours the making, also improves the quality of the hay, and fills up vacancies or failures in plant which may occur.

Horses will now be required attached to the reaping machine, and it is best to make a relay of horse power by not working them for this purpose more than five hours at a time. The weather still continues adverse for the early harvest while we are writing (August 9th), nor do we as yet see any prospect of settled fine weather; in fact, with the wind varying from south to north-west as a rule we never get a continuation of good harvest weather. The crops of Clover to be ploughed in for manure should now be done, and the ploughing to bury a full crop of second-growth Clover should not be done at less than 6 inches in depth. As to the policy of ploughing-in there is no method of disposing of the second growth of Clover profitably comparable with it, for if it is fed off by sheep we cannot obtain so good a crop of Wheat afterwards as after cutting for hay or seed; but in either case we run a great risk in saving for hay or seed, but there is no risk in ploughing-in if the work is properly done, for it is equal to a full dressing of yard manure for the succeeding Wheat crop, at the same time the land becomes settled and mellow in prospect of an early seed bed for the Wheat.

Live Stock.—Abundance is everywhere found for the cattle and dairy cows in the vale farms, and grass and green crops on the hill farms for sheep. The open downs on the chalk formation never has afforded a better bite for sheep than at present; but it will be necessary to carefully avoid feeding the stock ewes in the water meadows, for in all those cases where there is at all times a sufficiency of water for irrigation the feeding by sheep cannot be attempted with safety, but with the water turned off the land they may be safely fed with dairy cows, horses, &c. Sheep are extremely dear, which is in favour of the breeding flocks on the hills; but farms in the vales may be shortly stocked where the usual plan is to buy in ewes and feed the lambs fat in the spring; and in such a case with an abundance of roots the advantage of ploughing in the roots as against feeding may be ascertained by experiment, for in case of full crops of roots 13 tons per acre ploughed in is quite sufficient to produce a full crop of Barley, Oats, or Wheat, and the remainder may be disposed of for feeding cattle, in the boxes; but to bury them well the roots should be passed through an old Gardener's Turnip-cutter to distribute them as manure with regularity.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 39° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
August.											
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	5	30.153	62.0	60.2	S.W.	61.6	72.3	57.5	116.1	57.1	—
Monday	6	29.969	63.1	60.2	W.	61.8	70.3	59.8	118.6	56.8	0.023
Tuesday	7	29.959	63.6	57.5	N.W.	62.0	73.4	52.8	120.3	48.4	—
Wednesday ..	8	29.908	60.2	51.7	S.W.	62.4	67.8	51.6	93.3	47.1	0.393
Thursday	9	29.657	59.7	52.0	N.W.	60.7	67.0	55.3	121.6	50.5	—
Friday	10	29.616	59.6	52.5	S.W.	60.0	68.5	49.4	119.3	44.6	0.016
Saturday	11	29.892	61.3	55.5	S.W.	60.2	68.8	50.8	123.2	46.6	—
		29.576	61.4	56.0		61.2	69.7	53.9	116.5	50.2	0.432

REMARKS.

5th.—Slight rain in early morning; dull oppressive day.
 6th.—Overcast; little sunshine at times; slight shower 4.30 P.M.
 7th.—Fine, with bright hot sunshine.
 8th.—Fine early, afterwards dull and rainy, with high wind. Lightning and thunder at 6.15 P.M. with heavy rain.
 9th.—Fine, bright, and windy.
 10th.—Squally and rough; slight shower at noon.
 11th.—Fine throughout.
 An unusually windy week for the time of year. Temperature slightly below the average.—G. J. SYMONS.



COMING EVENTS

23	TH	Dundee (three days) ; Basingstoke.
24	F	
25	S	
26	SUN	14TH SUNDAY AFTER TRINITY.
27	M	
28	TU	Royal Horticultural Society ; Fruit and Floral Committees at 11 A.M.
29	W	Colchester Show.

GARDEN CHEMISTRY—POTASH.

ALL soils need the application of nitrogen, most of them need phosphates, but whether potash is also required depends to a great extent on the nature of the soil cultivated, some having abundance, others being destitute of that necessary compound. Most fertile clays contain a practically inexhaustible supply of potash. In the Carse o' Gowrie, for instance, it exists to the extent of 2 per cent. in the soil. Supposing the roots of plants never to penetrate deeper than 9 inches, a supply of 45,000 lbs. is thus within their reach in an acre ; but gardeners would not rest satisfied till by trenching and the addition of manures the staple was at least 18 inches. Not including the potash added by the manuring as usually done, this would bring a supply of potash within reach of the roots calculated to afford sufficient for the wants of 700 crops of Potatoes of 10 tons each crop, and this crop takes up more potash than any other—certainly more than the usual average rotation of a garden. Even when only 0.1 is present more than enough for all requirements exists, but only when present in an available form, which it often is not, and may then be nearly as well absent. Caustic lime liberates potash from some of its compounds, and thus renders it of use to the growing plant. M. Ville maintains that it should always be present in artificial manures ; but his experiments, and those of others on which he bases his assumption, have evidently been conducted in soils peculiarly deficient in potash, or only containing it in an unavailable form, for with the same crops others have found the application of potash not only quite unnecessary but perfectly ineffective.

In addition to what we have termed fertile clays, loamy soils on the old red sandstone, and often on the new, are generally rich in potash. Experience has proved that for the most part such soils are peculiarly well suited for the cultivation of fruit trees, and especially Vines. The Vine requires, above all things, potash, phosphoric acid, lime, and nitrogen. Lime rubbish is universally added to vinery borders, and occasional supplies given as top-dressings from time to time—or should be. With potash plentifully present, only bones are wanted to supply phosphates and nitrogen ; while a continued supply of the last is kept up by applications of liquid manure and dressings of soot, guano, and other rich manures. In such soil Vines must thrive if the atmospheric conditions are right ; but if the potash should be absent, and it frequently is, they could not possibly do so. The soil would then be blamed, but that would not help matters. It is just in such difficulties that science steps in and puts matters right.

Most trap soils contain an abundance of potash, and such are always found to produce very excellent Potatoes, Clover, and other leguminous crops. But even some traps are by no means rich in this. Granite is almost always very poor in everything else, but rich in potash. For this reason fine Potatoes are grown in districts north of the Grampians that refuse to grow corn till lime and phosphates are added, and

for this reason fine Grapes are not uncommon in such soils. Trap rocks are generally composed of felspar and hornblende, the felspar yielding much potash, the hornblende much lime ; hence trap soils are rarely benefited by applications of either lime or potash.

Potash almost always requires to be applied to poor sandy, gravelly, chalky soils, as well as to peat, and also clays derived from shales of the carboniferous strata. In the Carse of Falkirk occurs a clay rich in potash, but here the clay is the silt carried down by the Firth, Carron, Teith, Allan, and Bonny from the degrading traps and old red sandstones over a very wide area. Here the farmers contemn the use of potash. A few miles to the south-west barren shale clays abound—barren, that is, except where redeemed by the application of manures, potash included, and then the barren clay becomes notably fruitful, proving that barrenness depends, not on texture or even on geological peculiarities, but on the presence or absence of required plant foods. Gardeners will thus see that soil need be no hindrance to the best results.

Plants possess very different powers of attacking the compounds of potash in the soil. Thus a plant which requires a great quantity may not be benefited by its application, while others which require very little may be greatly benefited. If present at all, for instance, that excessively robust Potato Scotch Champion will almost certainly find and utilise it. On such soils applications would do little good. If absent, however, the case is quite altered. Then a hundredweight or two per acre will produce startling results compared with undressed ground ; but the weakly growing varieties of precisely the same species, with weaker foraging powers, apparently are unable to attack the potash compounds, and hence manures rich in potash help such immensely. Thus, though a knowledge of the mineral constituents of a plant will afford no certain index of that plant's foraging powers or ability to attack certain substances, the fact that any given plant demands any given compound largely is proof positive that that peculiar compound must be plentifully present, and that making plentiful provision is always the safe side to err on. It also points the way to a rational system of rotation of crops, and indicates the value of the ashes of any given plant.

Among fruits Grapes (the ash of) head the list with over 60 parts in the hundred, and as other eight compounds are present the preponderance of potash will be apparent. Apples follow next, with a varying amount of something between 35 and 68. Plums follow with 59, Pears 54, Cherries 51, Pine Apples 49, Cucumbers 47 (a detailed analysis of the Melon I have not been able to find, but the fruit and seeds are peculiarly rich in potash and phosphoric acid), Gooseberries 38, Figs 30, Strawberries from 21 (when soda partially takes the place of potash) to 49 (when soda is absent). Other fruits contain less than 30 per cent., and for the purposes of the cultivator may be "lumped."

Among vegetables Potatoes come first with an average per-centage of fully 50, but rising to 73 in some soils with some varieties, and going as low as 42 with others ; Rhubarb, the stalks of which give 59, French Beans 49, Broccoli 47, Beans (Windsor) 45, Artichokes 44, Beet and Onions 39, Cabbages from 31 to 39, Celery 37, Peas 36, Leeks 33. Some authorities give 44 as the per-centage in the ash of Spinach, but others give soda as being largely present and potash only sparingly so—the soda replacing the potash apparently. The same thing occurs with the Strawberry.

The rule is very general that potash and phosphoric acid are always largely present in plants that are used for food by men and animals, and in those parts that are especially used. In poor foods they are less plentifully present than in more nourishing ones. The starch of the grains and roots and the cellulose of green vegetables, with the sugar and pectose of fruits—substances all chemically allied—is always associated with potash, and their formation depends on its presence ; while the gluten of Wheat, avenin of Oats, legumine of Peas and Beans, the albuminoids generally that occur in vege-

tables—nay, even in such allied animal substances as eggs and milk, are always associated with phosphates. Nitrogenous compounds and phosphates are always linked together, non-nitrogenous substances—fit for food—and potash.

While, therefore, phosphates and potash are largely demanded by plants grown for food, ornamental plants demand these in notably smaller quantities. *Dracenas*, *Lobelias*, *Cyclamens*, *Heliotrope*, *Primula*, *Fuchsia*, *Acacia*, *Aralia*, *Ficus*, *Grevillea*, *Yucca*, *Liliums*, *Hydrangea*, *Coleus*, *Verbena*, *Aloysia*, *Petunia* all contain less than 30 per cent. in their ash, and most of them considerably under 20. Potash is found in much greater abundance (from three to four times as much) in the white of variegated leaves than in the green parts. Potting soils and flower beds, therefore, require less potash than fruit borders or vegetable quarters. In fact only the poorest soils will need special provision in this respect when flowers are in question.

SOURCES OF POTASH.

Where urine can be had—and it ought to be forthcoming wherever animals of any kind are kept in houses—a plentiful supply of potash in the best form for all special purposes is at hand. Every ton provides from 30 to 40 lbs. of potash salts, or a great deal more than an equal weight of produce. It contains nitrogen equal to ammonia in about equal quantity, and both in an available form. In winter it may be freely applied among plantations of trees, bushes, Strawberries, &c., in a pure state, and in summer when plentifully diluted with water. It then forms a manure water of unsurpassed excellence for assisting the swelling-off of fine fruits and the production of succulent, juicy, highly digestible, and enhancedly nutritious vegetables. Indeed, it improves vegetables in every desirable way.

Failing urine much may be made of garden and other rubbish. There is not a stick or a twig, an old mat or a Cabbage stump, that does not contain potash as well as other necessary mineral plant foods. While we are against the burning of all soft leaves, straw, &c., which readily decompose (because thereby the precious nitrogenous matter is dissipated in the air), we approve of the burning of sticks and twigs (which when buried frequently spoil the soil with the fungus they produce), and thereby securing a more or less plentiful supply of potash, lime, and phosphoric acid. In suburban districts no great supply can be thus obtained; but on large landed estates large quantities are frequently to be had. It ought also to be remembered that the more vegetables remove from the soil, the more will the same vegetables—or the waste parts—return if used as manure.

Failing either of these sources there is nothing for it but to go into the market; but where stable-yard manure with every scrap of vegetable matter is economised this extreme step will not be necessary, unless for very particular purposes or on very poor soils. This will be necessary when artificial manures are chiefly depended on, and everywhere—failing the two former-named sources—for such special objects as fruit-cultivation. In straining after perfection it is best to make sure that nothing is wanting; and though the soil be ever so good, it takes such a small quantity of potash annually to prevent the store from decreasing, that in the case of a Vine or Peach border, or for trees in pots, that the question of expense—a matter of primary importance to the farmer—is hardly worth naming. In ordinary farmyard manure potash is present to the extent of from 0.3 to 0.5 per cent.

For applying on a large scale kainit is largely used. It is almost always used for Potatoes at from 1 to 4 cwt. per acre. Where manure is scarce and hardly enough can be afforded a half-manuring of ordinary manure, supplemented by 1 cwt. of kainit and 1 cwt. of superphosphate, will frequently give results equal and sometimes surpassing a full application of ordinary manure alone. From 2 to 3 cwts. are as much as should ever be given even in the absence of any other manure. There is a danger in using too much because of the presence of magnesium salts in the kainit.

Potassic sulphate, or, as it is more generally called in the

trade, sulphate of potash, is the potash salt on which the value of kainit (kainite or kianite) depends, and should be present to the extent of 24 per cent. There is generally 30 per cent. of common salt, 14 of magnesian chloride, and 13 of magnesian sulphate, with some calcic sulphate and other matters present.

In rectified samples the potassic sulphate amounts to 50, 72, and 80 per cent. Of ordinary commercial kainit it takes 800 lbs. to yield 100 lbs. of potash, or about two-thirds as much as is removed from the soil in an acre in a good crop of Potatoes. The 50 per cent. grade should give 100 lbs. for 364 of the material bought, the 72 for 250 lbs., and the 80 for 228 lbs. For garden purposes the purer it is the better. These purer salts are known as sulphate of potash.

What is known as muriate or chloride of potash (potassic chloride) is more commonly employed as a potash salt, especially by experimentalists. 200 lbs. of it should be equal to 100 lbs. of potash. These figures will enable anyone to calculate how much potash is being applied. On soils quite deficient in humus Mr. Jamieson found that this salt proves destructive when applied by itself. With nitrate of soda, however (which seemed to neutralise it), or where humus was present, it was perfectly harmless. Gardeners have seldom to do with soils in which no humus is present; still, it is well to sound the warning note. Ville, in France, seems not to have discovered its hurtful qualities, yet he used it in the same way as Mr. Jamieson.

Though potash is necessary very small quantities are perfectly sufficient. For dressing vinery or other borders half an ounce to the yard is all that should be given as an annual dressing of the chloride and higher grade of the sulphate, and only that when there is reason to suspect a deficient supply. When absent Ville found that Vines produced no fruit and scarcely could be kept alive. It is best applied during winter, when it should be very lightly forked in.

If lime is present, if phosphates are present, if plenty of nitrogen is given, and abundance of water supplied, and no sourness exists, and if still Vines grow weakly, bear inferior fruit, do not throw out laterals vigorously and persistently during summer, and the leaves are light-coloured and given to fall prematurely, then suspect the want of potash and supply it, unless red spider is the cause of the mischief. When potash is deficient, so is chlorophyll, and little plant food is elaborated in the leaves. When plentiful the foliage should be dark, the chlorophyll dense, and an abundant supply of food be elaborated. Boussingault was of opinion that potash favoured the growth of the Vines, phosphates the production of Grapes.

Potash generally has a very beneficial effect on members of the Leguminosæ; Peas, Beans, and Clover benefiting largely from applications of the sulphate, the chloride, but especially the nitrate. The nitrate is very dear, and can on that account only be used on a small scale. When a little bonemeal is mixed with potting soils liquid manure made with nitrate of potash is very effective, and no better can be recommended for those in search of a smell-less stimulant for room or conservatory plants. Some dispute the place assigned to the chloride, asserting the sulphate to give superior results, but as the consensus of opinion is the other way it may be regarded as the superior form.—SINGLE-HANDED.

STRIKING PELARGONIUMS.

Now that the time for propagating the desired number of the different varieties of Pelargoniums for the flower garden next year has arrived, a few remarks on the subject will probably be of assistance to not a few of your amateur readers, whose numbers are being annually increased by fresh devotees to the fair goddess Flora. We propagate all our bedding Pelargoniums excepting the bicolor and tricolor sections (the cuttings of which are inserted singly in 3-inch pots), in boxes. These, to economise space, are made of uniform size—about 2 feet 6 inches long, 9 inches wide, and 4 or 5 inches deep. A few holes made

for drainage, and covered respectively with large pieces of crocks and a few handfuls of leaves. The boxes are then filled with any waste soil that may be at hand, which is pressed firmly together with the spade; a surfacing of sand being spread on they are then ready for the cuttings, forty or fifty of which will be sufficient (according to their size) for each box. The cuttings may be taken off the plants as soon as their removal will effect an improvement in the appearance of the bed or border. This object should never be lost sight of, and sufficient can usually be obtained without in any way detracting from the symmetry of the beds or borders from which they are taken.

Every man undertaking the execution of a plan of operations on a small or large scale should be able to see the completion of his work before beginning it, and the process of taking off cuttings—simple though it be—is no exception to that rule. Those engaged in the work should have a clear idea of the number of cuttings of the respective varieties that are required before commencing the work, due allowance to be made for any mishaps that may occur during the interval from August to May. The cuttings when taken off should be put down in scores, and the number of each recorded for future reference. It is a good plan to spread the cuttings in the sun for a few hours to consolidate them. They can be inserted in the boxes just as they were taken off, as “trimming” of any kind is unnecessary and time wasted. The boxes should then be placed in a sunny situation on strips of wood, and the cuttings damped with the syringe every bright afternoon. Those in pots can be placed in a similar position. In the event of heavy and continuous rains ensuing it will be advisable to place some old sashes or shutters over the cuttings to prevent them suffering from excessive damp.

In the course of a few weeks from the time the cuttings were inserted they will form roots, when any yellow leaves that may happen to be attached to them can easily be removed with advantage to the appearance of the young plants.—H. W. WARD.

DESTROYING THE PHYLLOXERA.

It is not necessary to destroy Vines in order to get rid of the phylloxera. Carbon bisulphide and sulpho-carbonate of potassium have been, and continue to be, very extensively and successfully used in vineyards where the phylloxera has appeared. Carbon bisulphide is used where water is scarce. There are two objections to its use—it is explosive, and it checks the Vine to which it is applied. Sulpho-carbonate of potassium is used where water is plentiful; it destroys the phylloxera without checking the Vines, and it acts as a manure. For 1 square yard of soil the application should be 1½ oz. dissolved in 5 gallons of water; this mixture should be poured on gradually, so that it may sink evenly into the soil. For this country sulpho-carbonate of potassium has been manufactured wholesale by Messrs. Wm. Bailey & Son of Wolverhampton.—G. T., *Oporto*.

JUDGING COTTAGE GARDEN PRODUCE.

YOUR correspondent, “Reader,” has started a difficult subject, and one that is certain not to be answered quite satisfactorily to him. I hardly venture to comment on it; but having for the last fifteen years been connected with a large cottage garden exhibition as Committeeman, Steward of a department, and for ten years as its Honorary Secretary, and also occasionally as Judge in some of its branches, I am not giving a theoretical reply.

Firstly, then, it must be remembered that judges are, after all, only human, and therefore, like others of the race, liable to err. Then, also, it can hardly be expected that in everything brought before them they are in all classes equally good. Where it is possible it is best to have three judges, and I really think that one judge is better than two. In the latter case, if they differ they are apt to settle it thus: “I give in to you this time, as you gave way to me in the last class.” Where there are two, and differences arise, another should be called to decide.

In judging cottagers’ produce greater age of the exhibited articles is allowable, as quantity has to be looked for, whilst for the tables of the affluent young and quickly grown vegetables are required. Where a number of vegetables of different kinds are pitted against each other, I fancy the safest rule is to give the prize to those that are most brilliant examples of growth and quality, without laying down any hard-and-fast rule as to this vegetable taking precedence over another. In exhibiting garden produce there is the same difficulty as in all other exhibitions—the owner can rarely see impartially, and as rarely allows the judge to have any predilection for this or that vegetable. It is a very great blessing to be able to lose cheerfully. Exhibitors, too, need to recollect that good judges have an

insight into exhibits denied to many growers, and that often when apparently the worse-looking specimen is ticketed “First prize” there may be abundant cause. I recollect a case in point. Many years since I exhibited a brace of Cucumbers, and, with the keen feelings of ownership, thought them decidedly A1. Finding them unnoticed I said to the leading Judge, one to whom we are often deeply indebted in the columns of our Journal, “I thought I was going to win with Cucumbers.” “Did you?” said our friend with a roguish smile, “which are yours?” I pointed to the dish. “Ah, yes,” says the Judge, placing my finger and thumb on one spot, “Press; hollow!” He looked as though he would like to have added, “like your noddle!”

As regards gardens a cottager may say, “If I grow choice flowers I can make my garden pay better than if I raise vegetables.” Now, if so, surely his case is one in which, even in a cottager, he ought to stand as good a chance of success as a vegetable garden. Several points need attention in garden judging—as, for instance, whether the garden, be it devoted to vegetables or flowers, is made the most of; then, Do the growing plants show care and consideration? Are there any weeds about, and, if not visible, is there any trace of their being dug in? I will not deny the value of decaying vegetable matter for manure, but unless the weeds are young and free from flower the practice of digging them in is very reprehensible. All the Dandelion and Thistle tribe, if in flower and the flower buried, would so far perfect their seed underground that when the earth is again turned up and the seed exposed to warmth, most of them would germinate. It certainly is better to divide these two kinds of gardens, but where this cannot be afforded I should say that evidences of care and interest bestowed by the owner are the great points for a judge to look at. One of the great objects, to my mind, of these exhibitions is to show labouring men that there is pleasure as well as profit in a garden, and that he will be better occupied in his garden than in many places where both pocket and health may suffer, and the mind may be unrefreshed in spite of these resorts being considered places of pleasure.—Y. B. A. Z.

HAVING often to act as a Judge of cottage gardens, I will try and describe how we proceed. The Judges agree before starting the number of points that we are to give a fair crop—say six or eight points as that allows us either to go up or down. Having the Secretary with us to act as clerk, we take every vegetable by itself, and award the points, either less or more as the case may be. Every vegetable gets one point, although it is very bad, if only to show it was in the garden. Then for keeping and arrangement we say ten or twelve points, as there is often more difference in the keeping than in the crops. If there is a flower border, points are given for quality and arrangement. Where there is a flower garden there should be a separate class, then all that the Secretary has to do is to record the prizes. We find the book a great help to us, as when we see a vegetable of the same in quality as we have seen in another garden, the clerk can tell us what number of points was given. I should be glad if others would record their experience.—J. S., *Forfarshire*.

CULTURE OF ANTHURIUM SCHERTZERIANUM.

EITHER for exhibition or home decoration the above excellent plant stands unrivalled where brightness is required, and almost everyone who has a stove or intermediate house procures a plant and endeavours to grow it. For those who have not succeeded in growing this Anthurium into a healthy specimen these few remarks are offered. If any plant dislikes a high steaming atmosphere and close sodden soil this is the one. The temperature best suited for it is that of a moist intermediate house that is ventilated freely yet judiciously, anything like sharp currents of air soon proving injurious, if not fatal. There should be heat in the pipes to prevent the temperature falling below 55°. The soil should consist of lumpy fibrous peat, sphagnum, charcoal, and crocks, the pots to be about three parts filled with crocks and the plant to be well elevated above the rim. Abundance of water is required at the roots during the growing season, and they must not be kept dry at any time, or the foliage will turn yellow.

The present is a good time for repotting, or a little earlier would have been better. Any plant that is in soil at all sodden or is unhealthy should be turned out of the pot and the ball placed in a tub of water, then gently work the soil from amongst the roots with the hand, after which place it in another tub of clean water and well wash the roots. It should then be repotted, working the soil carefully amongst the roots without breaking any. Place the plant in the house where it can be kept close and shady, and be lightly syringed four or five times a day until the roots work well in the new soil and the plant gets established. If a plant is in good health and the soil in sweet condition, yet the plant requires a shift, repot it

without disturbing the roots. This Anthurium is not only a most telling plant for exhibition, but can usually be depended on, as it is almost sure to be in bloom for the early summer shows and lasts a long time in beauty; but it is better not to allow the spathes to remain too long on the plants, as this weakens them considerably.—A. YOUNG.

ALNWICK SEEDLING GRAPE AND MELONS AT OSBERTON.

DURING a recent visit to the gardens at Osberton, Hall, Worksop, I was much struck with the splendid crop of Alnwick Seedling Grape growing there. After having seen this Grape grown and exhibited on several occasions, I venture to say the Osberton examples rank amongst the finest in the kingdom. Some of the bunches are upwards of 5 lbs. in weight, having very large berries, none of them stoneless, and all of them perfect in colour; in fact, it has set as freely as an Alicante. On inquiring of Mr. Woods how he succeeded in setting them so freely, he informed me that at the flowering period he carefully went over them in the early morning with a fox's "brush" to take the moisture off the stamens, then at midday he went over the Alicantes and Hamburgs that were in flower with the same "brush," finishing off with the Alnwick Seedling. The result is a most splendid set. Gros Guillaume and Black Hamburgs are also very good. Most of the Vines have all been planted within the past four years, and are making a very strong growth.

Melons are also well grown. These are in span-roofed houses. Mr. Woods' treatment differs somewhat from that practised by some good growers. He allows the plants to grow at will, taking up five or more shoots from each plant, not stopping them in any way until the crop of fruit is swelling. By this method he obtains very heavy and successional crops of fine fruits.—G. S.

TEA ROSE BEDS.

THE difficulty of growing Tea Roses, and their value and beauty when obtained, makes it a duty to chronicle success when achieved. This has been achieved to a very remarkable extent by Mr. H. Appleby of the Box Hill Nurseries, near Dorking. He seems to me to a very great extent to have solved the problem. A well-known Scotch adage, speaking of some excellent highland roads, remarks—

"Had you known these fine roads before they were made
You would lift up your hands and bless General Wade."

I knew Mr. Appleby's gardens long before they were made. He took possession of an open corn field, and has made it into one of the show gardens of the neighbourhood. He had certainly no special advantages for growing Tea Roses. The spot was swept by winds in all directions; the soil is light and rather poor; it is also sufficiently in the valley of the Mole to be liable to our terrible winter frosts. The main feature of the garden now is one long walk, containing 1200 standard Roses. The usual houses and glass fill up the front of it. The three Tea Rose gardens, of which I wish to speak, are on either side of the main walk.

In three instances a spot, about 22 poles long by 6 wide, has been planted with Arbor Vitæ. The young trees are now about 10 feet high. A narrow walk runs up the middle, on each side of which are the rows of Tea Roses. They had no protection through the winter except manuring, they were not mulched until the beginning of July, and they have flowered incessantly (being constantly cut from), besides throwing up strong shoots. At this date, August 10th, they look able to supply as good a box of twelve or eighteen as need be wished for at any of our greatest Rose shows. I never saw Roses that seemed more fully to enjoy themselves. The contrast to my own Teas under south and east walls, and what I consider favoured nooks, is most depressing. These Roses are perfectly free from the mildew, which has been worse this year than I have ever known it, and are as vigorous as heart could wish; indeed, Gloire de Dijon and its offspring, Madame Berard, shows a robustness which will lead, I apprehend, to their speedy expulsion. Madame Lambard is blooming as I have never seen it this year. Catherine Mermet and Madame Bravy are in the rudest health, and that beautiful red Aline Sisley, with Marie Van Houtte, are also very conspicuous for their abundant foliage and blossom. How the Teas will fare when the trees surrounding are three or four years older and help themselves to soil is perhaps a question, but at present no greater success is conceivable.

Mr. Appleby calculates the outside Arbor Vitæ bordering at about £5. The protection seems exactly what these fickle beauties like. They get the air they require, but it comes filtered through to them in softened proportion.—A. C.

PIGEONS IN GARDENS.

I HAVE noticed in your Journal a correspondence relative to the above subject. It appears Mr. Dolby is a grower of the very best qualities of Peas for seed, and that for a considerable period his crops have been mutilated, and indeed rendered comparatively worthless, by trespassing pigeons. A short time ago his son shot one whilst in the act of uprooting the Peas, and the owner instituted proceedings in the County Court for its presumed value, and was awarded by the presiding Judge a sum thought by many persons to be ridiculously wide of its worth.

I will draw your attention to the following matter. I have many splendid pigeons in confinement, and some common birds at liberty. A

short time ago I sowed some seeds in my garden, and as they did not germinate as anticipated, others were sown; this lot was likewise faulty. I blamed birds and slugs, and immersed the next seed in some poisonous Wheat-dressing, and then found out the culprits, for four of my own pigeons lay dead on the beds. Will you tell me whether if these birds had belonged to another person I should have been pecuniarily responsible? I cannot think so.

For the past twenty years I have (like many other chemists) sold arsenic, vitriol, and other poisonous preparations for dressing Wheat to prevent the ravages of the slug, grub, and wireworm, and if a farmer were drilling Wheat so dressed and a neighbour's pigeons came and followed the drill and ate the seed, would the farmer so sowing be subject to the neighbour for any fictitious value put on the trespassers? I regret to say that the verdict given in Mr. Dolby's case has provoked great censure, as it is thought by so many people to be very unnecessarily harsh.—JNO. QUEENBORO'.

[The statute governing this case is that of 26 and 27 Vic., cap. 113, which imposes a penalty not exceeding £10 (recoverable before two Justices of the Peace) for selling poisoned grain, seed, or meal, and a like penalty for sowing the same, but also provides (section 4) that "nothing in the Act shall prohibit the offering or exposing for sale, or selling, or the use of any solution or infusion or any material or ingredient for dressing, protecting, or preparing any grain or seed for *bonâ fide* use in agriculture only, or the sowing of such last-mentioned grain or seed so prepared.]

TOMATOES.

ON reading the note on Tomatoes at page 118, I referred back to the Journal of the week previous to the note from Mr. Thomson. Though our Tomatoes are planted in loam without any other addition, we have them later, when in full bearing, growing in almost half horse droppings. This is added in the form of surface mulchings, which are applied every ten days. Each mulching is about 1½ inch in thickness. These Tomatoes are growing on the shelf of a vinery. They also receive a little guano in the water every time water is applied. Others planted out in a lean-to pit after Melons, and in the same soil, have done perfectly well without any mulchings, while in a span-roof pit with a few inches in depth of soil we have the largest crop of all. Under these last named Maidenhair Ferns are grown, and to obtain large fronds of these the atmosphere was kept rather moist, with the result that about ten days ago signs of the disease were apparent amongst the Tomatoes. However, a change to a dry airy atmosphere has stayed the plague. This is the first time I have noticed the disease indoors, and to overmuch moisture and a too stagnant atmosphere I attribute the cause. The variety of Tomato is the "Drumlanrig," the most profitable in a market point of view I have yet obtained. We have been cutting from 50 to 60 lbs. weekly of late from this sort alone. Neither Trentham Fillbasket, Criterion, Excelsior, nor any other kind I have tried approaches this as a heavy producer.

Potash is without doubt the best manure for Tomatoes. Our earliest crop last season was grown in a root space of about 9 inches wide by about the same depth. The same manure the Potatoes were dressed with was supplied to these Tomatoes, and they perfected a good crop. Potash was the dominant manurial agent it contained, though both phosphates and nitrogen were present.—B.

SINCE I last wrote on this subject, on page 118, I have received from Mr. W. Thomson of Clovenfords two Tomato fruits, the larger one weighing 15 ozs., perfect in shape and colour, indeed a beautiful fruit of Hathaway's Excelsior. The smaller fruit, weighing about 3 ozs., is to me a mystery, and after careful examination I must confess I am at a loss to comprehend why this fruit should show such a peculiar appearance. Generally speaking, so far as my own experience goes, the Tomato when diseased from cold and wet seasons begins to decay at the stalk of the fruit, but this small fruit looks as if it had been simply peeled or injured in some way.

Is it possible that Mr. Thomson has many fruits on his plants like the one sent to me? It has the appearance of a young tree damaged by cattle eating off the bark. If not entirely barked all round the tree will each season grow or form new bark until it has clothed or covered the wound. The Tomato would not do this because of the nature of its fruit being liable to decay, but certainly it has the appearance of having overgrown the wound as if it had been skinned. I can only add that I never saw a fruit on any of our plants like the one Mr. W. Thomson sent to me.

I beg also to thank Mr. Thomson for giving us a recipe at page 139 for growing the Tomato well. Another season I hope to try the compost described, and if I can grow Tomatoes similar to the large one sent me without the help of stimulants I shall be satisfied.—H. CAKEBREAD, Rayners.

AN EASY METHOD OF DESTROYING WASPS' NESTS.

GARDENERS have many foes to contend with in the shape of birds, animals, and legions of insects, and are often puzzled to discover the easiest and most effectual method of destroying those troublesome pests of the garden. Among the gardener's most annoying of enemies, especially during the fruit season, are wasps. Grapes seem to be the most tempting to their palates of all fruits, and in some districts unless precautions are taken to exclude them crops suffer heavily from their ravages. Many

are the methods adopted to check these pests, but the most effectual one is to destroy the nests. The plan usually adopted to destroy them is that of making a squib of gunpowder and brimstone; but as this involves no small amount of trouble, and is not always effectual in action, besides being attended with danger, it is not to be recommended as being easy of application.

The simplest and most effectual method is that recommended by a correspondent of the *Times* some time since, and which we have recently practised with great success. It is as follows:—Take one or two tablespoonfuls of well-pulverised cyanide of potassium and place it near the mouth of the hole by day. As the pure cyanide is a powerful poison it must be handled with great caution. We would advise experienced persons to procure the commercial cyanide of potassium and get the chemist to pulverise it for them. Two tablespoonfuls of this form of cyanide will be found as effective as one of the pure, besides being less dangerous. In a few hours the wasps will become suffocated by inhalation of the fumes, and in six hours the nest may be safely dug out. In refilling the hole take care to first throw in the remaining cyanide that exists to prevent fowls or other domestic animals coming in contact with it.—T. W. S., *Lee*.

THE STRAWBERRY SEASON.

THE Strawberry season now just over has been one of the most productive I have ever known, but the weather at times was too showery, and some of the fruit was injured in consequence. I have at last decided to do away with a bed of Keens' Seedling, which has been down for a great number of years; I am afraid to say exactly how many, but I believe it was made in 1868. The crop was as good as ever in quantity, but the size of the fruit showed evident signs of falling off, and some couch grass is troublesome to eradicate. I am frequently asked how often I make fresh beds. My reply is, When the old ones cease to be profitable. I have already made a new bed of Keens' Seedling, and do not expect to be troubled with another for the next ten years at least. Sir J. Paxton and others I cannot keep going quite so long, but they generally continue for seven or eight years. Perhaps in other situations where the drainage of the soil is not as good they may require renewing oftener. Sir J. Paxton was not so good as usual this year from the rain and absence of warm sunshine, but I fortunately put out a good bed of Elton Pine the year before last, and they were excellent. I intended them for preserving, but they were the best I had for dessert at the time they came in. The plants came from Messrs. Lovel & Son; and I take this opportunity of observing that there is not a more profitable investment than sending to a good grower for your plants if you do not happen to have just what you want of your own, for the extra crop of fruit you obtain the first year more than pays for the cost of the plants. I have tried many Strawberries, but not grown every Strawberry under the sun yet. This year I have Alice Maud (not a new one), and find it answers very well. Forman's Excelsior, too, I have tried; the fruit is of good flavour and fair size, but I have not grown it long enough to decide about its cropping qualities. I have also tried another, which I believe to be either James Veitch or Sabreur; perhaps some of your readers can tell me which it is. The fruit is large, of good flavour, and pinkish in colour; the leaves pale green, and the stems of the leaves and the stems of the runners of a dull reddish hue, which is decidedly peculiar. There was some confusion in the names. I ought to have had two sorts, but they were all one, and I do not know which.—AMATEUR, Cirencester.

PETUNIAS IN POTS.

THOSE who have appliances, skill, and time prefer to grow plants that become more valuable as they increase in bulk, and for greenhouse work indulge in specimen plant-growing more or less, and for such many valuable hard and softwooded plants exist in plenty. Those who lack the appliances, or the skill, or the time to devote to certain plants are equally well provided for, especially in the way of easily grown Pelargoniums, Begonias, Petunias, and lots of other showy decorative kinds. Petunias, like Zonals, are not subject to any insect pest, and that is a great point in their favour. Another is that they are continuous bloomers, unless by sheer starvation they be stopped. Easily propagated and easily grown, showy and highly useful either as small decorative plants, as large specimens, or as screens, they have many points in their favour.

For early summer work, to come in after the Azaleas, the Hyacinths, Tulips have gone, autumn is the best time to strike them. For soil, ordinary potting soil such as we use for Roses, Fuchsias, and Pelargoniums will do, only it should be open, so that the delicate roots may move freely. A good admixture of flaky leaf soil secures this.

For many decorative purposes the bright-coloured doubles are best. In order to have such well furnished it is necessary to begin pinching and staking from the very first. When these are wanted pretty large for conservatory decoration it is necessary to go on pinching continually and removing the blooms till these are wanted. The shoots should never be allowed to grow into each other, as the leaves are very sticky and the stems very brittle. For doubles the bush form is best, and there is no

excuse for having the plants not covered with bloom from the pot upwards. It is only a question of feeding and pinching.

The singles are far best on flat trellises and make capital floral screens—better than anything else that could be named, perhaps, for covering back walls or shutting out unpleasant views. For this purpose trellises made of a stout galvanised wire to form the circumference; and galvanised wire netting, such as is used for poultry runs, if neatly manipulated is as good as anything. These stout stakes with protruding ends to insert in the pots give the necessary rigidity. According to the positions they are to fill they may be made with a surface of from 10 to 30 square feet.

It is very easy to cover such a surface with leaves. A few growths trained round and round the trellis will do that; but the sole beauty of the Petunia lies in the mass of colour they present when well grown. To succeed in having an unbroken sheet of bloom all over the trellis from the pot upwards pinching must be commenced when the plants are not over 3 inches high, and every shoot must have the point taken out when it has grown from 2 to 3 inches. If this treatment is persevered in, and a proper distribution made of the resulting shoots, there will be at least one growing flowering shoot for every square inch on the trellis.

Petunias must not be placed in too large pots or in greasy mixtures that are supposed to be rich. For decorative plants 4 or 5-inch pots are sufficient, and to maintain the supply repeated batches can be brought forward. When young and vigorous too rich soil causes a too rapid growth, and the flowers, especially those blotched with white, are muddy in colour. Moderately grown the purity of the white is untarnished, and its proportion is greater than when too great vigour is maintained. Moreover, under such conditions the plants do not become so rapidly ungainly in appearance.

After flowering for some time, however, signs of exhaustion show; the growths fail to lengthen, the leaves turn sickly yellow, and flowering fails. This should be anticipated and prevented by judicious applications of liquid manure. For sitting-rooms nothing equals nitrate of potash. It is cheap, a first-rate stimulant, and gives out no evil-smelling or unwholesome gas. In glass houses not adjoining living-rooms, guano water, or any stimulant made from animal manure or soot, is good, none being cheaper, because taking neither money nor time, than weak sewage or urine, and none is more satisfactory. Judiciously applied such feeding will keep Petunias growing a whole summer in pots apparently far too small.

Large plants on trellises of course require larger pots, but "the more hurry the worse speed" if it is tried to get up large plants quickly by giving large shifts into rich soil. Petunia roots do not take well with such, and greater progress will be gained by giving small shifts, using sweet open material enriched either beforehand—that is, by loam enriched long before use—or at the time with only very fine bonemeal or Standen's manure. An 8-inch pot will sustain a densely covered trellis of 12 square feet, a 10-inch 20 square feet, and a 12 over 30 feet. Strong-growing varieties should be used for the larger plants, smaller growers for the lesser size.

And what an ado about a plant that grows everywhere like a weed! It grows much too well, and hence it is neglected or half grown. As too often seen Petunias are not half nor quarter the ornaments they ought to be. In one case they are grown strongly and the colour ruined; unpinched, and few blooms the result. In another they are starved and unsatisfactory. When properly grown they are green and neat before blooming, and solid with colour when in bloom.—SCOTIA.

REVIEW OF BOOK.

Handbook to the Ferns of British India, Ceylon, and the Malay Peninsula. By COL. R. H. BEDDOME, F.L.S. Calcutta: Thacker, Spink, and Co. London: W. Thacker & Co.

INDIAN Ferns comprise many of the most beautiful of those now so largely cultivated in England; and though there is not a very great number restricted to that portion of Asia known as British India, a large proportion of the tropical species from the Old World have been introduced to England directly from India owing to the frequent intercourse with this country. They, therefore, have considerable interest in what may be termed an historical point of view, and when to this is added the fact that the really elegant and beautiful species are so abundant, it can be imagined that a work devoted solely to them must possess a large share of value and utility. The author of the work now under consideration is well qualified for the task he has undertaken, having, during a long residence in the Indian peninsula, become familiarly acquainted with the native Ferns, and he has proved by the works previously issued by him—viz., "The Ferns of British India," "The Ferns of Southern India," and the "Flora Sylvatica of Southern India,"

that he has acquired, in a considerable degree, that accuracy of discrimination and observation which distinguishes the best practical botanists. In reference to these, however, it is remarked in the preface that they were "compiled in India without access to libraries or to any herbarium with typical specimen. He has now had the advantage of going thoroughly through the Wallichian Ferns at the Linnæan, the large collections at Kew and in the British Museum, and of comparing his own collections with typical forms, and he is besides indebted to Messrs. Baker & Clarke, especially in the determination of all critical forms, so that he has been able, he believes, to clear up many doubts and to correct many errors." This last production may therefore be taken to be as reliable as the careful labour of a competent observer can make it, and after full examination of it we can only express our unqualified approval of it in this respect.

About 700 species and varieties are fully described, 500 pages being

Diplazium, Anisogonium, and Hemidictyum are separately treated in one work, while they are arranged under Asplenium in the other; similar instances occurring with the Polypodiums, which, according to Hooker and Baker, include Goniopteris, Dictyopteris, and Goniophlebium, while Beddome raises these to distinct genera. This is a matter perhaps of small moment, and possibly is an advantage rather than otherwise in a work of this character, especially where the number of species is small in the several sections, and often the difference in habit is very great and striking when the characters of the fructification are so nearly alike that they can be scarcely separated.

The geographical limits assigned to the work comprise British India, Ceylon, and the Malay Peninsula—a most extensive and fertile portion of the globe, and which in certain portions and to great elevations abounds in members of the great family Filices. Not only are the strictly native Ferns abundant, but we there find many of our own British species sharing the soil with their tropical allies, and strange indeed it must seem to the traveller from England who first observes the common Bracken growing as vigorously under the torrid zone as in our temperate climate. Many other well-known British Ferns also appear in these regions, and among them the following may be briefly noted:—*Adiantum Capillus-Veneris* is found in the Madras Presidency on the west side, and is common on banks of rivers, in the plains, and up to 5000 feet on the mountains, also in Ceylon and Northern India. Several *Aspleniums* are similarly abundant. *A. Trichomanes* is found at Kulhatty, on the Nilgherries, in the Himalayas from Kashmir to Kumaon at 5000 to 10,000 feet elevation. *A. septentrionale* grows in Northern India at Kashmir from 9000 to 12,000 feet above the sea level, and at Gurwhal at 8000 feet. The Wall Rue, *A. Ruta-muraria*, is found in Kashmir, as also is *A. Adiantum nigrum* up to 8000 feet. *Athyrium Filix-fœmina*, with seven varieties, is chiefly confined to the Himalayas at elevations varying from 6000 to 15,000 feet. The Male Fern, *Lastrea Filix-mas*, is found throughout the Indian region, but generally confined to the mountains at great elevations. The Royal Fern, *Osmunda regalis*, is, says Colonel Beddome, chiefly wild in "South India, common on the western mountains at the higher elevations, North India, Kumaon, Bhotan, and Khasya at 4000 to 6000 feet elevation. It is usually small, the fertile and barren fronds separate." Lastly, the Adder's Tongue *Ophioglossum vulgatum*, is a native of Sikkim, Goke, at 4000 feet above the sea, at Runjait Camp and below Darjeeling, at 2000 feet elevation.

Genera typical of India are not numerous, but some are strongly represented, and amongst them *Asplenium*, *Cheilanthes*, *Davallia*, *Hymenophyllum*, *Lastrea*, *Nephrodium*, *Pleopeltis*, *Pteris*, and *Trichomanes* are the most notable. Eleven *Hymenophyllums* are enumerated, and of these several, such as *H. parvifolium*, *tenellum*, *exsertum*, *Simonsianum*, and *Levingii*, are confined to the districts included in the scope of this work; others that are more widely distributed are *H. polyanthos*, *H. javanicum*, and *H. ciliatum*, the two latter being also found in New Zealand. Nineteen *Trichomanes* are described as natives of India, the principal indigenous species being *exiguum*, *nilgherrense*, *Henziaenum*, *Kurzii*, *intramarginale*, and *birmanicum*. Thirty-eight *Aspleniums* are mentioned, twenty *Diplaziums*, twelve *Aspidiums*, forty-six *Lastreas*, nineteen *Nephrodiums*, eighteen *Polypodiums*, thirteen *Nipholobolus*, and thirty-five *Pleopeltis*. The charming little *Cheilanthes* may almost be considered typical Indian Ferns, the former comprising twelve species, of which *mysorensis*, *fragilis*, *varians*, *subvillosa*, *albo-marginata*, *rufa*, and *argentea* are either solely Indian or at least confined to Asia. Several of these are most graceful and attractive with their delicately powdered silver and golden fronds, but unfortunately they are found very difficult to manage satisfactorily under cultivation.

As already stated the illustrations are admirable, most accurately and delicately executed, with enlarged representations of fertile pinnæ or pinnules and the sori. A defect, however, is noticeable—namely, that the proportion of the figure to the plant is not stated, though of course this can be ascertained by reference to the descriptions where the size of frond and height of the plant are mentioned;

still it would have been an advantage if it had accompanied the plates, as most of them are greatly reduced. As examples of the descriptions and plates we have selected two—namely, *Doryopteris ludens* and *Drymoglossum piloselloides*, both interesting and curious species.

DORYOPTERIS (*J. Smith*).

(*Dory*, spear; *pterus*, form of the fronds.)

Fronds small, sub-pedate or sagittate, in texture and colour like *Pellaea*; veins copiously anastomosing, without free included veinlets; the rest as in *Pteris*.

1, *DORYOPTERIS LUDENS* (*Wall.*).—Rhizome creeping, furnished with linear adpressed brown scales which have white margins; stipes solitary distant, polished, sometimes with a few scales, and often with dusky subtomentose pubescence at base and apex; barren frond on a stipe 3 to 4 inches long, triangular with two slightly deflexed basal lobes, to hastate with two



Fig 28.—DORYOPTERIS LUDENS.

devoted to this and 300 excellent plates (woodcuts), which would alone render the book a most welcome addition to the pteridologists' library. It is modestly described as a digest of the information in Sir W. Hooker's "Species Filicum" and "Synopsis Filicum," Mr. J. Smith's "Historia Filicum," and the other works of Col. Beddome himself and Mr. Clarke. The descriptions of sub-orders, tribes, and genera are mostly the same as those in the "Synopsis Filicum," and the characters of the species are also only slightly modified, a few being original, and some having been taken entire from the "Synopsis" above mentioned. The general order of arrangement is also the same, with the exception that most of the sections of genera or sub-genera are raised to the rank of genera. For example—*Humata*, *Leucostegia*, *Microlepis*, and *Stenoloma* are all described by Col. Beddome as genera; while in the "Synopsis Filicum" they are merely sections of the genus *Davallia*. Again, *Athyrium*,

basal and two large spreading lateral lobes, the margin entire; fertile frond on a stipe often 12 inches long, 4 to 6 inches each way, cut down into five linear-lanceolate or lanceolate lobes, one erect, two spreading and two deflexed, of which all except the last are sometimes again forked; texture coriaceous; costa polished; veins hidden; sori continuous all round the margin. *Wall. Cat. 88. Hook. Syn. Fil. 166. Clarke, F. N. I. 470. Litobrochia ludens and pedata, Bedd. F. N. I. t. 26 and 27.*

Chittagong Hills up to 1000 feet elevation; Orissa, on the Balasore Hills; Birma. (A specimen in Wight's herbarium of this or an allied species is supposed to be from the Dindigul mountains in the Madras Presidency; but it has never been found there of late.)

Also in the Philippine islands.

DRYMOGLOSSUM (Presl.).

(*Drymos*, wood; *glossa*, tongue.)

2, **DRYMOGLOSSUM PILOSELLOIDES (Presl.).**—Rhizome long filiform, wiry, clothed with adpressed, diamond-shaped, peltate, lacinated scales, which are sometimes hair-pointed; stipes about 2 lines long in the sterile, often about 1 inch long in the fertile fronds; fronds dimorphous, the barren ones roundish or obovate, half to 2 inches long, three-quarters of an inch broad, very thick and fleshy, and when young more or less covered with stellate hairs; the fertile ones 2 to 4 inches long, one-eighth to one-fourth of an inch broad; veins immersed, areoles with copious free veinlets; sori in broad continuous marginal lines, often at length confluent and covering the whole under surface; capsules mixed with a few stellate paraphyses. *Presl. Tent. Pterid. 227, t. 10. Bedd. F. S. I. t. 55 and F. S. I. t. 186 (Niphobolus nummularifolius).*

Bengal Plains; Birma; Ceylon; South India, common in the Malabar plains (Calicut, &c., on trees) also on the mountains, up to about 2000 feet elevation (Anamallays, Wynad, Coorg, &c.)

Also in Java, Philippines, and Japan.

With regard to the last-named plant, it may be remarked that a specimen at Kew differs widely from the figure, the fronds being much larger, more ovate in form, and decidedly less ornamental in appearance. Probably, however, this is due to cultivation, which often destroys the typical characters of plants. It may be further added that a variety distinguished by stellate hairs and more pointed scales has been named *Beddomei* by Mr. Clarke in honour of Col. Beddome.

As regards printing, paper, type, binding, and general finish the work is all that could be desired, and will undoubtedly be welcomed by many lovers of Ferns both at home and in our Indian empire.

APPLE MR. GLADSTONE.

CAN any of your readers inform me through the Journal who was the raiser of the Apple Mr. Gladstone? I was not aware but what it was sent out some time ago. We have a tree of it from Messrs. Charles Lee & Son, Hammersmith, two years ago. Having been at the Royal Horticultural Society's Gardens last Tuesday I saw it there, and could see it was exactly the same kind as mine. I could have exhibited a much better sample than I saw there, and if I had done so who would have had a right to the certificate?—G. T.

[We do not know the origin of this Apple, which we suspect has been in cultivation for some years. Perhaps Mr. Bunyard or Mr. Killick, both of whom grow it, may be able to give information on the point. If our correspondent had staged better fruit than that exhibited at the meeting in question he would presumably have had a certificate. Can any of our correspondents inform us who named this Apple "Mr. Gladstone."]

PEA EVOLUTION.

I HAVE grown this new Pea of Mr. Laxton's during the present season, and it appears to me to well keep up that character of *multum in parvo* which is one of the chief characteristics of Mr. Laxton's seedlings. As Mr. Ward said the other week, Evolution is essentially a Pea that must be sown thinly, partly from its branching habit, and partly from its broad strong foliage. I am of opinion that we often breed weakness in our Peas, and by so doing invite disease, as mildew—to say nothing of the waste of valuable seed—by our habit of sowing too thickly. Now Evolution and Omega, and indeed most of Mr. Laxton's Peas, must be sown thinly, or mischief will follow. Evolution grew with me this year 3½ to 4 feet high. It produced flowers soon followed by stout and straight well-filled pods, containing eight and nine peas in a pod. This very characteristic of strong and well-filled pods will enhance its value materially in a market point of view, as peas with thin and flabby pods with knocking about soon look bruised and unsaleable at good prices. Summing up, it does not require much consideration to predict a useful future for Evolution, it having all the good qualities already mentioned, which we may now tabulate thus:—

1, Economy of seed, by thin sowing; 2, Shortness of haulm, not re-

quiring high sticks; 3, Quickness of produce, soon ready; 4, Strength and fulness of pod and pea; and 5, Pleasant flavour when cooked.—N. H. POWNALL, *Lenton Hall Gardens.*

THE GLAMORGANSHIRE SHOW.

THIS Show was held at Cardiff on August 15th. The exhibits were displayed in six or seven large tents, which were erected in a field adjoining the Sophia Gardens, and although rather a strong wind was blowing the day was a very enjoyable one. As a rule this Show is largely supported by exhibitors, sightseers, and subscribers from all parts of South Wales and Monmouthshire; and this year's Show fortunately proved no exception to its predecessors, as the patronage was very good, the exhibits numerous and of high quality generally, and the management was all that could be desired, as Mr. H. F. Lynch Blossie, the Hon. Sec., and Mr. J. G. Jones, the Assistant Sec., are unremitting in their attentions to all the details which concern the well-being of the Society and Show. In times gone by the weather has occasionally interfered with the harmony of the proceedings, but the



Fig. 29.—*DRYMOGLOSSUM PILOSELLOIDES.*

perseverance is constant and we have no doubt success will be the ultimate result.

The finest of the plants were shown in the largest tents and formed highly attractive features. Owing to the absence of distant exhibitors, such as Mr. Cypher and others of equal note, the smaller local exhibitors had a good time of it and secured the chief plant prizes; but as they have been striving for this for some years many of their specimens richly deserved the highest distinction. This was especially the case with the eight distinct exotic Ferns shown by Mr. Woodward, gardener to C. Luard, Esq., Llandaff House, Cardiff, who had some grand specimens, including *Gymnogramma chrysophylla*, *Davallia Mooreana*, *Adiantum tenerum*, and *A. farleyense* 6 feet

in diameter and as much in height. This was a noble magnificently furnished specimen, and undoubtedly the best plant in the Show. The £15 prize for twelve stove and greenhouse plants was taken by Mr. Hemming, gardener to James Howell, Esq., Cardiff, who had well-grown examples, including some finely bloomed plants of *Dipladenia hybrida*, *Allamanda Schottii*, and *Ixora Williamsi*. Most of the other fine-foliaged plant prizes were secured by the same exhibitor, and Fuchsias were shown in splendid order by Colonel Hill, Rookwood, Cardiff. Hardy Ferns were exhibited in grand form from the garden of Sir George Walker, Cardiff, and in the same tent the Zonal Pelargoniums made a most effective display. The double-flowering varieties especially had an astonishing number of massive heads of the richest colours.

In the nurserymen's Rose class the premier position was taken up by Mr. Stephen Treseder, Ely Road Nurseries, Cardiff. Mr. Earl, Newport, won the second prize. In Mr. Treseder's stands there were many really fine well-developed perfect blooms. Louise Doré, Madame Eugène Verdier, Horace Vernet, Marie Baumann, Alfred Colomb, Mrs. Jowitt and A. K. Williams being of the very highest merit. In the open class for Tea Roses Mr. Treseder was again to the fore with a rich selection. Near to these Mr. Crossling, of the Penarth Nurseries, Cardiff, exhibited a splendid stand of Tea Roses, and considering that the whole of them were open-air blooms his soil and situation must be most favourable to the development of the Rose. Dahlias, Gladioli, and Phloxes were shown extensively. Gloxinias and Balsams were very poor, but Achimenes were good. Hollyhocks might very well be left out of the list, as the competition here is always weak.

Fruit always form an interesting section, but this year the Grapes, Pines, and Melons were not up to former excellency. The judging, too, was very unsatisfactory, as, for instance, three bunches of Black Alicantes which should have been shown in the Any variety black class were placed with the Black Hamburgs, and were awarded first prize in the Hamburg class. Noted florists are no doubt useful among florist flowers, but the Cardiff Committee might profit by remembering that practical fruit and vegetable growers are best able to adjudicate on productions of this kind. The first prize-collection of Grapes from Mr. F. Case was strong in variety but poor in quality, all the bunches being small and the majority of them barely ripe; but there was worse than them there in several exhibits of Madresfield Court, which were really perfectly unfit for either showing or eating. For three bunches of Muscat of Alexandria, Mr. Hawkins, gardener to Colonel Turbeville, Ewening Priory, Bridgend, was first with excellently coloured bunches. The best Pine Apples came from Mr. Crawshay Bailey, and the first prize, nine dishes of fruit, from the Misses Rous, Colonel Page being second and Mr. Hawkins third. Good Grapes, Peaches, Nectarines, Figs, and Plums were the leading dishes in all these collections. Melons were numerous, the fruits being chiefly of average size and rich colour. Carter's Blenheim Orange was very conspicuous. For the best of any kind, Colonel Lee, Dinas Powis, was first, and Mr. J. Ayres, Cardiff, second, with William Tillery. We have seen the Apples, Pears, and Plums much better at this Show, and Peaches and Nectarines more numerous, but the fruiting Vines in pots from Mr. C. Thomson and Colonel Page were grand.

The Vegetable section was well filled as usual, the open class for nine dishes being the centre of attraction and contention. Here Mr. J. Muir, Margam Park, Taibach, was first with excellent produce, the kinds being Defiance Celery, Muir's new hybrid Vegetable Marrow, Snowball Cauliflower, Giant Marrow Pea, Glamorgan Tomato, Porter's Potato, Suttons' Champion Runner Bean, Stumprooted Carrot, and Giant Zittau Onion—a grand dish, two dozen bulbs weighing 24 lbs. Mr. Moor, Coedriglan, was second with some fine produce, and Colonel Page third. The single-dish classes of vegetables were well filled, and the cottagers' vegetable tent was highly creditable to this class, both in quantity and quality.

The dinner-table decorations had many admirers. Many of the vases of cut flowers were exceedingly pretty, and the most charming of all were those filled chiefly with common flowers and wild grasses.



WE may remind those of our readers who are interested in the DAHLIA that the grand annual Show of this queen of autumn flowers at the Crystal Palace is near at hand, Friday next, August 24th, being the last day fixed for sending in entries. The Show itself opens on the 31st inst., and, as Dahlias are blooming well and early this season, a good display may be anticipated on this occasion. We note that over £100 are offered in prizes, and that the schedule makes provision for the exhibition of all kinds and conditions of the flowers—Show varieties, Fancies, pompons, and singles—so that we may look for a thorough and complete illustration of the different types which have been evolved since the Dahlia came into the hands of the florist. The Dahlia is an autumn flower which none of us can afford to spare whatever type may be preferred by each; and we therefore trust that this second "Grand National" Show may be thoroughly worthy of its object, and serve to bring the flower again into more general notice; the more so, in that every possible taste may now be fully satisfied. We understand that the Committee have made arrangements by which town and country friends and admirers of the Dahlia may meet and enjoy a social

chat over a modest luncheon. May they each carry away pleasant recollections of the *réunion*.

— A CORRESPONDENT describes *MICROSPERMA BARTONIOIDES* as one of the prettiest of annuals for greenhouse decoration during the summer months. It is neat and dwarf, and though it branches freely it never looks untidy. The leaves are not unlike those of the Chinese Primrose, though they are rough with stiff hairs, as are also the stems. The flowers are extremely elegant, and somewhat resemble *Bartonia*. They are of the most lovely lemon colour imaginable, and have the centres filled with a thin brush of stamens. It is found to be valuable for the purpose above mentioned by Mr. Lynch at Cambridge.

— CHARMING as a greenhouse climber in the Cambridge Botanic Garden is *LOASA LATERITIA*. Its habit is most graceful for this purpose, and the red flowers are uncommon-looking, while the twisted fruits are also interesting. Several of the *Loasæ* are good for greenhouse culture. *Loasa vulcanica*, which is one of the best with white flowers, and *Microsperma bartonioides* are in company with the above, and *Bartonia aurea* is used for the spring. *Loasa vulcanica* is very fine if planted out and taken up when the flowers appear.

— AS growing upon the rockery in the same garden *DRACOCEPHALUM ARGUNENSE* appears to be one of the best of the kinds. It is a perfect perennial, and grows in a tuft about a foot high. The leaves are narrowly lanceolate, and the flowers, which are whorled in terminal racemes, are of large size with bellied throats and of purplish blue colour. It is a Siberian species.

— NOT by any means common, yet very distinct, is *GLADIOLUS PURPUREO-AURATUS*, which appears to be quite hardy in a sheltered position. The flowers are more bell-like than those of other cultivated kinds, and are of greenish yellow colour, with bands of purple on the three lower segments. Though not showy it is handsome in its way, and is worth growing for the character it affords among commoner-looking plants. It was introduced from Natal about ten years ago.

— AN experienced cultivator recommends *SILENE SHAFTA* as valuable for every rockwork, being extremely pretty with red flowers at various times of the year, and because when once planted it is sure to take care of itself. It is, however, by no means rampant or coarse in habit, but, on the contrary, forms a neat tuft of some few inches only in height. The stems are slender and bear small obovate pointed leaves, and the flowers are rather larger than a shilling. It is easily increased by division or seeds. A native of the Caucasus.

— AMONG decorative plants *SALVIA GRAHAMI PURPUREA* is one of the large collection of kinds which just now attract attention. It is like *S. Grahmi* in every particular but that of colour, which is precisely the crimson lake of the artists, and is very rich and good. Sprays are very elegant for mixing with other cut flowers.

— A CORRESPONDENT sends us the following note on the FRUIT CROPS IN FIFESHIRE:—"For many years the fruit crops have been inferior both in quantity and quality in the above county. Indeed, since 1870 no really heavy crops of first-rate fruit have been had. This year, however, the crops of almost everything are extremely heavy. Gooseberries in most places almost broke down the bushes. Raspberries and Strawberries have been particularly fine, and other small fruits good. In Ramornie Gardens, Ladybank, the Apple trees under the care of Mr. George Blyth are loaded with fruit in almost every instance, and the Plum crop is good both on standards and the walls. Pears are, in some instances, very good, and Cherries were very fine. All that is wanted is a good autumn to fill the fruit-rooms and the cooks' jars. At present the Apples are rather small, partly owing to the enormous crop, partly to the rather backward season; but it is hoped the fine weather now being enjoyed will continue."

— REFERRING to the EFFECTS OF LIME ON VINES the same correspondent observes:—"In the garden above alluded to the Vines have very considerably improved, chiefly in consequence of the application of lime. The soil is very light and sandy. Bones have been given to supply phosphoric acid. In consequence of former heavy applications of urine and ordinary manure, potash and humus are plentifully present. As is well known, these applications tend to cause even a large amount of lime to disappear. When the soil, as in this case, contains none, it is easy to foretell that the application of lime to such a lime-loving plant will cause rapid improvement. The Vines in question were very much

exhausted, but already very marked improvement can be seen, and this season a very heavy crop of useful well-finished fruit is being used."

— DR. MOHN, in describing Jan Mayen Island, which is in the North Atlantic Ocean, off the coast of Lapland (lat. 71° north) gives the following LIST OF PLANTS that were "collected by Dr. Danielsen on the isthmus south of Mary Muss Bay, and which are examples of sub-arctic flora:—*Saxifraga cæspitosa*, *S. nivalis*, *S. oppositifolia*, *S. rivularis*, *Halianthus peploides*, *Cerastium alpinum*, *Draba corymbosa*, *Cochlearia officinalis*, *Oxyria digyna*, and *Catabrosa algida*. This is a very meagre flora, but bright herbage is not wanting. The green carpet of moss in places of considerable extent forms a striking and pleasing contrast to the black, brown, and red of the surrounding rocks."

— THE "Proceedings of the LIVERPOOL NATURALISTS' FIELD CLUB" for the year 1882-83 is now issued, and contains an account of the numerous excursions and evening meetings held during the year, together with the names of all who have gained prizes, and a list of books and scientific apparatus useful in the pursuit of natural history. The address of the President, the Rev. H. H. Higgins, M.A., is also given—namely, "Notes on Grange-over-Sands by an Invalid Field Naturalist," which contains a great amount of interesting information respecting the natural history of the district, especially the botany, which is ably dealt with. The Society has a large number of members, and the financial account for the year shows a balance in their favour of £82 8s. 5d.—convincing proof that the objects are well appreciated.

— IN the course of the above address occurs the following interesting passage respecting a search for AQUATIC PLANTS:—"In the water just below the margin, and amongst the grass on the bank, are two plants which as well deserve to be considered interesting as the tower-like trees of the Yosemite. The water-plant looks to be a tuft of tiny Leeks, 2 inches in length and growing on a stock; it is the Quillwort, *Isoetes*. The other in the mossy grass close by is like a single upright stem of a Moss; it is the Lesser Club-moss, *Lycopodium Selaginella*. These two little herbs have been dropped by the wayside out of the great imperial procession of the plants along the ages, from the green vegetation of the coal fields to the gorgeously painted flora which now adorns our world. They increase in the same primitive way with most of the coal plants. Each of them has two kinds of spores, a large and a little kind, and these indicate the small beginnings of that magnificent, phanerogamic, twofold arrangement of anther and pistil, in which the animal and vegetable kingdoms have been associated to cover field and forest with beauty. The two kinds of spores in *Selaginella* are at the base of bracteal scales on the stem, but in the Quillwort they are in the rootstock. The coal vegetation was chiefly of two kinds—Ferns and the like of Club-mosses. The Ferns seem already to have attained their climax, and to have ceased progressive development. Their type had gone as far as it was fitted to go. Ferns were probably at least as various and as beautiful then as they are now. But the Club-mosses and their allies were then large trees, *Sigillariæ* 60 feet in height. Their type has gone on through the Cycads to develop into our glorious horizon of flowering plants, whilst the *Sigillariæ* themselves have so ill prospered as to have few better representatives than our two little plants on the borders of the rivulet."

— ONE of the illustrated London periodicals contains the following respecting GLOUCESTERSHIRE GARDENING ORTHOGRAPHY:—"With all the fuss that has been made of late years about education, the schoolmaster seems to have been strangely absent from a little town in Gloucestershire which boasts a Mayor and Corporation, and where the following notice has recently been put up by a gardener:—Plants for Zale Hin Heere Kalliflour, Brokaler, Weentur Greene, Raggit Jak, Kottigurs Cale, Brussels Sprowts, Sprouting Brokla, Sallery Plants for Zale."

— BESIDES being interesting by reason of its economic and medicinal value, the SCAMMONY (*CONVOLVULUS SCAMMONIA*) commends itself as a hardy ornamental climber. Anyone visiting the College Botanic Garden, Dublin, just now will be inclined to agree with this estimate of it on seeing a plant of it growing in one of the grass plots, and wreathing the dry bush provided for it to ramble over with its pretty deep green arrow-head-like leaves and abundance of small white *Convolvulus*-like flowers. Near it is growing in the same way, but not yet in flower, the kindred Jalap plant, *Convolvulus Jalapa*.—(*Irish Farmers' Gazette*.)

— A CORRESPONDENT writes that the EASTBOURNE FLOWER

SHOW was held on August 15th by the kind permission of Mr. and Lady Howard in the park adjoining the grounds of Compton Place, which were also open to the public. The Show was a great improvement on last year in everything except the large plants, which, although as good in quality, were not so numerous, owing, no doubt, to a reduction in number of prizes. There were about 100 bunches of Grapes exhibited in the various classes provided for them. In the plant classes Mr. Gilbert, nurseryman, Hastings; Mr. Rann, The Gardens, Honduras Park, Crawley; Mr. Jupp, gardener to G. Boulton, Esq., Torfield, Eastbourne; Mr. Matthews, gardener to G. Matthey, Esq., Rosemount; Mr. Gore, gardener to Captain Taylor, Glenleigh; and Mr. Martin, gardener to J. G. Langham, Esq., Westdown, were the principal prizetakers. But the great feature in the Show was the beautiful group of Ferns arranged for effect in a most pleasing and natural style by Mr. McBean of the home for Maidenhair Ferns, Cooksbridge. In the smaller classes Mr. Huggett, gardener to Dr. Jeffreys; Mr. Siggs, gardener to Lady Superior, Connalescent Home; Mr. Gilbert; Mr. Gore; Mr. Gregory, gardener to Admiral Maxse, Avolon House; Mr. Piper, nurseryman, Uckfield; Mr. Mitchell, Piltdown Nursery; Mr. Woollard, Cooksbridge; and Mr. Edwards, Three Bridges, were the most successful. In the fruit classes Mr. Williams, gardener to F. Liddell, Esq., Peasmarsh; Mr. Gore; Mr. Dixon, gardener to Sir S. M. M. Wilson, Uckfield; Mr. Hopkins, gardener to R. Thornton, Esq., Framfield; Mr. A. McBean, gardener to C. P. Wragge, Esq.; and Mr. Chatfield, gardener to J. Holman, Esq., secured the principal prizes with creditable produce.

— IN reference to TREE-PLANTING IN MEXICO the *Times* gives the following note:—"The Mexican Government has concluded a contract with Mr. Oscar A. Droege to plant 9,000,000 of trees in the Valley of Mexico within four years, commencing March 15th, 1884. Half a million trees a year are to be planted in such places as the Government shall decide. The contractor pledges himself to establish a number of nurseries, and to have in them each year at least 80,000 *Asb*, 35,000 Willows, 120,000 *Poplars*, 60,000 *Eucalyptus* trees, 60,000 Mountain Cypress Cedars, 60,000 *Acacias*, and 120,000 of miscellaneous varieties. The trees must be in plantations of from 50,000 to 100,000 each, and Mr. Droege has to maintain them for two years after planting. He is not compelled to plant trees along the highways, however. Three graduates of the School of Agriculture are to be received into the nurseries each year, there to study the science of forestry. He is also to raise fruit and other useful plants for free distribution. There is to be translated from the German every year a work on arboriculture of recognised merit. An inspector is to superintend, and Mr. Droege is to receive annually 40,000 dols. till the sum reaches a total of 200,000 dols."

— THE twenty-fourth annual Exhibition of the KEEVIL DISTRICT HORTICULTURAL SOCIETY was held on August 15th at Eood Ashton Park, Trowbridge, the beautiful seat of W. H. Long, Esq., M.P. The site chosen was an extremely pretty one, and the grounds also being thrown open to the visitors, formed an additional attraction. The primary object of the Society, which comprises several parishes, is the encouragement of industry, cleanliness, and good gardening among cottagers, and in this they have been most successful. The cottagers' tent was filled with vegetables of all kinds, which were really generally superior in quality to those shown by professional gardeners. A fairly liberal amount in prizes is offered for plants and fruit to be shown by amateurs and gardeners, as without the exhibits resulting the Show would not be sufficiently attractive. *Fuchsias* are always to be seen in fine condition at any Wilts or Somerset Show, and the present was no exception to the rule. The best six staged by the gardener to Dr. Hitchcock consisted of fine well-bloomed pyramids. The best six stove and greenhouse flowering plants were exhibited by Mr. G. Tucker, gardener to Major W. P. Clarke, Devizes. The best six fine-foliaged plants were staged by Mr. C. N. May. The first-prize group of twelve Ferns were shown by Mr. G. Tucker, and were healthy, even, and well grown. Messrs. G. Cooling & Son, Bath, exhibited a considerable number of cut *Roses* and *Dahlias*, the former being for the time of year exceptionally good. Fruit was shown in rather small quantities, but included many fine examples. Mr. A. Miller obtained the first prize for a collection of six varieties with fairly good Black Hamburgh and Foster's Seedling Grapes, a Queen Pine Apple, Melon, Peaches, and Nectarines. The same exhibitor was first with black Grapes, having Lady Downe's well ripened, Peaches and Nectarines being also well and successfully shown by him; Apples by Mr. A. T. Hall, Bath, and Mr. E. Wall, Bath; and Plums by

Messrs. Morris and A. T. Hall. The best collection of nine varieties of vegetables were shown by Mr. Miller, Mr. Jordan being second; and the best six varieties by Mr. Shadwell, Mr. Jordan again being second, the produce in each instance being most praiseworthy. Mr. J. I. Watts is the Honorary Secretary of the Society, and to his exertions much of the success is due.

— THE forty-fourth annual meeting of the ROYAL BOTANIC SOCIETY was held on the 10th in the gardens, Regent's Park, Mr. J. P. Gassiot, Vice-President, in the chair. The annual reports of the Council and Auditors were read, from which it appears that the Society has fully maintained the position occupied during so many years. The total receipts for the year amounted to £6651 18s. 4d. The summer exhibitions continue to maintain their standard of excellence, that of June being particularly rich in Orchids, and the large and ever-increasing number of new plants, or new horticultural varieties of old favourites brought forward for certificates of merit, illustrates the value of these exhibitions. The Chairman called the attention of the Fellows to the great public benefit conferred by the Society in the gratuitous assistance which it renders to a large number of students engaged in the scientific pursuit of botany. During the last year nearly 60,000 cut specimens of plants were distributed for the purposes of study, and tickets of free admission were granted to 836 students and artists for periods of from one to six months.

ASHTON COURT.

WE took the opportunity when in Bristol lately of paying a visit to Ashton Court, which is in its immediate vicinity. This fine place, which is the principal seat of Sir Greville Smyth, Bart., has long enjoyed a reputation for its beauty and attractiveness in the west of England, and its name has been rendered familiar by the success of Mr. Austen, the head gardener, as a competitor with fruit and vegetables at the principal shows in the kingdom. Ashton Court is very pleasantly situated on the western or Somerset side of the Avon, almost immediately opposite the famous Clifton Suspension Bridge. Few situations are more picturesque. The grounds are very extensive, comprising in all about 1100 acres enclosed in a ring fence about seven miles in circumference. They are beautifully diversified, swelling up to ridges which have the dimensions of little hills, and sloping down to flat levels in the direction of the river. Plantations have been skilfully planted to serve the purpose of ornamentation and supply cover, and in the wide range of the park are to be seen splendid specimens of forest trees which grow here most luxuriantly. Noteworthy amongst them are a number of grand Elms growing in individual majesty, and also in a beautiful avenue formed of these noble trees. Picturesqueness is imported to the park by groups of deer, of which there are some 600 or 700. In the neighbourhood of the home farm are to be seen some of the valuable prize cattle which have won a name for Sir Greville Smyth's herd amongst stock-raisers. The whole aspect of the place gives an idea of richness and luxuriance arising from a happy combination of good soil, situation, and climate, with skilful and judicious management.

The mansion stands on a medium elevation overlooking the valley of the Avon, with a fine outlook from its southern front, embracing to the right the whole range of the nearer Mendip Hills crowned by the conspicuous form of Dundry Church Tower, and to the left the terraces of Clifton and a part of Clifton Downs. The building is large and imposing. Its southern front extends to about 200 feet or more in length, and the elevation shows two principal storeys with a line of small circular windows above. It has a central tower with two turrets. The portion of the building to the right of this tower is evidently the more ancient. In the other portion to the left, while a general similarity of style has been preserved, certain alterations have been made to conform it more to modern ideas.

Sloping gently downwards from the southern front of the mansion is a large and tastefully laid out flower garden, enclosed at each side by a low ornamental stone wall and sunk fence, which separates it from the lower-lying ground beyond. The centre bed in this flower garden forms a cross with equal sides, which terminate in sharp points. It measures 45 feet either way, and is planted in the centre with a group of *Dahlia alba*, the dark-leaved *Canna Adriani* Rohina. On the outside portion are four circular groups of *Lobelia cardinalis* and *Salvia patens*. The edging consists of a band of *Cerastium tomentosum*, immediately inside of which is a single row of *Festuca glauca*, the intervening spaces being filled with yellow *Calceolaria*. At right angles to this are two Maltese crosses and two Catherine wheels. The two former have centres of scarlet *Pelargonium Ferdinand de Lesseps*, and the four cross sections the pink variety *Lady Bockworth*. The spaces intervening between the pink and blue *Lobelia* edging are filled (in two of the sections) with *Centaurea* and *Leucophyton Brownii* mixed, and the other two with *Iresine*. The divisions of the Catherine wheel are planted with *Centaurea* and bronze *Pelargoniums*, interspersed with yellow *Violas* and *Iresines*. On each side, at the end of the garden next to the park, is a large bed, the same in shape and dimensions as the cross in the centre, having groups of *Dahlia Paragon* and green-leaved *Cannas* for centres. Scarlet *Vesuvius Pelargonium* is the predominating colour here.

Besides this the beds have two bands of *Ageratum* and an edging of *Cerastium tomentosum*. Running parallel with the walks are a series of beds of various shapes and designs, such as *Fleur de Luce*, rams' horns, shells, ovals, &c., devoted to carpet bedding. Two shields with raised sides, about 6 inches above the turf, have a broad edging of *Sedum glaucum*; the centre and groundwork is *Veronica repens*, and is perfectly flat. The design is worked out with *Alternanthera amœna* and *aurea*, *Antennaria tomentosa*, *Kleinia repens*, and divided with various kinds of *Echeveria* and *Sempervivums*, which have a charming effect. Adjoining are two oval beds slightly raised in the centre, with a groundwork of *Alternanthera*, in which are arranged *Mesembryanthemums*, *Sedums*, *Spergula pilifera aurea*, *Antennarias*, *Echeverias*, and *Sempervivums* in great variety. The *fleurs de Luce* are also worked out in various designs, one in particular with varieties of hardy succulents, which are attractive and interesting both in summer and winter. Close to these are four large scrolls planted to match each other. Two are filled with *Mrs. Mappin Pelargonium*, *Kleinia repens*, *Tradescantia multicolor* and *discolor*, and the other two with *Coleus Verschaffeltii*, *Leucophyton Brownii*, and various *Sedums*, all being edged alike with *Echeveria secunda*.

Passing along a broad gravel walk which skirts the bottom of the flower garden, and descending a flight of steps, we find on the right and in a line with the flower garden a piece of very finely planted pleasure-ground, having in the centre an ornamental fountain and basin, on the waters of which are floating the white and yellow *Water Lilies* and other choice aquatic plants. Near to this is a large aviary, containing in separate, roomy, netted enclosures four splendid eagles of different varieties. Some of the ornamental trees in this portion of the ground are about the finest of their kind we have ever seen. Amongst them may be mentioned a specimen of *Cupressus funebris* 30 feet high, which is said to be the largest in this country. Several trees of *Thuja Lobbii* were more than 50 feet high. Standard *Roses*, which grow here most luxuriantly, were skilfully interspersed amongst the trees, giving an impression of great richness and beauty.

Beyond this pleasure ground, and still on the same line with it, we come to a range of glass houses forming two sides of a square. The lawn in front of the main range is laid out with flower beds, in which a freer method of floral arrangement has been followed than in the flower garden proper. The houses are tastefully painted, and have a very elegant appearance. Entering a narrow chamber at the further end, which serves as a sort of vestibule to the range, we found *Lemons* growing in it very luxuriantly, and in the successive houses which we passed through there was much to interest and to suggest skilful management. The first we entered was a lean-to early vinery, 40 feet by 16 feet, and about 14 feet high. The *Grapes* were all gathered some time before our visit. The foliage was clean and healthy, and the *Vines* promised well for future crops. The next vinery is of the same dimensions, and was planted three years ago with *Madresfield Court*, a cane of *Mrs. Pince*, and a seedling white *Grape* grafted on *Pearson's Golden Queen*. Mr. Austen is testing the merits of this *Grape* thoroughly before venturing to give his opinion of it to *Grape-growers*. It is a cross between *Black Hamburgh* and *Muscat of Alexandria*. The bunches and berries are medium-sized, the latter round and of a beautiful straw colour when ripe, with a brisk *Muscat* flavour. It is an early free-bearing variety with a vigorous constitution; and, if we mistake not, it will make a good companion early *Grape* to *Black Hamburgh*. All the *Vines* looked clean and healthy. They have made strong short-jointed canes from 10 to 12 feet in length, were bearing a good crop of large bunches, and the berries of *Madresfield Court* were free from cracking. Mr. Austen, like many others, adopts the plan of giving this variety a thorough watering shortly before the berries commence colouring, and all the lateral shoots are allowed to grow and ramble about as they please. The *Vines* are not watered again till the *Grapes* are all cut, and it is seldom that any of the berries crack when thus treated. A division is formed between the second and third vinery by a small house, in which *Palms*, *Ferns*, and *Lycopodiums* are grown. The back wall is covered with moss, and *Adiantums* and other *Ferns* grow luxuriantly in it. The third vinery is planted entirely with *Hamburghs*, and the fourth with *Muscats*. Though the *Vines* in both houses were carrying good crops of medium-sized bunches, the berries of which appeared to be about the stoning period, yet the leaves were small, and there seemed to be a want of vigour about the *Vines* which Mr. Austen could not account for. They had borne fine crops last year, had ripened their wood well, and their present condition seemed a mystery to him. The roots of the *Muscats* were lifted some four years since, and the *Grapes* grown in this house took the first prize at the Manchester International Fruit Show in a class where there were no less than forty competitors, which says a great deal for the condition the *Vines* were in then, and also for the management of them.

Since the above notes were written we have received a letter from Mr. Austen informing us that a few days after our visit to Ashton Court he made a thorough examination of the roots in both vineries, and found them to be covered with what he thought to be *Phylloxera*. He forwarded a quantity of them to Dr. Hogg, and the next morning he received the following telegram—"It is a bad attack of *Phylloxera*, destroy the *Vines* at once." We cannot but feel sorry for Mr. Austen's misfortune in being compelled to destroy *Vines* that were so promising a few months ago in order to stamp out a dreadful pest which has devastated thousands of acres of *Vines* on the Continent. Mr. Austen has faced the task with characteristic energy and determination, his method being to burn the *Vines* and saturate the border with a chemical substance which is calculated to destroy the insect, before removing the soil to top-

dress pasture land at some distance off. This, we believe, is the best, if not the only means of eradicating the worst of all Vine pests. Curiosity might lead some to ask the pertinent question, "How did the phylloxera get introduced to these Vines?" If this could be satisfactorily answered it would be of great service to others in enabling them to guard against it, but we are afraid the outbreak of the pest cannot be satisfactorily accounted for.

Leaving these Vines and passing on, we enter a small division between the Muscat house and plant stove, in which were some large clumps of Orchids, fine plants of Caladiums, Anthuriums, Crotons, and others. The back wall is covered with moss, and fine healthy plants of the old favourite Begonia Rex are growing in it, and cover the wall from top to bottom, giving this small but neat apartment a charming aspect. The plant stove is large and commodious, and contains a well-grown collection of plants. Conspicuous in baskets suspended from the rafters were large specimens of some of the choicest of Orchids, which looked in the best condition possible. They require no further comment from us, as a notice of them appeared in the pages of this Journal a short time ago. The roof is draped with Passifloras, Allamandas, and other climbing plants. Besides the large permanent specimens in this house, great quantities of small bushy plants of different varieties are grown for table and room decoration, amongst which are large quantities of well-coloured Crotons and Dracænas. We felt a lively interest in examining a large number of seedling Dracænas growing here, some of which appeared to be quite

the different garden departments to each other and to the mansion. In this department also there is a great quantity of glass in houses, pits and frames, and a finely arranged fruit-room and store-rooms. The forcing-houses were all in excellent order, and there were indications at every point of the most careful and intelligent attention to details. Mr. Austen is evidently a man who thinks for himself, and has been guided by his own experience and observation to selections of varieties and methods of treatment which have been rewarded by a great measure of success. After an inspection of the fruit-room, store-rooms, &c., we were conducted through the forcing-houses. The first range consists of four narrow lean-to Peach-houses about 260 feet in length. In the early division the varieties are Hales' Early, Royal George, and Lord Napier Nectarines. The trees covered the back wall and a portion of the roof, and are trained on what is called the "extension system." The Nectarines, though only three years old, had a crop of sixteen dozen fruits on it. Mr. Austen spoke very highly of Hales' Early. He said it was quite three weeks earlier than Royal George. In the second division there are Vines and Peaches planted in the borders, and Peaches and Nectarines growing in pots in the front. The back wall is covered with Peach trees, and the Vines are planted at the back, led up the wall, and trained down the rafters in front at a good distance from each other. Those who say that Peaches and Grapes cannot be grown satisfactorily in the same house, we would advise to go to Ashton Court and see. Mrs. Pinee and Black Hamburg Vines were carrying a heavy crop of large bunches

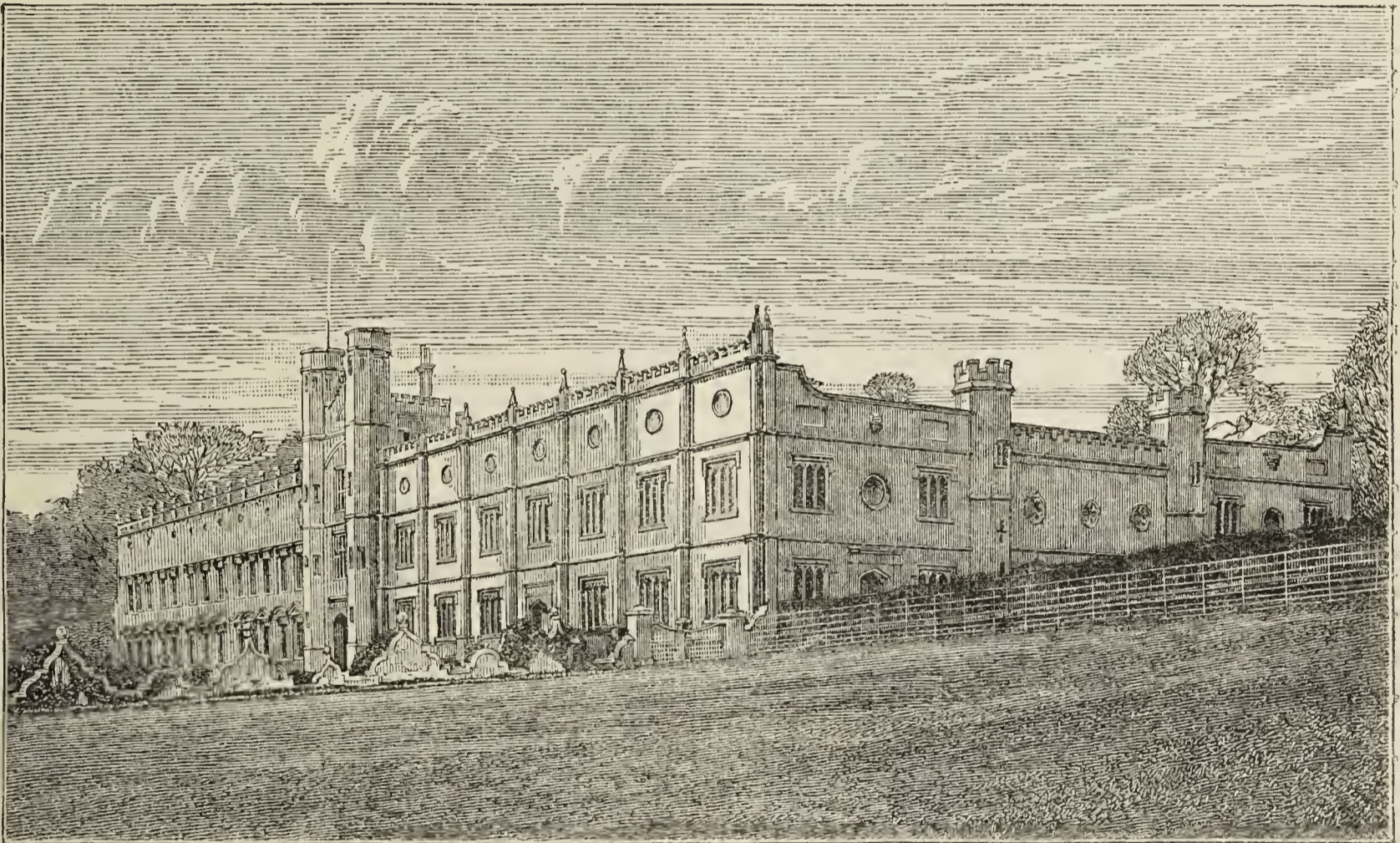


Fig. 30.—ASHTON COURT.

different from any variety we had seen before, while others kept true to the characteristics of their parents as if they had been true species. From the stove a door conducts to the conservatory. It is a large lofty structure, in which were Palms, tall Tree Ferns, Camellias, and other plants bedded out, and a great variety of smaller flowering plants filled the stages round the sides. Amongst these we observed a good strain of Canterbury Bells in a blaze of flower. This makes a good conservatory plant when mixed with others, and lasts for a long time if not allowed to seed. Mr. Austen grows great quantities of it, which he uses in various ways for decoration. The plants are first grown in beds outside, and lifted and potted some time before they show signs of blooming. *Taesonix eximia*, *Bougainvillea glabra*, and *Habrothamnus elegans* hang down from the roof in large festoons of flower, adding grace and beauty to the whole building. Attached to the back wall of the conservatory, and entered from it, is a long narrow plant house devoted to the growth of cool Orchids. The first division contained a collection of *Cypripediums* and Ferns, and the second *Odontoglossums*, *Lycastes*, *Calanthes*, and *Azaleas*. This, to lovers of Orchids, is a most interesting house, and we feel sorry that time did not admit of our noting more fully the contents of it. Off the conservatory is an elegant smoking-room furnished with sofas and all that is essential to the enjoyment of the weed.

Leaving the portion of the ground immediately adjoining the mansion we proceeded to the kitchen garden department, which is within easy reach. In fact one good feature of the place is the close contiguity of

that would average 3 lbs. each, beginning to colour; and there were good crops of Peaches and Nectarines also, the leaves of which were as clean and healthy as possible. The trees in the third division are trained to trellises across the house and on the back wall, and were carrying good crops of medium-sized fruit. In passing we may say that we gave our opinion of this method of growing the Peach in these pages some time ago, and we adhere to it still. In our opinion there is no better method for getting good crops of the best quality than training the trees all over the roof at a proper distance from the glass. The fourth division is trellised half way up the front, and trees are trained on it and on the back wall. The sillstone in front in each division was filled with Sir Charles Napier Strawberry in pots, and we never saw a better crop or finer fruit. At the end of the range is a Peach wall case, in which the trees are doing well.

The next range consists of two large vineries and a Fig house. Muscats are grown in the first division, Figs in the second, and late Grapes in the third. The Muscats were planted some seven years since. The Vines are strong, clean, and healthy, and were bearing an average crop of beautifully shaped bunches, which were taking their final swelling. Three large trees planted in the border (one at the back and one at each side) filled the Fig house. They are trained on the back wall, sides, and roof, and were bearing a heavy crop of Figs, such as we have seldom seen anywhere. Here Negro Largo was bearing as freely as Brown Turkey. The varieties in the late vinery are Lady Downe's

Seedling, Black Alicante, and a single rod of Alwick Seedling grafted on Black Hamburgh. The Vines are all in fine condition and were heavily cropped. Alwick Seedling we thought extra good. It had six large bunches on the cane perfect in shape and size of berry, and real models of thinning. Mr. Austen informed us that he drew his hand down the bunches when in flower, and a quantity of the viscid fluid that came off them adhered to his hand. To this simple mode of clearing the stamens he attributes in a great measure the success attending the setting of the berries.

The next range comprises four low span-roofed pits with walk up the centre, in which Tomatoes, Melons, Vines, and Pine Apples are grown. The bed on one side of the first division was planted with Tomatoes, and the other side was occupied with Melons growing in pots. The Melon plants were clean and healthy, and had from five to six fruits on each plant about half grown. The second division was devoted to succession Melons on one side and pot Vines on the other, and the division next to it to Pine Apples. Besides these, there are a great quantity of pits and frames for growing plants, fruits, and vegetables. We had only time for a passing glance at the kitchen garden. The crops of all kinds looked well, and everything was neat and orderly in it. We would only say in conclusion that we derived great pleasure from our visit to Ashton Court, and are glad to bear testimony to the taste and skill which are manifest in every department of its garden arrangements.—A. PETTIGREW, *Castle Gardens, Cardiff.*

VINES IN AN INEXPENSIVE BORDER.

THE Vines from which the enclosed few berries are cut were planted seven years ago in a span-roof house facing north and south, borders inside and out, heated with a brick flue running down the centre, 30 feet long, outer walls on arches. When planted the young Vines had 2 yards wide of turf sods to start in; the other part of the border inside and out is made with common garden soil, lime, and cowdung, with a good sprinkling of half-burnt bricks broken up. The subsoil is shelly marl resting on red sandstone. I apply liquid manure after the fruit is set, made from dung and lime. I write this simply to say passable-looking Grapes can be grown without making rich expensive borders. I began to start this house on the first day of February last.—J. C.

[With one exception the Grapes as represented by individual berries are excellent. Gros Colman is small and imperfect in flower, Madresfield Court is very fine indeed, while Buckland Sweetwater and Waltham Seedling are above the average of these varieties—far better, indeed, than many we have seen growing in expensively made borders.]

READING SHOW.

AUGUST 16TH.

THE second Exhibition of the year at Reading is almost invariably highly satisfactory as regards the number of the competitors and the quality of the produce staged. On the present occasion, however, there was a lamentable falling-off in all the principal sections, and the Show as a whole was little more than a shadow of its predecessors. In such a fine horticultural district as that of Reading this deficiency was not only more regrettable, but was also difficult to understand; for though a few of the larger exhibitors were absent, surely scores of others might have been found who would have been willing to contribute. It is true that, except in the leading classes, the prizes are of small amount, but the number offered might be expected to compensate for that in some degree.

PLANTS.

Comparatively few collections of these were shown, and in this respect this Exhibition was one of the most unsatisfactory that the Society has held, which was the more regrettable as the weather proved very favourable. The chief falling-off was in the number of competitors, as the plants actually staged were distinguished by their fresh healthy condition, which was especially noticeable in the case of the Ferns and fine-foliage plants. The groups, too, were quite up to the usual standard, and without them the Exhibition would have been exceedingly weak. The plants usually shown by Mr. Lees were absent owing to his having discontinued exhibiting, and this made a great difference; one or two others that generally contribute were also not showing, and so the prizes were divided amongst very few growers.

For six fine-foliage plants Mr. Mortimer, gardener to Major Storer, Purley Park, was awarded the first prize for exceedingly vigorous examples of *Alocasia macrorhiza variegata*, *Maranta rosea lineata*, *Encephalartos villosus*, *Croton majesticus*, *Alocasia metallica*, and *Pandanus Veitchii*. The *Alocasia* was in remarkably good condition, 4 or 5 feet in diameter, and with fine glossy foliage. Mr. Elliott, gardener to J. Hibbert, Esq., Maidenhead, had the best three fine-foliage plants, *Pandanus Veitchii* and *Cordyline indivisa* being especially fine. Mr. Jones, Henley-on-Thames, showed six small but richly coloured Coleuses, for which the chief prize was awarded in that class. Mr. E. Phippen, Reading, was first with three Palms, well-grown examples of a *Phoenix*, *Latania*, and *Seaforthia*. The premier collection of six Ferns was from Mr. Mortimer, and the plants were, as usual, characterised by their healthy vigour. *Davallia Mooreana* was in good condition, *Adiantum cardiochæana*, *Dicksonia antarctica*, *Davallia bullata*, and *Adiantum cultratum* being similarly fresh. Mr. Bennett, gardener to M. Lonergan, Esq., Cressingham, was a good second, his best plants being *Davallia Mooreana* and *Adiantum formosum*. Mr. G. Phippen was third with healthy plants.

Prizes were offered for a group of plants arranged for effect in a space of 12 feet by 10 feet. There were three competitors; Mr. Sumner, gardener to J. H. Millard, Esq., Reading, being first with an exceedingly bright and tasteful group, having a groundwork of *Gloxinias*, Ferns, *Begonias*, and

Coleuses, with taller *Crotons*, *Liliums*, *Fuchsias*, and *Dracænas*, and a background of *Acacias*. Mr. Phippen, Reading, was a close second with a rather heavier but good group, the fore part chiefly consisting of *Hydrangea paniculata grandiflora*, with Ferns, *Selaginellas*, and *Isolepis*. Mr. Mayne, gardener to Miss Moon, Reading, was placed third with a diversified collection of *Achimenes*, *Begonias*, *Pelargoniums*, and Ferns. *Fuchsias* were not largely shown, but the plants were fairly well flowered. Mr. E. Jones, Henley-on-Thames; Mr. Mayne, gardener to Miss Moon, Reading; and Mr. Sumner, gardener to J. H. Millard, Esq., Reading, were the principal prizetakers. In smaller classes Messrs. Mortimer and Mayne were also exhibitors. Mr. Mortimer had the only collection of four stove and greenhouse plants, *Ixora Williamsi* being the best of them, with sixteen or eighteen fine trusses of flowers. The first prize was awarded for them. Zonal *Pelargoniums* were fairly well shown, Mr. Sumner taking the chief position with six even well-flowered specimens, Mr. Mortimer following closely with larger but rather looser plants. Mr. Sumner also had the best six tricolors. Mr. Ashby, gardener to W. Fanning, Esq., Whitchurch, and Mr. Mayne being respectively second and third.

Three pretty collections of table plants were shown, Mr. Ross, gardener to C. Eyre, Esq., Welford Park, being placed first with neat little specimens in 6-inch pots, comprising a seedling *Croton*, *Yucca aloifolia variegata*, *Croton Eyrei*, *Pandanus Veitchii*, *Dracæna elegantissima*, and *D. Guilfoylei*, Mr. Gribble, gardener to Miss Cary Malins, Maidenhead, and Mr. Elliott, followed in that order. Mr. Bridge, gardener to J. F. Hall, Esq., Erleigh Court, was the only exhibitor of six *Liliums*, being awarded the first prize for well-grown plants in 8 and 9-inch pots, and bearing three or four dozen flowers each. The same exhibitor had the best three *Liliums*, followed by Mr. Mortimer with healthy plants, the latter also staging six good *Achimenes*, which secured the first prize. The best single specimen plant was a *Vanda tricolor* with one spike, from Mr. Pound, Mr. Mortimer being second with *Alocasia Thibautiana* in excellent health. Three fine collections of *Cockscombs* were shown, Mr. Bridge and Mr. Gribble securing the chief prizes.

Cut flowers were fairly well represented, Dahlias, Roses, and miscellaneous collections being staged. The most successful exhibitors were the following:—Mr. Gurden, gardener to Miss Watson-Taylor, Headington (single Dahlias), Messrs. Cheal & Sons, Crawley, Sussex, and Tranter, Assenden (Show and Fancy Dahlias), Mr. Sumner (hardy flowers), Mr. Phippen (miscellaneous), Mr. Howe (stove and greenhouse flowers), Mr. Gurden (Roses), and Mr. Tranter (Phloxes). For table stands, bouquets, and buttonholes Mr. and Miss Phippen were as usual the most successful exhibitors. Several handsome bushes of Ferns and Palms were also shown by the same firm, and were greatly admired.

FRUIT.

By far the most interesting portion of the Exhibition was that devoted to the fruit, as in nearly all the classes the competition was very keen and the quality of the fruit highly satisfactory. Black Grapes, Peaches, and Nectarines were especially good, but white Grapes, except in the leading stands, were rather unripe. The principal class for fruits was that for eight dishes, for which a silver cup value five guineas was offered by Messrs. Sutton & Sons as the first prize. Mr. Howe, gardener to Sir R. Sutton, Bart., Benham Park, succeeded in winning this substantial honour with very large bunches of Muscat of Alexandria Grapes, good Black Hamburgs, Suttons' Masterpiece Melon, Queen Pine Apple, Royal George Peaches, Moorpark Apricots, Pine Apple Nectarine very fine, and good Figs. Mr. Wills, gardener to R. Ravenhill, Esq., Winkfield, was a good second, having large bunches of Cooper's Black Grapes well coloured, a good Queen Pine, Hales' Early Peaches finely coloured, and a well-netted Hero of Lockinge Melon. For six dishes of fruits Mr. Goodman, gardener to C. Hummersley, Esq., Bourne End, was first with well-coloured Black Alicante Grapes, moderate Foster's Seedling Grapes, good Belgian Purple Plums, Dryden Nectarines, Royal George Peaches, and Earl of Beaconsfield Melon. Mr. Mortimer was second with large but scarcely ripe Black Hamburg and Muscat of Alexandria Grapes, but very good Washington Plums.

Black Grapes were fairly well shown, Mr. Ashby taking the first prize with three fine bunches of Black Hamburg Grapes beautifully coloured. Mr. Cakebread, gardener to Sir P. Rose, Bart., Penn, was a close second, also with fine bunches; Mr. Howe, third; and extra prizes went to Messrs. Moore and Robinson. Seven lots of three bunches of Muscats were staged, Mr. Howe being first with large well-ripened Muscat of Alexandria but slightly rubbed; Mr. Ashby second with the same variety, also well ripened; and Mr. Ross, gardener to C. Eyre, Esq., Welford Park, third with Bowood Muscat rather green. In the Any other black variety class Mr. Ashby was the premier exhibitor of three grand bunches of Madresfield Court, bearing a fine bloom, but one of the bunches was scarcely ripe. Mr. Heath, gardener to R. Ovey, Esq., Henley, and Mr. Pound were awarded equal second prizes, the former with Black Alicante very large and well coloured, and the latter with Madresfield Court rather small. Mr. Mortimer was third with Trentham Black. The Any other white variety class was not well filled, Mr. Ashby being first with Golden Hamburg, Mr. Wells second with Buckland Sweetwater, and Mr. Howe third with Foster's Seedling.

Peaches were well shown by Mr. Gribble, who was first with Bellegarde in a class of ten competitors, Messrs. Jones and Robinson being second and third. Nectarines were represented by eight dishes, Mr. Maher taking the first position with Pitmaston Orange, Mr. Gribble second with Elruge, and Mr. Goodman third with Dryden. Plums were also well shown by Messrs. Bridgman and Goodman. The principal exhibitors of Melons were Messrs. Elliott, Howe, and Maher. Mr. Howe was awarded a first-class certificate for *Melon Benham Beauty*, a cross between William I. and Hero of Lockinge, a fruit of delicious flavour, deep flesh, and moderate size. It is one of the best scarlet-flesh Melons we have tasted.

VEGETABLES.

Messrs. Webb & Sons, Stourbridge, offered prizes for collections of vegetables, and eleven were staged. Mr. Howe was first with a very even and creditable collection, comprising Negro Longpod Beans, Early Round Potatoes, Early Shorthorn Carrots, Challenge Cucumbers, All the Year Round Turnips, and Telephone Peas. Mr. Ross was a close second, Mr. Bradford third, and Mr. Elliott fourth. Potatoes, Beans, Vegetable Marrows, and Onions were all largely and well represented. Eight dishes

of Tomatoes were staged, Mr. Bradford being first with Ne Plus Ultra, Mr. Elliott second with Dedham Favourite, and Mr. Harman third with Large Red, all fine even fruits. Messrs. Mortimer and Elliott secured the prizes offered by Messrs. Carter & Co., High Holborn, for a brace of Model Cucumbers, both showing even well-grown fruits.

Miscellaneous collections of plants and flowers were not very largely shown, but Mr. C. Turner, Slough, exhibited a great number of handsome Dahlia blooms, representing all the best varieties in cultivation. Messrs. Sutton & Sons, Reading, also contributed a fine collection of Gladioli spikes, very large and richly coloured.

THE HERBACEOUS PLANT BORDER.

(Continued from page 78.)

Matricaria inodora fl.-pl.—The flowers of this are pure white, double, about 2 inches in diameter, and very freely produced from June until the season is well advanced. It grows about 2 feet high, and is especially valuable for cutting. It succeeds best in light soil, and is best treated as a biennial.

Echinops persica.—A peculiar plant, having long Thistle-like leaves, very spiny, stout and strong in habit, attaining a height of 4 feet or more. It bears abundance of large globular heads of flowers, which have a fine silvery appearance, the flowers being blue, but are comparatively inconspicuous. E. Ritro is equally interesting. They do well in light soil, and have a good appearance at the back of borders. Is easily increased by seed or division.

Asclepias tuberosa.—The stout erect stems terminated with large yet compact umbels of bright orange-pink flowers are very showy. It grows freely in any good soil, and attains a height of 3 to 4 feet. Its first flowers are only just now (August 3rd) open, and continues a long time, being really a fine back-row plant for late summer flowering. Increased by division.

Thalictrum adiantifolium.—The Maidenhair Fern of the herbaceous border, having delicate Adiantum-like foliage, very beautiful, and is particularly valuable to afford sprays for cutting to set up with flowers or even for bouquets. It grows best in a light soil, but may be grown in an ordinary border where water is not stagnant. It attains to a height of a foot or a little over. The flowers are very small and greenish-yellow, although in combination with the sprays they tell wonderfully.

Diclytra eximica.—Though a spring-blooming plant this has now (August 3rd) several racemes of its graceful drooping reddish-purple flowers, which, with its ample spread of pale green Fern-like foliage, is a conspicuous object. Both the foliage and flowers are useful for cutting. Good open moist soil in well-drained borders suits it perfectly. It attains a height of 18 inches.

Corcopsis tenuifolia.—A very pretty slender-growing plant about 2 feet high, the leaves being much divided and borne in whorls. The flowers are very freely produced, being over an inch in diameter and of a very rich golden yellow. It does well in light soil.

Helenium pumilum.—This plant attains a height of a couple of feet, has large flowers (2 inches or more across), bright yellow, and very freely produced, and are very useful for cutting. It will grow in almost any soil.

Harpalum rigidum.—Usually 3 to 4 feet in height, and produces an abundance of golden-yellow flowers with black disc, and are very large. As a back-row plant it is one of the most attractive from August onward.

Helianthus multiflorus major.—A very vigorous-growing perennial Sunflower, attaining a height of 4 to 6 feet. The flowers are very large, deep yellow, having two rows of florets around the disc, which give it a very telling appearance, and it flowers from July to autumn. This, in my opinion, is the finest of the perennial Sunflowers, very useful for cutting, and attractive as a specimen in a back row. Good light soil suits it.

Gaillardia grandiflora.—Three feet or more in height, producing a great number of brilliant flowers—crimson, yellow, and orange, with some black or very dark brown—3 inches across, and come in in June or July and continue up to frost. It is one of the finest border plants, but is not very hardy. Plants are readily raised from seed, treating it as a biennial; or it may be raised from cuttings inserted in sandy soil under a handlight in July or August, wintering in a cold frame after potting off, plunging the pots in ashes.

Achillea serrata fl.-pl.—This grows 18 to 24 inches high, bearing very fine heads of pure white double flowers, very beautiful, and the leaves are very deeply cut, thereby rendering it very effective. It likes a light soil, but will grow in any well-drained soil. It continues a long time in flower, commencing in July, and the flowers are valuable for cutting.

Cyclamen europæum.—On the margin of the herbaceous border this is very pleasing, its bright deep rose-coloured flowers having a chaste appearance. It does best in partial shade in light soil, and the corm covered a few inches deep with light or vegetable soil, such as decayed leaves.

Acorus japonicus fol. variegatis.—Although a bog plant this does well in moist borders, but not in shade, and is one of the most beautiful of variegated plants, the leaves being striped with bright red, yellow, and white, having a very telling effect; its Iris-like foliage being very fine indeed. It is readily increased by division.

Bambusa Falconeri.—Leaves bright green and the habit graceful, and is here introduced to notice as very distinct amongst border plants. It likes a moist soil, but well drained, and a sheltered situation.

PLANTS FOR WALLS.

As we have a wall over 100 yards long at the back of a part of the herbaceous border, and having a south aspect, I should like to give a few notes occasionally about some of the plants trained to it, and shall begin with

Ceanothus Gloire de Versailles, which produces long corymbs of deep lavender-blue flowers, and commences to bloom in June or so soon as any growth is made, and continues until stopped by frost. A few cuttings may be struck in late summer for wintering in pots in a cool house, so as to make sure of its continuance, as it is not very hardy, needing protection in severe weather. It is fine as a pot plant, grows freely, and flowers most profusely.

Jasminum officinalis major.—Larger flowers of more substance distinguish this plant from the old Jasmine, and it grows even more freely and blooms splendidly. Its flowers are quite as sweet and more lasting.—G. ABBEY.

SHROPSHIRE HORTICULTURAL SOCIETY.

AUGUST 15TH AND 16TH.

THE annual Exhibition of the above Society was held in the Quarry Grounds, Shrewsbury. These grounds have been materially improved and beautified during the past few years by a judicious expenditure of the surplus funds of the Society. There is no difficulty for any stranger visiting the quaint old town to find the Exhibition, as the main street leading from the station to the grounds is always densely draped with festoons and banners, which indicates the interest taken by the inhabitants in the Exhibition; in fact, the occasion is regarded as a partial or general holiday, and thousands find their way to the grounds, especially on the second day. We know of no other society—Manchester excepted—that is in such a flourishing financial condition.

The Exhibition on the whole was a great success, and was decidedly superior to any previous gathering. Vegetables and cut flowers have in past years been equally fine, but never more numerous, while plant-growing has extended most rapidly, and the quality and quantity of the specimens staged were very much in advance of what they were two years ago.

STOVE AND GREENHOUSE PLANTS.

In the open class for twenty plants, ten flowering and ten foliage, there were three competitors. Mr. J. Cypher of Cheltenham was well to the front, followed by Mr. C. Roberts, gardener to E. C. Glover, Esq., Highfield Hall, and Mr. E. Tudgey. The first collection contained the usual grand examples. Mr. Roberts staged a splendid *Cycas revoluta*, *Ixora Williamsii*, *Croton angustifolius*, *Gleichenia rupestris*, and *Croton Johannis*. Mr. Tudgey's plants were rather irregular. In the corresponding class for nine plants, open only to the counties of Shropshire and Montgomeryshire, five to be in bloom, there were four exhibitors. The premier position was accorded Mr. Farrand, gardener to Mrs. Juson, who staged fair plants of *Ixora Williamsii*, *Ixora coccinea superba*, and *Dipladenia hybrida*. Messrs. Pritchard & Sons second, having good specimens of *Allamanda Hendersonii* and *Ixora superba*. Mr. R. L. Burton secured the remaining prize for neat well-grown examples. In the amateurs' class for six plants, not less than four in bloom, H. Owen, Esq., was well ahead, and staged splendid well-bloomed, moderate-sized specimens of *Stephanotis floribunda* and *Begonia metallica*. Mrs. Wace was placed second, and Mr. L. Burd, third, both having creditable plants, four collections being staged.

Palms.—These were not numerous, three collections only being staged, but the majority of the plants were large and healthy, occupying considerable space down the centre of the tent. Mr. J. Cypher took the lead with very large plants; Mr. E. Tudgey was second with rather smaller and a less even collection; Mr. C. Roberts was the remaining prizetaker.

Dracenas.—Although the plants in this class were more numerous than last year, there was a slight falling-off in quality. Messrs. Pritchard and Sons won the premier position with six plants, the collection including good specimens of *amabilis*, *Mooreana*, *Baptistii*, and *Robertsoniana*. The same exhibitor was also second with smaller and less even plants; Mr. C. Roberts third with rather poor examples.

Caladiums.—There was a marked improvement in this class, the plants being in every respect more numerous and better grown than on previous occasions. For six plants Messrs. Pritchard & Sons took the lead with good specimens, followed closely by Mr. Farrand; Mrs. Shaker was placed third, her plants being smaller, but very compact and neat.

Groups.—Four groups were staged in the class for miscellaneous plants arranged for effect, to occupy 100 square feet. Messrs. Pritchard & Sons staged three of these groups, and were awarded the first and second awards. There was no competition, and the groups were less bright and striking than we have before seen them. Three exhibitors staged plants in the class for fifty miscellaneous plants in 5-inch pots. These were arranged on tables about 3 feet wide, and were very effective. Messrs. Pritchard & Sons were successful in obtaining the first and second prizes. These two collections contained some neat well-grown small decorative plants, both flowering and foliage. The first-prize lot contained plants in flower of *Odontoglossum Alexandræ*, which gave it a rather choice appearance compared with the other collections. Mr. Farrand was the remaining prizewinner. In the amateurs' class for twenty-five plants, not less than fifteen in bloom, four

very pretty collections were staged. Mrs. Wace took the lead with a very neat lot, followed closely by the Rev. J. H. E. Charter.

Table Plants.—In past years the table plants have generally been a marked feature in the Exhibition, and we are sorry to record a great falling-off in this very interesting class. There were only two exhibitors of twelve plants—Messrs. Pritchard & Son and Farrand, who staged very creditable examples.

Ferns.—These were fairly numerous, and on the whole very creditable. In the open class for nine exotic Ferns four collections were staged. Mr. J. Cypher was placed first with his well-known good plants. Mr. R. Burton was a good second, having fine examples of *Adiantum formosum*, *Asplenium Belangeri*, *Asplenium bulbiferum*, and *Gymnogramma Laucheana*. Mr. C. Roberts secured the remaining prize with healthy specimens. For six plants, distinct, four lots were staged. Mr. Farrand took the lead, followed by Messrs. Pritchard & Sons and Mr. Watson. The first collection contained good plants of *Adiantum formosum*, *A. farleyense*, and *Dicksonia antarctica*. For four plants the prizetakers were Messrs. R. Cooper, J. Brown, and G. Burr. Six collections were staged, and the plants throughout were creditably grown.

For six hardy Ferns Mr. J. W. Harding was first with neat small plants, and Messrs. G. Burr and Pritchard & Sons second and third.

Gloxinias and Achimenes.—The former were remarkably good, some six competitors staging for the three prizes offered. Mrs. Wace took the lead with splendid plants, and Mr. H. Owen the remaining two prizes with plants very little inferior. The *Achimenes* were poor and need no comment. *Petunias* and *Balsams* were only moderately represented. Messrs. Owen, Fox, and Shuker were the prizewinners for the former, and Messrs. Shuker and G. Fox for the latter.

Ericas.—These were not of average quality. Mr. J. Cypher's collection was the only one that contained creditable specimens, and he staged good plants of *McNabiana*, *Irbyana*, *æmula*, and *ampullacea Barnesii*. Mr. E. Tudgey and Mr. C. Roberts were second and third with rather small uneven plants.

Begonias.—There is plenty of room for improvement in the cultivation of these plants, scarcely a really good example being staged in the four collections of six plants. The prizetakers were Messrs. J. Watson, H. Myers, and the Rev. J. H. E. Charter. The plants in the amateurs' class for three plants were superior to the above. The prizetakers were Mrs. Shuker, first; Messrs. L. Burd and C. W. Campbell second and third, five collections being staged.

Coleuses.—These plants displayed a very marked improvement in their condition in both classes devoted to them. For six pyramid plants some grand examples of cultivation were staged. Mr. J. Watson gained the premier position with superb specimens of *Ajax*, *Royal Purple*, *Zanzibar*, *Delier*, *Mrs. G. Simpson*, and a most beautiful coloured plant of *Lady Burrel*; Mrs. Shuker was a very good second. For three plants (amateurs only) Mr. L. Burd was first with a good even lot, a plant of *Mrs. G. Simpson* being very fine; H. Owen, Esq., was second, and had a remarkably fine plant of *The Queen*; Mrs. Shuker was third with scarcely less inferior plants.

Fuchsias.—These were numerous and generally large and well bloomed. For six plants Messrs. H. Owen and A. Myers were placed equal first, both staging well; Messrs. Pritchard & Sons were placed third with larger but scarcely such well-flowered plants. Four lots were staged. For three plants Mrs. Wace and Mr. L. Burd and R. J. Niven were the prizetakers.

Zonal Pelargoniums.—These were staged in much better condition than they have ever been seen before at this Society's exhibitions. In the class for six double varieties Messrs. Oldroyd & Co., Shrewsbury, staged large well-flowered plants; in fact, we have never seen double varieties in better condition or more profusely bloomed, *Candidissima plena*, very fine; *Prince Noir*, *Wonderful*, *Asa Grey*, and *Madame Thibaut* were all superb. The same competitor was awarded the second for smaller but equally well-grown plants. In the amateurs' class for three plants Messrs. H. Owen and L. Burd were the only exhibitors, and were awarded prizes in the order as named. For six single varieties five collections were staged, and Messrs. Oldroyd & Co. were again successful, and obtained the whole of the three prizes offered. It must be understood that each exhibitor was allowed to take as many prizes as he could in each class. Some of the most noteworthy varieties were *Hettie*, *Guinea*, *Lady Sheffield*, *Mrs. Vickers*, *Laura Strachan*, *Constance*, *Nelly Thomas*, and *Jessie Moir*. For three plants the successful exhibitors were Messrs. G. J. Fox, H. Owen, and L. Burd, all staging very neat specimens.

CUT FLOWERS.

Roses.—These were by no means numerous, but much better in quality than we anticipated, considering the unfavourable weather of late. In the class for twenty-four blooms Messrs. Perkins & Sons, Coventry, and Messrs. J. Dickson & Sons, Newton Nurseries, Chester, were awarded the prizes in the order named, the former having good blooms of *Countess of Rosebery*, *Duchesse de Caylus*, *Madame Victor Verdier*, *Lady Sheffield*, *Sir G. Wolseley*, *Mdlle. Annie Wood*, and *Marie Baumann*. Mr. R. Tanner was placed third. For eighteen blooms the prizetakers were Messrs. T. W. Wood, E. W. Pritchard, and Mr. Lambert. In the smaller Rose classes the principal prizetakers were Messrs. Campbell, Tanner, and Roberts.

Dahlias both single and double were remarkably fine. Mr. W. Shaw was the only exhibitor in the open class for thirty-six blooms, and was awarded the first prize. This collection contained large flowers of *Hon. Mrs. Wyndham*, *Chang*, *Lady Herbert*, *Monarch*, *Gaiety*, *Peacock*, *Woman in White*, *Goldfinder*, *Helen Macgregor*, and *Walton*. For twenty-four the same exhibitor was again first with larger and finer blooms than in the collection of thirty-six. Messrs. T. Speake and R. J. Niven were second and third. Messrs. Niven and Groves were the successful exhibitors of stands of nine blooms. Nine stands of twelve single varieties were staged, and the successful were Messrs. Biddles & Co., Campbell, and Pritchard & Sons. Mr. W. Shaw was the only exhibitor of thirty-six *Gladioli* spikes, and staged a very fine collection; and Mr. Lambert, the only exhibitor, was awarded the first prize for twenty-four spikes. Mr. J. B. Jones was successful in the remaining class.

Asters, **Marigolds**, **Stocks**, and **Pansies** were numerous and good, and the most successful exhibitors were Messrs. Biddles & Co., C. M. Campbell, G. Townsend, E. W. Pritchard, G. Mitchell, and R. J. Niven.

Stove and Greenhouse Cut Flowers.—These were much better than we have

before seen them at Shrewsbury. For twelve bunches Messrs. Jones and Sons took the lead with *Allamanda*, *Stephanotis*, *Erica*, *Bougainvillea*, *Gardenias*, *Gloxinias*, *Odontoglossum Alexandræ*, *Rhododendron Princess Royal*. Messrs. Pritchard & Sons were placed second, and Messrs. Biddles & Co. third. Mr. C. Roberts' collection was arranged differently from the rest, and was awarded an extra prize. For twelve bunches of hardy herbaceous flowers eight collections were staged. Messrs. Biddles & Co. were placed first, and Messrs. Pritchard & Sons second and third.

The blooms of *Zonal Pelargoniums* were not so good as usual, two lots only being staged. Messrs. Pritchard & Sons took the lead, and were awarded the second prize. The same exhibitors were first in the class for twelve bunches of *Show* or *Fancy Pelargoniums*. This contained grand bunches of *Triomphe de St. Mandé*, *Robert Green*, *Duchess of Bedford*, *George Sands*, *Jewess*, *Marie Lemoine*, and others. Messrs. Show and Speake were successful for *Verbenas*, and Messrs. Biddles & Co. and C. Chandler for *Phloxes*. Mr. Speake took the chief prize for *Carnations*, and Mr. Fox for *Picotees*.

Bouquets.—These were really magnificent. For one bridal bouquet Messrs. Perkins & Sons were awarded the premier position. This bouquet was all that could be desired, being of fair size, light yet full, and the flowers were by no means crowded. It was principally composed of *Eucharis*, *Pan-cratiun*, *Stephanotis*, *Bouvardias*, a few white *Rose buds*, and the young fronds of *Adiantum cuneatum*. Mr. J. Cypher was second, and Messrs. Jones & Sons third, both firms showing remarkably well. The prizewinners were the same, and in the same order as above for one ball or hand bouquet. For three buttonhole bouquets, which were good, the same exhibitors were successful, only Messrs. Jones & Sons were second, and Mr. Cypher third. The principal exhibitors in the three corresponding classes were Messrs. E. W. Pritchard, A. Myers, G. Townsend, and R. Tanner.

The stands of cut flowers for table decoration, base not to exceed 18 inches, were remarkably well shown, and the competition was keen and close. Throughout these vases were light, elegant, and beautiful. Mr. J. Cypher was placed first, the base being formed with *Adiantum cuneatum*, which was allowed to hang freely over the edge, and amongst this were dotted flowers of *Allamanda*, *Dipladenia*, *Ixora*, *Lapageria alba*, and a few *Grasses*. The three branches and the centre were filled with *Orchids*, *Begonias*, and a flower or two of *Gloriosa superba*, freely mixed with *Fern fronds* and *Grasses*. The second-prize one was equally beautiful, only of a slightly different style. A round dish or tin formed the base, and from it rose a small *Palm* out of a groundwork of *Selaginella*. Amongst this were dotted white *Camellias*, *Ixoras*, *Allamandas*; and rising above these, flowers of *Masdevallias* and good spikes of *Odontoglossum Alexandræ* and *O. cirros-um*. Messrs. Jones & Sons were also third with an arrangement very similar to the one staged by Mr. Cypher. Mr. J. C. Rose was awarded an extra prize. In the amateurs' class Mr. E. W. Pritchard was the leading competitor.

FRUIT.

The schedule provided fifteen classes, and these were, on the whole, well filled with really good fruit. For a collection of twelve dishes, to include one *Pine*, there were four exhibitors. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, was well first, and staged good dishes of *Muscat of Alexandria* and *Madresfield Court Grapes*, a *Conqueror of Europe Melon*, *Stirling Castle Peach*, good; *Brown Turkey Figs*, *Violette Hâtive Nectarine*, and *Rivers' Early Favourite Plum*. Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, Chester, was a good second, having splendid examples of *Golden Champion* and *Madresfield Court Grapes*, the latter scarcely finished; a good *Conqueror of Europe Melon*, *Grosse Mignonne Peach*, *Pond's Seedling Plum*, and a good *Queen Pine*. Mr. R. Milner, gardener to J. D. Corbett, Esq., was third with good *Grapes*, *Peaches*, and *Pears*. For nine dishes Mr. J. Watson took the lead, having good *Muscat of Alexandria* and *Black Hamburg Grapes*, *Reid's Scarlet-flesh Melon*, *Bellegarde Peaches*, *Green Gage Plums*, and *Jargonelle Pears*. Mr. Lambert, gardener to Col. Wingfield, was a good second, having fair *Grapes* and good *Peaches* and *Nectarines*. Lord Berwick received the remaining prize. Four collections were staged.

Grapes.—For six bunches of black *Grapes*, three varieties, Mr. Goodacre secured first honours with good *Muscat Hamburgs*, *Madresfield Court*, and very fine *Black Hamburgs*. Mr. W. Elphinstone, gardener to E. M. Mundy, Esq., Shipley Hall, Derby, was a close second, and with bunches superbly coloured of *Black Hamburg*, *Madresfield Court*, and *Muscat Hamburg*. Mr. R. Milner was placed third, and staged splendidly finished bunches of *Lady Downe's* and *Black Alicante*. The Hon. C. H. Whynn and Mr. C. Roberts were awarded extra prizes for their collections.

In the class for three bunches of black *Grapes*, open only to the two counties referred to above, some five or six lots were staged. Mr. Lambert was deservedly placed first with rather small bunches with good berries and well finished. Mr. E. T. W. Wood was second with larger bunches than the first, but not so well finished. Messrs. J. Watson and F. L. B. Laden were third and fourth in the order named.

Eighteen bunches were staged in the amateurs' class for two bunches of black *Grapes*. Mr. W. W. Humphreys was first with not large but well-finished *Black Hamburgs*; Rev. J. H. Charters second with the same variety well finished, the third prize going to the first-named exhibitor. For two bunches of whites (amateurs) Messrs. G. Barr and E. Lea were first and second respectively, both staging *Foster's Seedling*; Mr. H. H. Treasure securing the remaining prize, five collections being staged. Forty-eight bunches were staged in the open class. Mr. R. Milner was accorded the premier position with really fine *Muscat of Alexandria*, large in the bunch and berry, but scarcely finished. Mr. Elphinstone was a good second with the same variety, finished in his usual good style, but rather small in the berry; Mr. Hannagan, the remaining successful competitor, and had very fine *Golden Champion*.

Peaches and Nectarines.—These were not largely shown, as only two classes were provided for them. Mr. Goodacre took the lead with splendid fruit of *Bellegarde*, followed closely by Mr. Elphinstone with the same variety, and Mr. Shaw third with *Grosse Mignonne*, good; ten dishes were staged. Only six dishes of *Nectarines* were staged, and the Hon. C. H. Whynn was first with fair fruits of *Pine Apple*, Messrs. Lambert and R. Milner second and third in the order named. For six *Apricots* four dishes were exhibited, and the prizewinners were Messrs. J. B. Jones, T. Glowes, and R. Milner.

Melons, Plums, and Cherries.—The first named were plentiful, and for one

green-fleshed variety Mr. R. Milner was first with a beautiful fruit unnamed, Sir V. R. Corbet, Bart., second, and Mr. Farrand third. For one scarlet-fleshed fruit Mr. F. L. B. Sladen took the lead with Blenheim Orange, and Mr. Milner second, no name being placed on the third-prize fruit. For twelve fruits of any green or yellow Plum the prizewinners were Messrs. Elphinstone, Lord Berwick, and Messrs. Biddles & Co. For twelve purple or red Plums Messrs. W. F. Hazeldine, W. H. Harrison, and Mr. Farrand were successful; and Sir V. R. Corbet, Bart., Lord Berwick, and C. Chandler, Esq., were the successful exhibitors for Cherries.

Vegetables.—These were very good, and staged in large quantities, in fact they filled the tent prepared for them. In this department there was a great absence of names, and any attempt to give a detailed account of the various exhibits is thus frustrated. Six collections were staged in the class provided for a collection of twelve dishes. Mr. R. Milner took the lead with superior dishes of Celery, Leeks, Onions, Tomatoes, Potatoes, Beans, Peas, Carrots, and a capital brace of Cucumbers. Mr. Lambert was a good second, and Messrs. Biddles & Co. third with large and rather coarse examples. Six dishes of Potatoes were exhibited. In the class for a collection of six dishes Mr. Milner was again to the front with clean even tubers; Messrs. A. Myers and J. Watson were second and third. Sixteen competitors staged three dishes, the whole very fine. Mr. A. Myers was a good first, Mr. Lambert second with Reading Russet, Vicar of Laleham, and Woodstock Kidney; Mr. Milner was placed third. For the best dish of nine tubers seventeen dishes were exhibited. T. Wood, Esq., was placed first with grand tubers of Woodstock Kidney, Mr. Watson second with the same variety, and Mr. Lambert third with Covent Garden Perfection. Nine or ten dishes of Tomatoes were staged for the three prizes offered. Mr. Hannagan was well to the fore with fine fruits of Stamfordian, and admirable produce was staged in all the minor classes.

MISCELLANEOUS EXHIBITS.

These were numerous, Messrs. F. and A. Dickson & Sons, Upton Nurseries, Chester, staged a very large collection of Crotons and a great variety of small decorative plants, which were clean and well grown. These were decidedly the most striking collection of small plants in the Exhibition. They also contributed boxes of Roses, Clematis, Vines in pots very strong, Figs in pots from eyes this season, which were bushy healthy plants fruiting freely. A collection of Conifers came from the same nurseries, as well as a number of dwarf Apple trees on the Paradise stock fruiting freely. Messrs. James Dickson & Sons contributed Conifers, Roses, and a group of miscellaneous stove and greenhouse plants; Mr. House, Peterborough, box of Roses, including William Allen Richardson; Mr. J. Walton, Murrivance, a collection of Pears in pots carrying a very heavy crop, said to have been fruiting for several years in an orchard house. Messrs. Jones & Sons, Messrs. Oldroyd and Co., and Mr. A. Myers, Sutton Lane, Shrewsbury, exhibited large collections of stove and greenhouse flowering and foliage decorative plants, which added materially to the beauty of the Exhibition.

Messrs. E. Webb & Sons, Wordsley, Stourbridge, staged a very large collection of vegetables, including a fine new Pea, said to grow about 3 feet high and very early; the pods exhibited were well filled. Stourbridge Marrow and Electric Light Peas were in the finest of condition. Some fine tubers of Surprise Potato were also exhibited, as well as varieties of Carrots, Beans, and other vegetables.

The arrangements of the Exhibition were never carried out better, and the Secretaries, Messrs. Adnitt and Naunton, with the Committee, deserve congratulation.

LUXURIANT PEACH TREES.

WE planted a Peach house with trees eighteen months ago, and now the trellises are covered, and the question arises, What is to be done in order to make the strong growths of this season fruit-bearing shoots next year? Others may have rampant-growing young trees to deal with, and have a difficulty as to the best means of turning this superabundant vigour to account. Drying the soil will have the effect of stopping the growth, but it will also have the effect of debilitating the tree without inducing fruitfulness. Our plan is to raise the younger roots by means of a fork, and thus give a check to the growth of wood. With sufficient heat in the atmosphere and moisture in the soil a plentiful formation of strong and healthy fruit buds will follow. Older trees which have borne or are bearing heavy crops of fruit should be very freely watered. In good soils it is difficult to supply healthy Peach trees with too much root-moisture in the autumn. The chief points to see to in order to make sure of a crop the following season are these:—Thin out all shoots not wanted, keep the roots working and well supplied with food, and maintain a warm temperature. Open ventilators are all very well in hot weather, but on cold days and raw nights over-much air is an evil and will not ripen the wood, but the contrary.—B. T.

THE READING SEED-TRIAL GROUNDS.

MESSRS. SUTTON & SONS' grounds at Reading, which are chiefly devoted to testing the quality of the seeds sent out by them, and for obtaining stock of the choicer varieties of popular and florists' flowers, are now exceedingly gay and worthy of a visit. The beds of outdoor plants either annuals or perennials are now at their best, and in the houses is a magnificent display of Begonias and Gloxinias that would alone constitute an exhibition of considerable interest. These grounds afford most satisfactory evidence of the care exercised in growing the main stocks of seed which are raised in various farms in England and on the Continent also, for the samples selected by chance from the consignments indicate not only quality of very high degree, but are distinguished by another great recommendation—they are surprisingly true, a fact which in itself is of inestimable value. Further, all the popular races or varieties of plants are being continually improved, the slightest advance in any desirable character being at once perceived and perpetuated, so that while variations are being

steadily increased, the general quality is advanced in similar proportion. A few of the most prominent features may be briefly described, and will serve to convey some idea of the character of the business as a whole.

GLOXINIAS.

Three or four of the useful glass houses are filled with Gloxinias, and though the plants have now been flowering for some weeks the display is still one of great extent and beauty, comprising the most varied colours, rich, bright, delicate, and pure. At Reading the chief attention is paid to improving the strain generally; and though new and beautiful varieties are being constantly selected they are not named, but serve only to increase the merits of the stock by the introduction of new shades of colour, increased size of flower, greater floriferousness, or more vigorous habit. One of the latest additions in this way, which will doubtless give rise to a very distinct progeny, is a variety with most intensely rich scarlet flowers, by far the brightest and finest coloured form we have seen, and which in the sun is quite dazzling by its brilliancy. This is a decided acquisition, and will be carefully looked after, as in contrast with the lighter tints and handsome pure white, the purples and blues, it is most effective. All the other numerous standard shades that have been yet obtained in the Gloxinia are represented in unexcelled purity and brightness, the majority of the plants being of the erect-flowering type which is the favourite now, though the horizontal and drooping varieties are also kept to supply demands. One extraordinary fact worthy of notice is that nearly all the plants are now grown in 60-size pots, whereas at one time 48's and 32's were employed for the same purpose. It has been found, however, that with liberal treatment in supplying liquid manure quite as satisfactory results can be obtained from plants in small pots as from those in a larger size; and when it is stated that some of the former have borne as many as a dozen or fourteen flowers and hundreds eight or ten, it can be readily imagined that nothing more could be desired. The flowers, too, are equally as large and the colours as rich as under the other system, while the saving in labour is an important item. Mr. Hudson of Gunnersbury House Gardens exhibited recently at Kensington a Gloxinia in a small 60-size pot which had half a dozen fine flowers, and a cultural commendation was deservedly awarded for it, the plant being greatly admired by the members of the Committee and the visitors. This small-pot system is indeed one that commends itself to notice, as the plants can be so readily employed for decorative purposes, especially for placing in vases or for table decoration.

TUBEROUS BEGONIAS.

Like the Gloxinias and Calceolarias these have for some years been special objects of attention at Reading, and similar success has been achieved with each class of plants. Several remarkable varieties have been raised from time to time, but one that is now being increased is of uncommon interest and beauty. It is said to be the result of a cross between a variety of the Davisi type and a white-flowered fibrous-rooted form of the natalensis habit, the latter being the seed-bearing parent. It is, however, totally distinct from both parents, and but for the fact that so much care is exercised in hybridising it might be reasonably supposed that some mistake had occurred. The flowers are small, but of a rich rose colour, and are produced most freely in slightly drooping clusters; the leaves are roundish, small, very dark, with a few whitish dots, while in habit the plant is remarkably dwarf and compact. It will unquestionably become a great favourite when sent out, as it has everything to recommend it, and is moreover expected to be a winter flowerer. For general decorative purposes it will be invaluable. Another very distinct variety is Meteor, a cross between Phosphorescent and Pearcei, which has small orange-yellow flowers, curiously shaded and varying in hue; the petals round, habit compact yet vigorous, and one of the most floriferous of the section. Fine strains of white, orange, yellow, buff, scarlet, crimson, rose and blush-coloured varieties are also represented by some thousands of plants, all flowering grandly and constituting a rich floral display that for brilliancy could not be excelled. In connection with these, it may be observed that one house is filled with plants six months old from seed, fine bushy specimens in 48-size pots, bearing an enormous number of large flowers, and proving what a comparatively brief time suffices to obtain plants of good size. Better and more useful plants could not indeed be desired.

CYCLAMENS.

Some houses occupied with these plants were interesting, though not in flower, for when in vigorous health Cyclamens are attractive at all times, their foliage being so handsomely marbled. In this department, again, is a good example of what can be done in a short time under a good system of culture, for the plants, which are giving such good promise of a magnificent show of flowers later on, were raised from seed last November, and are therefore not yet a year old, though the size of the corm, the vigour of the plants, the grand foliage and general condition, would lead one to suppose they were much older.

OUTDOOR PLANTS.

It would be difficult to enumerate in detail all the attractions in the beds outside, and only a passing glance can be given to the majority. Hollyhocks are making a grand display with their tall stems of many-coloured flowers—purple, scarlet, and white. Ten-week Stocks are uncommonly vigorous, of pyramidal habit, and bear very large full flowers. Carnations from seed, too, are very noticeable, the proportion of doubles being about 80 per cent., the colours varied, and some of the flowers equal to named varieties. Zonal, Bronze, Ivy-leaf, and Decorative Pelargoniums are similarly grown from seed, handsome plants being obtained in a few months; and as the seed is always selected from the best-named varieties in cultivation, there is the pleasing excitement of possible novelties of

sterling merit appearing amongst the seedlings; this is a great recommendation to amateurs, from whom the demands are very large. Verbenas are very beautiful, and, like most of the preceding, they are sold either mixed or in separate colours—a very convenient regulation. White, scarlet, blue, and purple are represented by beds as true to colour as if the plants had been increased by cuttings. Antirrhinums, too, are another feature, especially the Tom Thumb section, which is very dwarf and profuse-flowering, surprisingly distinct from the ordinary type, and possessing as many varied tints. Petunias, selfs, fancy-coloured and striped, have a large space devoted to them, and produce fine trusses of colour and load the air with perfume for hundreds of yards around. Then there are beds of Dianthus, *D. diadematus*, *nanus*, *atrosanguineus*, and *D. Heddeewigi*, all beautiful and bright. Portulacas, yellow, white, rose, crimson, and striped, form other interesting beds. Balsams, Zinnias, Pansies, Penstemons, and scores of others are similarly creditable.

Especially noteworthy is that portion of the grounds devoted to the varieties of Phlox Drummondii which are flowering superbly, the colours exceedingly rich, bright, clear, and the shades numerous. Cinnabarina, Chamoise Rose, Snowball, hortensiflora and Victoria are only a few of many grand varieties, selfs, bicolors, tricolors, and striped. It is surprising what advances have been made with these plants in recent years, for there are now few annuals that are more appreciated either for mixed borders or ordinary beds in the flower garden. A bed of these varieties in Hyde Park is this season one of the most pleasing of all, and is a striking example of their value for such purposes. In addition to these flower trials considerable space is devoted to a trial of Tomatoes, all the varieties obtainable being grown out of doors for comparison, but they are not at present sufficiently advanced to be satisfactorily judged, though they are giving promise of fine crops.

It need only be further added that the same methodical and excellent system of management which distinguishes Messrs. Suttons' admirable seed warehouses is also seen in the trial grounds, no effort being spared to secure the best possible results—a principle of obvious value to both purchaser and purveyor.—X.

TAUNTON DEANE HORTICULTURAL SOCIETY.

THE last, but by no means the least pleasant of my judicial visits, is that which I pay to the beautiful county town of Somerset. To meet friends whom one knew and travelled with in the salet days of forty-three years past in scenes which can never be forgotten, to go amongst those whom one has been associated with for many years, and to come to an exhibition of a first-rate character and see the enthusiasm which pervades all classes—if all these do not combine to make a visit a pleasant and happy one, why one must be very hard to please; and so to me this Taunton visit is always a pleasant one. We have to go to the West to see what is really thought of a flower show, and in no place that I know of is it so great a success as here. The whole town is *en fête*, business is pretty well high suspended, the neighbouring gentry flock in and make it a point of being at home at the time of the Show, and a few items from their last published account will evidence the favour with which its operations are viewed. I should say that in explanation of the very large amount of gate money, that an exhibition of fireworks, ever popular, takes place at night. This costs about £60, and produces generally a clear profit of £70 or £80. The subscriptions last year amounted to £241, and the gate receipts to £348, and so successful was the financial condition, that they were enabled to erect a new band at an expense of £116. One thing must, however, be added, that they have generally been favoured with fine weather, and have had a succession of able Secretaries, not the least able one being their present one, Mr. C. H. Samson.

I have been here now for the last ten years an annual visitant of the Taunton shows, and I unhesitatingly say that this was, without exception, the finest one I have ever seen. All the productions were of good quality, plants, flowers, fruit, and vegetables, and I never anywhere saw such a bank of flowering plants as that which filled the long tent from one end to the other. Mr. Tudgey was not there, but his place was worthily taken by a new exhibitor, Mr. Cleam of Crediton, whose plants displayed great skill in cultivation; while Mr. Cypher surpassed himself. Mr. John Marshall of Belmont reappeared as an exhibitor with plants of great excellence, and Mr. Lawless showed that his gardener, Mr. Cole, could keep up his well-earned reputation. Mr. Cypher's collection of twelve stove and greenhouse plants, for which he gained the premier prize of £20, was equal to any that even he has ever shown. They were *Ixora regina*, *I. amabilis*, *I. Williamsii*, *Clerodendron Balfourianum*, *Allamanda nobilis* and *A. Hendersonii*, *Erica æmula*, *E. Marnockiana*, *E. Austiniana*, a magnificent plant, and *E. ampullacea Barnesii*; *Stephanotis floribunda*, very fine; and *Dipladenia amabilis*. Mr. Lawless (gardener, Mr. G. Cole) was second with a beautiful lot not quite so massive, comprising *Stephanotis floribunda*, *Clerodendron Balfourianum*, *Ixora Prince of Orange*, *Erica Marnockiana*, *E. Farmeri*, *E. Jacksonii*, and *E. æmula*; *Eucharis amazonica*, *Allamanda Hendersonii* and *A. nobilis*, and *Lapageria rosea*. In the class for six stove and greenhouse plants in flower Mr. J. Marshall of Belmont was first with fine plants of *Bougainvillea glabra*, *Allamanda Hendersonii*, *Dipladenia amabilis*, *Stephanotis floribunda*, *Ixora Prince of Orange*, and *Stative profusa*. J. H. Mould, Esq., was third with *Bougainvillea glabra*, *Allamanda nobilis*, *Allamanda Hendersonii*, *Ixora Williamsii*, and *Erica Irbyana*. In the class for eight foliage plants the contest was so sharp that the Judges were obliged to give the two first collections equal first, Mr. B. N. Cleam and Mr. Lawless being the exhibitors. The former's plants were *Croton Williamsii*, *Areca lutescens*, *Cycas revoluta*, *Croton Disraeli*, *Lantana borbonica*, *Croton Johannis*, *Alocasia intermedia*, and *Seafortia elegans*. The colouring of the Crotons in this collection was something unusually grand. Mr. Lawless' were *Croton undulata* and *Croton Warneri*, *Thrinax elegans*, *Kentia Belmoriana*, *Nepenthes Rafflesiana*, *Croton Disraeli*, and *Livistonia altissima*. In the class for eight Ferns Mr. B. W. Cleam was again first with *Cibotium princeps*, a grand plant; *Cyathea dealbata*, *Nephrolepis davallioides*, and *Davallia Mooreana*, *Gleichenia Speluncæ*, *Adiantum trapeziforme*, *Marattia Cooperi*, and *Davallia polyantha*. Mr. Lawless was second with *Microlepia hirta cristata*, *Davallia polyantha*,

Gleichenia rupestris, *Gleichenia Mendeli*, *Nephrolepis nidus-avis*, *Gleichenia Dicksonii*, *Davallia Mooreana*, and *Nephrolepis davallioides* and *fareana*. In the class for new flowering plants Mr. Cypher was first with *Dendrobium Dearii*. In the classes confined to the county of Somerset Mr. Mould was first with the curious *Attacia cristata*, *Clerodendron Balfourianum*, *Dipladenia amabilis*, *Ixora Williamsii* and *I. regina*, *Stephanotis floribunda*, *Ixora Dixiana*, *Bougainvillea glabra*, and *Erica retorta major*. In Class 31 Mr. Marshall was first with *Curcuma Roscoeana*, *Dipladenia Brearleyana*, *Ixora Regina*, *Dipladenia profusa*, and *Erica Verdii*.

There was an excellent display of cut flowers, Dahlias, Gladiolus, Roses, Asters, &c. Mr. Kelway staged a splendid lot of his choicest flowers, while Mr. Dobree of Wellington, who has for years held the first place as an amateur in the west of England, had a stand of seventy seedlings, in addition to those staged for competition, among which were some very fine flowers. Like everyone who has tried their culture he complains of sad losses, even amongst his seedlings; and, in truth, Gladiolus-growing is a very expensive hobby. I give the names of Mr. Kelway's flowers, as they comprise some of the best of his immense stock. Pelargo, dark red, Veronica, Hercules, Lillianis, Princess Charlotte, creamy buff, a novel flower, Callippon, Lady Aberdare, Rev. H. D'Ombraim, ex., ex., (of course!) Mrs. Eyton, Jessica, Accacia, CEsopus, Ella, Dr. Woodward, Lord Leigh, Countess Craven, Rev. J. M. Berkeley, Marica, Cleobula, Belgare. Of these Pelargo, Princess Charlotte, and Lillianis obtained certificates. Mr. Keynes of Salisbury exhibited Roses as I have rarely seen shown in August, fresh, of good form and substance. His stand of forty-eight contained Charles Lefebvre, Helen Paul, Alfred Colomb, Capitaine Christy, Sir Garnet Wolseley, Madame Verdier, very bright and pretty; George Moreau, Elie Morel, Ferdinand de Lesseps, Etienne Dupuy, Beauty of Waltham, John Hopper, in excellent form; Star of Waltham, Madame Lambard, Xavier Olibo, Duke of Edinburgh, Marie Van Houtte, Reynolds Hole, La Reine, A. K. Williams, Triomphe de Rennes, Bride of Waltham, Marie Rady, Duchesse d'Orleans, Wilson Saunders, Eugénie Verdier, Duc de Rohan, Madame Eugénie Verdier, Paul Neyron, Mrs. Jowitt, Marguerite de St. Amand, Charles Dawson, Baronne de Rothschild, William Kœlle, Baron Gonella, Madame Victor Verdier, La France, Duchess of Bedford, Comtesse d'Oxford, Beauté de l'Europe, Madame Charles Wood, Catherine Mermet, Souvenir de Spa, and Duchesse de Morny. Mr. John Mattock was second. In twenty-four trebles Messrs. Keynes were again first with Alfred Colomb, Elie Morel, Charles Lefebvre, Madame Marie Verdier, Duke of Edinburgh, Eugénie Verdier, Marie Van Houtte, Beauty of Waltham, Triomphe de Rennes, Ferdinand de Lesseps, Helen Paul, Lord Macaulay, Madame Victor Verdier, Marguerite de St. Amand, Xavier Olibo, Capitaine Christy, Marie Baumann, John Hopper, Baronne de Rothschild, Baron Gonella, Mons. Boncenne, Madame Lambard, and William Kœlle.—D., Deal.

WATERING CUCUMBERS.

I NOTE there seems to be a standing difficulty in keeping the beds well watered. I have adopted a plan by which I can do it effectually and with half the labour of the usual way. I have a series of 4-inch drain pipes (upright) passing through the bed to the hot flue, a 9-inch pipe from the boiler under, which pipe is laid in a hollow chamber. By these first series I water the flue, raising a steam underneath the bed; also by covering or uncovering the tops of these pipes I regulate the heat of the bed at will. The second series of pipes I put on at the first earthing upright on the bed. That and each successive earthing after is put in around them. Their tops are open to the house. By these I can pour water direct to the middle of the bed, which fully saturates to the bottom. The top of the bed, with which there is no difficulty, I do in the ordinary manner. I daresay the idea, although original to me, is as old as our Devonian formation, but it may be useful to amateurs.—TORBAY.

WESTON-SUPER-MARE SHOW.

AUGUST 14TH.

THE eleventh annual Exhibition of this popular Society was held, as usual, in the Rectory Ground, and was in every respect a great success. Much of this success is due to the energy of Mr. Frampton, the Secretary, and the Committee generally, who work hard, first to secure a good sum of money to offer in prizes, and again in arranging the thoroughly good representative display resulting. Among the plant-exhibitors Mr. Cypher of Cheltenham was highly successful, and probably a much better group of flowering plants than his were never before exhibited. Mr. Mould of Pewsey also staged well and successfully, and among the amateurs H. Pethick, Esq., was deservedly awarded several first prizes. Mr. Austen, gardener to Sir Greville Smyth, staged a considerable quantity of fruit and vegetables in his well-known excellent style, and obtained a number of first prizes.

Mr. Cypher's remarkable group of twelve flowering plants in the open classes consisted of *Erica Marnockiana*, *E. æmula*, *E. Austiniana*, *E. ampullacea Barnesii*, *Ixora regina*, *Allamanda nobilis*, *Anthurium Schertzerianum*, *Clerodendron Balfourianum*, *Dipladenia amabilis*, *Allamanda Hendersonii*, *Ixora Williamsii*, and *Stephanotis floribunda*, all fresh and beautifully flowered. Mr. Mould's second-prize group included good specimens of *Bougainvillea glabra*, *Erica insignis*, *E. Iveryana*, and *E. Lindleyana*. The third prize was awarded to Mr. W. Hughes, gardener to H. Pethick, Esq.; and the fourth to Mr. D. Bloodworth, both exhibiting creditably. Mr. Cypher also took the lead with six plants in bloom, and was followed by Messrs. Mould and Bloodworth, and the same positions were occupied in the class for fine-foliaged plants. Mr. Mould staged the best six Ferns, and was closely followed by Mr. S. Brown and Mr. P. Cassell, both of Weston-super-Mare. Mr. Pethick's first-prize group of *Adiantums* were very good, and Mr. G. Lane, gardener to F. Taylor, Esq., was a good second. *Lycopodiums* were well shown by Mr. G. Matthews, gardener to S. T. Knyfton, Esq., Uphill, and Mr. F. Taylor; *Pelargoniums* by Messrs. S. Brown and W. Adams, gardener to W. Smith, Esq., Weston-super-Mare; *Clematisses*, *Fuchsias*, and *Liliums* by Mr. S. Brown, Mr. W. Pain, and Mr. Partridge Cassell; while Mr. Pethick had the best *Achimenes* and *Begonias*, and Mr. H. C. Mayall, Bath, the best *Gloxinias*.

The amateurs in the classes reserved for them made a very effective display. With flowering stove and greenhouse plants Mr. G. Pain, gardener to W. Ash, Esq., Weston-super-Mare, took the lead, and the second prize was awarded to Mr. T. T. Knyfton, Uphill, the specimens being good in each instance. Mr. Pain also took the lead with fine-foliaged plants, and was followed by Mr. F. Taylor and Mr. H. Pethick. Exotic Ferns were well shown by Mr. J. Davey, Chilton Polden, and Messrs. H. Pethick and F. Taylor; Adiantums by Messrs. F. Taylor and T. T. Knyfton; Geraniums by Messrs. J. Wright and S. T. Sayce, both of Weston-super-Mare; Balsams by the Rev. J. A. Yatman and Mr. J. Matthews, Weston-super-Mare; Coleus by Messrs. W. Smith and J. Wright; Gloxinias also by the last-named exhibitors; and Begonias by Messrs. H. Pethick and W. Ash, the exhibits being highly meritorious, and were awarded the prizes in the order named in each instance.

There were a considerable number of classes both open and for amateurs provided for cut flowers, and throughout the competition was very close and good. Messrs. Paul & Son, Cheshunt, had the best stand of twenty-four varieties of Roses, three blooms of each, these including large and fresh examples of Alfred Colomb, Comte de Raimbaud, Etienne Levet, A. K. Williams, Maréchal Niel, Maurice Bernardin, Jules Finger, Madame Victor Verdier, Mrs. Jowitt, Harrison Weir, Marie Rady, Capitaine Christy, E. Y. Teas, and Marie Baumann. Messrs. Keynes & Co. were a close second, and in their turn were closely pressed by Messrs. G. Cooling & Son, Bath. Messrs. Paul & Son were also first with twelve Teas, among these being very good blooms of Catherine Mermet, Souvenir d'Elise Vardon, Jean Ducher, Madame Lambard, and Anna Ollivier. Messrs. Keynes & Co. were second, and Mr. J. Mattock, Oxford, third, both staging excellent blooms. Among the amateurs Mr. S. P. Budd took the lead with twelve varieties of Roses, these including very good blooms of E. Y. Teas, Duke of Wellington, and Alfred Colomb. Mr. D. Shellard, Hanham, was deservedly awarded the second prize. Double Dahlias were shown by Messrs. Keynes & Co. in their well-known fine style, and Mr. A. Hill, Bower Ashton, was a very creditable second. Mr. A. A. Walters, Bath, had the best lot of single Dahlias, and which were very bright and good. Mr. S. Dobree, Wellington, had by far the best stand of Gladioli spikes. Verbenas were well shown by Mr. W. Smith, Kingswood; French Asters by Mr. Isaac Burgess, Bristol; Quilled Asters by Mr. A. A. Walters; herbaceous Phloxes by Mr. W. Luton, Twerton-on-Avon; and Hollyhocks by Mr. A. A. Walters, and several others exhibited well in each of the same classes. Mr. Cypher had the best hand bouquet, and was also successful with buttonhole bouquets.

Fruit was extensively and well shown, the Grapes especially forming an attractive feature. For a collection of eight varieties of fruit Mr. Austen took the first place, this consisting of fine well-finished bunches of Muscat of Alexandria and Black Hamburg Grapes, a good Smooth Cayenne Pine, Ashton Seedling Melon, Violette Hâtive Peaches, Pine Apple Nectarines, Negro Largo Figs, and Morello Cherries, all in excellent condition. Mr. W. Iggulden, gardener to the Earl of Cork, Frome, was a good second, his collection including good Black Hamburg and fairly good Muscat of Alexandria Grapes, a good Blenheim Orange Melon, and well-coloured Bellegarde Peaches. Mr. W. T. Crossman was awarded the third prize, his best dishes being Black Hamburg and Muscat of Alexandria Grapes. Mr. Austen was first with one Pine Apple, and was followed by Mr. W. Weaver, Hereford. Most of the bunches of Muscat of Alexandria were coloured indifferently. Mr. Austen's were much the best, the second and third prizes going respectively to Mr. G. Shelton, gardener to W. Wait, Esq., Clifton; and Mr. W. Ash for creditable exhibits. Mr. Austen's first-prize bunches of Black Hamburg Grapes were large and spotless, but were a little wanting in colour. Mr. Iggulden had smaller bunches and well-coloured, and took the second prize, the third going to Mr. W. Carpenter, gardener to J. G. Livingstone, Esq., Westbury, nine others also staging creditably. With any other kind of black Grapes Mr. W. Duffurin, gardener to Mrs. Walker, Weston-super-Mare, took the lead, and was followed by Mr. H. O. Wills, Clifton, both staging Madresfield in fairly good condition. The best green-fleshed Melon was a good fruit of Earl of Beaconsfield, staged by Mr. W. Bower, Weston; the second prize going to Mr. A. Harris, gardener to Major Law, Banwell, for Best of All in good condition. Mr. Iggulden took the lead with a scarlet-flesh Melon, winning with a large heavy fruit of Blenheim Orange; Mr. E. Thomas, Bishopstowe, following with Hero of Bath. Mr. Duffurin had the best dish of Peaches, the variety being Grosse Mignonne in good condition; and Mr. E. Trotman, gardener to H. O. Wills, Esq., followed with large well-coloured fruit of Vanguard. Mr. Austen had the best Nectarines, the variety being Pine Apple, Mr. Duffurin following with Elruge, the examples in both instances being highly coloured. Mr. Austen was also first for Figs and Red and White Currants, Mr. Iggulden first for Apricots and Cherries, Mr. J. Davey for culinary and dessert Apples, and Mr. Crossman for Plums.

Large quantities of vegetables were shown, the quality throughout being very good. With a collection of eight dishes Mr. Austen was a good first, the varieties being Hathaway's Excelsior Tomatoes, James's Intermediate Carrots, Snowball Turnips, Veitch's Autumn Giant Cauliflower, Sion House Kidney Beans, Woodstock Kidney Beans, White Leviathan Onions, and John Bull Peas. Mr. T. Tilley, gardener to Col. Cotgrave, was a good second, and Mr. E. C. Law third. Mr. J. Coles took the first place in a large class of round Potatoes with Rector of Woodstock, and was followed by Mr. E. C. Law; but there were several much better dishes passed over. Messrs. W. M. Baker and W. Iggulden were respectively second and third for kidney Potatoes, the variety in both cases being Woodstock Kidney. Messrs. Austen and Iggulden had the best Cauliflowers; Messrs. W. Duffurin and T. Tilley Onions, autumn-sown; Messrs. J. Davey and W. Duffurin spring-sown Onions; and Messrs. Austen and E. C. Law the best Peas. A considerable number of Tomatoes were shown, Mr. Iggulden being a good first with a handsome dish of Phillips' Perfection; and Mr. Howe, gardener to Lewis Fry, Esq., M.P., a good second. The Rev. A. Yatman and Mr. Hall took the prizes for Cucumbers, Mr. H. Pethick and Mr. Jas. Davey for a basket of salad, and Mr. J. Coles and Mr. J. Davey for Lettuces. A grand lot of vegetables of all kinds were also shown by the cottagers.

Mr. J. Matthews, The Royal Pottery, Weston-super-Mare, exhibited a large assortment of his new and extremely pretty style of terra-cotta vases, flower stands, and window boxes. Some of the patterns are very good imitations of the trunk, stems, and bark of trees, with Ivy and other trailers

running over them. The large and deep half-round boxes or pans should eventually find a place in the fronts of many houses or in conservatories, being ornamental yet well adapted for the reception of choice climbers and other plants which could not well be planted out. The pedestals of the vases are also made in rustic patterns, the whole being really works of art, and reflect much credit on the manufacturer and his designers.



HARDY FRUIT GARDEN.

Lateral Growth.—If the weather is cool and showery it will be advisable to discontinue removing lateral growths earlier than usual this year, in order to induce full maturity and not waste the strength of the trees upon the production of worthless spray unfit either for the development of blossom or wood buds. For the next three weeks, therefore, shoots already several inches in length will be left to grow unchecked, and in our next calendar we will call attention to the important operation of twisting lateral growths to check the flow of sap in part so as to make the buds plump at the base without causing them to start into growth this autumn.

Preparations for Planting.—Early planting is so important a factor in the culture of young fruit trees, that wherever much planting is to be done this autumn the drainage of the land and making the stations should be begun soon enough for all to be in readiness for the planting by the first week in November, which is only ten weeks from the present time. If a plot of land is to be devoted entirely to the growth of fruit, first make the drains 30 feet apart and from 2 feet 6 inches to 4 feet deep, according to the nature of the soil—deep for light porous soil, shallow for a heavy tenacious one. In a deep rich loam specially prepared stations are unnecessary, but in poor thin soil the stations must be 6 feet square and 2 feet 6 inches deep, each station to be drained by a branch drain laid across the centre of the bottom and connected with the drain nearest to it. Six inches of broken stones or bricks is then put in the bottom of the station, care being taken not to move any of the drain pipes, and the remaining 2 feet is filled with the best soil obtainable, such as the top spit of a meadow with the turf and a slight admixture of wood ashes, charcoal, coal ashes, and mortar rubbish mixed with lime or gritty road scrapings. Those additions are not mentioned as indispensable for fruit trees, but rather as useful substances to which planters beset with the difficulties of a poor soil turn most gladly to account. If inferior meadow soil is only to be had, then mix a small quantity of old farmyard manure with it and a liberal sprinkling of crushed bones, and do not forget that at best your stations only contain sufficient fertility for the requirements of a small young tree; and that subsequently in the course of three or four years, if the soil around the stations has not been enriched and made thoroughly fertile, most of the fruit trees will suffer, canker will attack many, and the fruit will be inferior in size and flavour. This method of preparing stations applies to all sorts of tree fruit, both upon walls and in the open.

FRUIT HOUSES.

VINES.—*Grapes Colouring.*—If the bright weather that now happily prevails continues, take especial care that inside borders especially are well supplied with water. Both root and atmospheric moisture are often unduly limited at this season when the fruit is ripening, and red spider and other insects are afforded a favourable opportunity to spread, and they never fail to make the most of it. With early and ample ventilation a moderately moist atmosphere in no way impairs the colouring of Grapes, but, on the contrary, often assists it; and so does liberal moisture at the roots, particularly when the Vines are heavily cropped. Hesitate in removing laterals from black Grapes now, as they almost invariably colour the best under a rather thick canopy of foliage.

Pines.—Suckers obtained from the summer-fruiting plants will soon be ready to be potted. Transfer the strongest to pots 10 and 11 inches in diameter according to the variety, affording the plants a position near the glass in a light airy house, keeping them gradually growing throughout the winter months, under which conditions they start into fruit readily about the following May or June, and afford a good supply of early autumn fruit. The remaining portion of the plants above referred to should be wintered in 7 or 8-inch pots, and placed in larger pots in spring. These, with suckers of Smooth-leaved Cayenne and Charlette Rothschild started last March, will without much difficulty provide a successional supply of ripe fruit throughout the winter months, and be supplemented by Queens and other varieties which were started at the same time.

Melons.—The weather for the past few days has been all that the grower can desire, good fruit consequently being very plentiful. Before the fruits are very ripe they should be cut with a good portion of stem, and placed in a dry cool place so as to prolong the season of supply. Fire heat may safely be dispensed with during a continuance of such weather, closing the house early and maintaining a moist atmosphere to all plants other than those setting or ripening fruit. Under ordinary circumstances the houses, pits, and frames may be closed and the plants

syringed at 3 P.M., but span-roofed houses should not be closed for half an hour later. For healthy and robust plants shading may almost be dispensed with, and less atmospheric moisture will be now required, especially by plants in frames. If the last batch of plants are weakly afford liquid manure about twice a week, but do not apply it very freely until the fruits are set, after which earth-up the roots with good lumpy compost. The last batch of plants in pits and frames will be setting the fruit, and must have a dry atmosphere with a little ventilation at night, stopping each lateral one joint beyond the fruit. Continue to support fruits that are becoming heavy by means of tables placed beneath the trellis, and those in frames should be kept from the soil by slates, and when ripening may be elevated on small pots.

Cucumbers.—The general treatment for these continues the same. Plenty of atmospheric moisture, liberal feeding at the roots, free stopping and training the young growth, and thinning out the old being the chief points. Encourage the plants for autumn fruiting to make a strong growth, adding a little fresh soil as the roots penetrate through, abundance of surface roots being a true indication that the plants are doing well, maintaining a firm condition of the bed so as to induce short-jointed wood. A little fire heat should be employed on cold nights to prevent the temperature falling below 65°. Take advantage of every opportunity to collect and prepare soil for the winter plants, clearing the house of exhausted plants, remedying any defect in the heating apparatus, thoroughly cleansing the interior and exterior of the house.

PLANT HOUSES.

STOVE.—*Crotons.*—There is but little risk in cutting down any plants that are likely to become too large before they are wanted for decoration. Good tops taken off now and inserted according to their size in the centre of 5 or 6-inch pots will make handsome plants in a very few weeks. These tops strike with much freedom at this season of the year in a close frame and with the aid of bottom heat. Labour is saved when they are rooted in the pots in which they are to remain. Careful watering for a time is necessary until they are established. Gradually harden them to succeed in the more airy conditions of the house in which they are to be grown after they leave the propagating frame, or they are liable to be checked and stand still for a long time, or probably lose their lower foliage, which detracts materially from the beauty of the plants. A little *Selaginella* placed on the surface of the soil will be thoroughly established by the time the plants are wanted. A few sprays of *Panicum* or of a variegated *Tradescantia* are also very effective when established among the moss.

Dieffenbachias.—Strong tops do not root so readily without losing their foliage as *Crotons*, and when a few extra large plants are required in moderately small pots the old plants should be placed in strong moist heat, and mossed round the stems. Under the leaves make incisions on each side of the stems with a sharp knife before mossing, and in a short time roots will be formed and the tops can then be taken off and established in pots. Young plants are readily raised from portions of stem, and a few should be inserted at once and kept growing until they are large enough for purposes of decoration. The most compact plants are those which are grown slowly and under the influence of as much air as the plants will bear without injury. When grown rapidly in strong heat they soon become tall, and thus possess but little beauty for decoration when employed as single specimens.

Dracænas.—These are amongst the most beautiful plants that can be used for the decoration of rooms. Young plants now growing in 4, 5, and 6-inch pots should be encouraged to develop as much good well-coloured foliage as possible before the days become short and dark. To accomplish this, grow the plants near the glass and begin gradually to discontinue shading, and no more than is absolutely necessary should be employed. If the plants become root-bound give them at intervals of about three weeks a little Standen's manure in preference to repotting them. Later batches should now be transferred according to their size into the size pots referred to, and, if grown rapidly, will be useful when the earlier plants by employment in rooms have been rendered useless except for stock. Grow green forms, such as *congesta*, *rutilans*, and others, as cool as possible either in the greenhouse or frames, as when kept in an intermediate temperature they soon grow too tall, especially the first-named, and become unsightly.

Primulas.—Where these are grown to flower towards the end of October or early in November, no time should be lost in placing them in 5 and 6-inch pots. Drain the pots liberally, and make the plants secure at the collar by placing them sufficiently deep in their pots. It is a mistake to have them loose at the collar, as it is no preventive against decay, while they are liable to injury by shifting from place to place, and a greater per-centage damp off than would be the case if potted deeply and made secure. The case of damping during the winter is due in the majority of cases to irregularity in watering. For decorative purposes in the dwelling house a few of the smallest plants of this batch may be kept in 3 or 4-inch pots, in which they will flower most profusely and be found very useful for associating with small Ferns and other dwarf plants. Later batches now in pans and thumb pots should be placed into 2, 3, and 4-inch pots. A compost consisting of good fibry loam, a seventh part of decayed manure, and about the same quantity of leaf soil, a little soot, bone dust, and coarse sand, will grow these plants well. Keep them close for a time after potting, then admit air liberally, and shade only when necessary to prevent the foliage flagging.

Clematises.—Plants used for forcing in spring should now be outside, and some attention is needed at this season of the year in supplying them liberally with water. They should, if root-bound, have stimulants

in a weak state every time watering is needed. These plants, if carelessly treated at this season of the year, cannot possibly be expected to flower satisfactorily when required to do so in spring. The best plan is to grow them after flowering under glass until their growth is thoroughly completed, and then place them outside, but convenience does not always exist for carrying out this system; but where time and room can be devoted to the plants under glass they more than compensate for the care and labour bestowed upon them.

THE BEE-KEEPER.

FOUL BROOD.

A CORRESPONDENT some time ago sought information on this subject. So far as I know no more valuable hints and instructions have appeared than in the columns of the Journal, and especially I would direct attention to what has been written by Messrs. Cheshire and Cowan. From these writings I will cite. Mr. Cheshire observes—"When foul brood breaks out it attacks grubs only, and for a fortnight or so no actual difference is effected, but as it spreads population is reduced from two causes: Young bees do not all hatch out, some die prematurely, and the odour generally diffusing itself takes all heart and energy out of the workers; the brood-nest gets by degrees choked, and the laying energy of the queen is thus repressed. The general effect is the gradual weakening of the colony it is true; but all can see that time is required for the destroyer to accomplish his purpose, and despite his sad work making havoc within, the bees may appear to be in the full swing of unhindered progress until the disease has a firm hold of every comb.

"The curability of foul brood is the next point upon which I wish to insist. While we feel sure that the doctor can do us no good we will not take his medicine, and while bee-keepers believe that foul brood must run its course and work out devastation and ruin nothing will be done to arrest it. I assert its curability because I have again and again cured it, and in this position I am pleased to be able to refer to one of the most prominent, certainly one of the most scientific and successful, apiarians of our day—T. W. Cowan, Esq., Chairman of the Committee of the British Bee-keepers' Association, whose experience in the treatment of this malady has been great, but not greater than it has been successful. Mr. Cowan, in reply to a request that he would permit a publication of his methods, has favoured me with a lengthened letter, in which he says, 'I am quite, I think, of your opinion as regards foul brood, that is to be cured if attacked in earnest. You know I had it in my apiary, and it was a source of great trouble to me, but I stamped it out with salicylic acid. My proceeding was to excise any very bad places, and when I found cells affected here and there I merely uncapped them and sprayed the combs with the solution of which I send you the recipe. I found generally in mild cases one application was sufficient, but in more severe ones two or three doses produced a complete cure. I found that if the cells were uncapped before they were punctured and sprayed with the solution, injecting a larger quantity into the affected cell so as to eject the viscid mass, there was no fear of the disease appearing again. In this state the viscid fluid in the cell is of a light brown, and is not permeated with spores to such an extent as when it is allowed to remain until it becomes highly coloured and the covering much depressed. I doubt very much if in this stage it is very contagious. I have no doubt the acid acts on the spores and destroys their vitality. So far so good. Now as regards the honey that is in the hive and which is supposed to contain the spores (although I must say I have never been able to detect any by the microscope), how are we to insure their being destroyed? Simply by uncapping it and feeding the bees on syrup containing the acid, which they will store with the uncapped honey, or uncap it and give it a good spraying with the acid solution. I have done both, but cannot say if it was really required; but as I think prevention is better than cure, and as it is not much trouble, there can be no harm done.

"All my hives are scalded, and so is everything that has had anything to do with the hive, and afterwards everything is washed over with the solution. I believe the germs of the disease are carried in the air, and we can never feel safe; I therefore always put acid in all the food I prepare. I examined six of my hives and all were healthy but one, and that I thought was also healthy. It was an early swarm. This year I had thrown off a swarm and a cast, and had given me six small 1 lb. sections nicely filled. I looked on the ten frames and found no queen and no brood. There was one cell covered, but not

punctured, but I at once recognised as a foul-broody one. Now the hive had not been queenless very long, as about ten days ago I saw the queen; and although she was not laying, there was a small quantity of brood hatching out, and all did hatch out except this one cell; it was uncapped and injected with the solution, and the other combs and bees sprayed with it. I have no doubt it will prevent its spreading in the future, as I shall not hesitate in using these combs in uniting if I require them.

"I have examined six hives to-day, fearing to find foul brood, but have not detected a single cell in any of the other hives. Now, how did this appear? It seems to me probable that it was brought there by some of the bees from outside, or a spore might have been lurking in some of the corners of the hive and had escaped the solution. This proves to me that it is impossible to tell when it may break out in an apiary; and as we know from experience that salicylic acid destroys the spores, I think it not only beneficial but important that a certain quantity of this acid should be in all the food given to the bees. Two years ago I tried feeding the bees on syrup containing a strong dose of acid without spraying the combs, and I found that the disease gave way to this treatment; but I find the other plan, that of uncapping and spraying, the most rapid. I do not mean to say if a hive is neglected, so that all the brood is rotten, it can be cured; but if taken in time, as every apiarian would do, it has been and can be cured.—THOS. WM. COWAN."

The table of recipes Mr. Cowan encloses will explain themselves.

TABLE.

Salicylic acid solution for mixing with syrup for feeding bees, painting over hives, and spraying combs, &c., for the prevention of foul brood.

Salicylic acid	1 oz.
Soda borax	1 oz.
Water	4 pints.

Spring and summer food for bees:—

White lump sugar	10 lbs.
Water	7 pints.
Vinegar	1 oz.
Salicylic acid solution	1 oz.
Salt	½ oz.

Boil for a few minutes.

Autumn and winter food for bees:—

White lump sugar	10 lbs.
Water	5 pints.
Vinegar	1 oz.
Salicylic acid solution	1 oz.
Salt	½ oz.

Boil for a few minutes.

Mr. Cheshire has written much more on this subject, but I have not time to make further extracts. I can only say that his experience has proved valuable to more than one—BEE-KEEPER.

TRADE CATALOGUES RECEIVED.

- James Carter & Co., 237 and 238, High Holborn, London.—*List of Bulbs and Seeds for August and September.*
- W. Leighton, 89, Union Street, Glasgow.—*Catalogue of Dutch Flower Roots.*
- Sutton & Sons, Reading.—*Catalogue of Bulbs (Illustrated).*
- Edmund Phillip Dixon, Hull.—*Catalogue of Bulbous Roots.*
- Wrench & Sons, St. Lawrence Works, Ipswich, and 57, Holborn Viaduct, London.—*Lists of Greenhouses and Hot-water Apparatus (Illustrated).*
- W. & S. Deards, Harlow, Essex.—*List of Heating Apparatus (Illustrated).*
- N. Davis, 66, Warner Road, Camberwell.—*Catalogue of New and Old Chrysanthemums.*



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

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

Books (*H. W. M., Sheerness*).—"Orchard Houses," by J. R. Pearson, published at this office, may perhaps be of service to you. Its price is 1s. 6d., post free 1s. 7d. (*T. D.*).—Our Greenhouse Manual, price 10d. post free, contains concise instructions on the majority of plants that are grown in greenhouses.

Begonia Flowers.—We have received some very good flowers of Tuberous Begonias by post, but nothing to indicate by whom they were sent nor with what object.

Seedling Carnations (*A. B.*).—Your Carnations do not possess any special merit, and are surpassed by scores of others already in cultivation.

Meconopsis Wallichii (*A. G.*).—There are few dealers from whom you could obtain seed of the above plant, but perhaps Mr. Thompson, Ipswich, could supply it. The other address you require is Messrs. Fisher, Son and Sibray, Handsworth, Sheffield.

Oncidium Marshallianum (*R. F.*).—Your previous letter was not received or it would have been answered at once. This Orchid requires the temperature of the Cattleya house or the warmer of two divisions in an ordinary Orchid house. It succeeds upon a block, and should be placed in a light position, supplying water liberally while growth is advancing.

Peaches for an Unheated House (*S. W.*).—Six excellent Peaches ripening in succession are Alexander, Rivers' Early York, Dr. Hogg, Grosse Mignonne, Noblesse, and Barrington.

Apples and Pears for a Sandy Soil (*Idem*).—Dessert Apples.—Irish Peach, Margil, Cox's Orange Pippin, Adams' Pearmain, King of the Pippins, Hubbard's Pearmain. Kitchen Apples.—Keswick Codlin, Duchess of Oldenburg, Golden Noble, Warner's King, Small's Admirable, Striped Beefing. Pears.—Williams' Bon Chrétien, Colmar d'Été, Fondante d'Automne, Comte de Lamy, Doyenné du Comice, Knight's Monarch, Urbaniste, Thompson's, Huyshe's Victoria, Comte de Flandres, Winter Nelis, and Madame Millet. Plant early in November, and see this week's hardy fruit garden calendar for hints about preparation for planting.

Pink Bedding Pelargonium (*M. B. D.*).—It is impossible to name one variety as the best for all sizes of beds and positions. One of the best beds we have seen this year is planted with Mrs. Leavers. Reference will shortly be made to some of the beds in the London parks, and the most effective varieties will be enumerated.

Ridgway's Hedge-clipper (*J. R.*).—This excellent implement will remove the young growths from Thorn, Privet, and other hedges more easily and far more expeditiously than the hedges can be trimmed with the ordinary garden shears. If you order one of the articles in question it will be certain to reach you in good condition, but it may be probably too large for the parcels post. The lawn edge-clipper referred to has been found serviceable by several persons who have used it. Whether it will answer in your case or not can only be ascertained by experience. You had better write for a list of testimonials and judge for yourself as to its adaptability for your garden.

Freesia refracta (*C. D.*).—When the plants are showing signs of growth water may be given in small quantities at first, gradually increasing the supply as growth advances. They are best in a greenhouse when the flowers are expanding, but they will do very well in the frame at present if they are protected from heavy rains. The offsets of the Imantophyllums may be removed if you desire to increase the stock, and also if you wish the older plants to grow more vigorously. These when potted will soon become established and form useful plants in a few years.

Melons Cracking (*T. B.*).—Making the soil very firm, reducing the supply of water, yet not to such an extent as to cause the foliage to shrivel prematurely, and cutting a notch in the stem to check the rapid flow of sap to the fruit, are methods that are adopted with more or less success by gardeners. When Melons have been kept too dry during the swelling period, and then given a heavy watering when the fruit approaches the ripening stage, cracking is very likely to occur.

New Apples (*J. C. & Sons*).—The fruits when examined were so far overripe as to render it impossible to estimate the merits of the variety—they were, in fact, quite soft, mealy, and flavourless. We recommend that all new fruits be sent to the meetings of the Royal Horticultural Society to be examined by the Fruit Committee.

Helianthus orgyalis (*J. C. & Co.*).—The plant you have is a North American species of Sunflower bearing the above name. It is of easy culture, succeeding in any ordinary rich garden soil, and is, when growing vigorously and flowering freely, an extremely ornamental border plant. It can be increased by division of the roots.

Analysing Soil (*W. K.*).—There must have been some misunderstanding. It is impossible that we can undertake to analyse soil, and this we have previously stated in these columns. The soil, however, shall be examined, your letter considered, and a reply given in a future issue. A spray of a plant from you was left at this office, but has been inadvertently mislaid. If you can send another by post we will endeavour to name it if it arrives in a sufficiently fresh state.

Child's Hill, Hampstead, and West-End Floral and Horticultural Society (*J. E. H.*).—Mr. Williams, The Gardens, Frognaal Rise, Hampstead, sends us a schedule of the above Society, that has been established ten years in answer to your inquiry on the subject last week. The Society appears to be well supported, and the Committee will be glad no doubt to accept you as a member.

Primulas (*Angus Park*).—It is not injurious to sprinkle Primulas through the fine rose of a watering pot in the afternoon after a scorching hot day

provided the water is pure and does not contain lime or other matter that stains the foliage; at the same time, syringing is not essential to success in cultivating these plants, and it is easy to err by a too free use of the implement. Nothing is more invigorating to Primulas that are established and growing freely than exposure to the dew, and it is a good plan to remove the lights from frames containing plants during clear nights at this period of the year. Plants thus exposed become very sturdy.

Cucumber Leaves Withered (T. B.).—The condition of the leaves indicates poverty of soil, insufficient supplies of water to the roots, a too dry atmosphere, and the presence of red spider. If all the leaves are like those sent the health of the plants cannot be restored; if only a portion are affected remove all the worst, syringe the plants freely twice a day, saturate the soil with weak liquid manure in a tepid state, cover the bed with an inch or two of fresh soil to encourage the production of surface roots, maintain a moist genial atmosphere, and a night temperature of 60° to 65°. If this treatment will not result in healthy growth nothing will.

Mildewed Peas (A. L. M.).—You ask if the mildew is in the soil. Our reply is, that the spores appear to be everywhere, and germinate when the conditions are favourable. A damp atmosphere and dry subsoil render the plants liable to be attacked with the parasite. By all means sow on another plot of ground deeply worked and well manured, also obtain fresh seed from a nurseryman or seed firm of repute, and you may have better rows next year. Mildew may perhaps be generally prevalent in your district, in which case you will find it difficult to prevent it attacking the Peas.

Weak Vines (J. A., Dublin).—If the growths you have sent are fairly representative of the condition of your Vines you will lose time and waste money by dressing them with any manure. If the young shoots and leaves are quite fresh, not scorched, their dark colour is a favourable sign rather than otherwise. They reached us perfectly dried and shrivelled, and the growths are the weakest we have seen for years.

Violas and Pansies (H. C. M.).—There is no botanical difference between these. All Pansies are Violas or varietal forms of *V. tricolor*, and have large, handsome, and often clearly belted flowers. Violas have smaller and nearly always self-coloured flowers, and continue producing them over a longer period. They have been raised by intercrossing such species as *Viola cornuta*, *V. lutea*, and their progeny with small Pansies, and a dwarf floriferous race of what may be termed small, free, continuous-blooming, self-coloured Pansies has been established. The varieties of these are designated Violas, as indicating their adaptability for planting in lines and masses for producing a rich effect in flower gardens.

Apples and Pears for Chalk Soil (B.).—A gardener who has had great experience in growing fruit on the chalk formation, and not far distant from your locality, confidently recommends the following varieties. Apples.—King of the Pippins, Cox's Orange Pippin, Blenheim Pippin, Keswick Codlin, Cox's Pomona, and Warner's King. These will afford a succession of fruit for table and culinary purposes. Pears.—Jargonelle, Williams' Bon Chrétien, Comte de Lamy, Marie Louise, Beurré Bachelier, and Doyenné du Comice. The small Fern is the Oak Fern, *Polypodium Dryopteris*, and the large one the Royal Fern, *Osmunda regalis*.

Adiantums Unhealthy (Subscriber).—Undoubtedly your plants require more support than they have received. If the pots are crowded with roots sufficient water has not been given. A little perfectly clear soot water given twice a week or water coloured with fresh cowdung would be of great advantage, also any plants very much root-bound would be benefited by being placed in saucers of water in hot weather, or at least the base on which the pots stand should always be moist. The "brown specks" on them do not indicate anything so "serious" as you imagine; they are simply spore cases, and many growers who raise Maidenhair Ferns by the thousand for market purposes would rejoice in having such a fine prospective harvest of spores.

Potatoes Sweet (W. J. J.).—From your description of the seed tubers it is not unlikely they had been injured by frost, but their sweet taste at the present time is not the result of that. On some soils the tubers of *Magnum Bonum* are slightly sweet at this season of the year, but as they ripen the sweetness vanishes. The Scotch Champion is not a sweet Potato when matured, neither is it when boiled "very yellow;" on the contrary, it is nearly white, and on some soils, not all, of excellent quality. Potatoes for planting should always be procured from a reliable source, as there is no certainty that those sold in the markets or from the holds of vessels are the varieties represented. With favourable weather for maturing the crops your Potatoes are almost sure to improve in quality. Whether they are true to name or not they are evidently late sorts, and not in good condition for table when dry and used in a green state.

Roses Failing (A Lover of Roses).—The soil you have used is evidently unsuitable, and considering that only the strong growers have succeeded it is in all probability too cold and heavy; the site, too, may also not be efficiently drained. Excavating in itself, without making due provision for drainage, not infrequently amounts to making water traps, and neither Roses nor fruit trees can flourish under these circumstances. We have seen many Rose gardens most attractive and enjoyable, and thousands of blooms that are exhibited are cut from established plants. A quantity of wood ashes or burnt refuse of any kind mixed with the soil of your Rose beds would no doubt be beneficial, but particular attention must be given to draining the land. It must be remembered that digging a hole and casting in any quantity of stones and broken bricks is not drainage, unless ample provision is made for the outlet of water from the bottom of the excavation.

Scale on Vines (W. N. B., Northallerton).—We cannot refrain from expressing our surprise that you should place a few Grapes in a box large enough for holding ten times the quantity without any packing to keep them firm, and yet expect they would reach us in good condition. The surprise is that they reached us at all through the parcels post, for the berries being dashed to and fro were smashed, the leaves and letter (which latter ought not to have been enclosed), saturated, and the juice escaping from the box. The filthy condition of the Vines is owing to the presence of the scale insect on the leaves, and it cannot be removed without sponging them with a warm solution of soft soap. After the Grapes are cut you might add half a wineglassful of petroleum to each gallon of the soapy water, and syringe the Vines; but even this would only be partially effectual, as the

insects are mostly on the upper surface of the leaves. The house and Vines must have a thorough cleansing in winter, and no plants with insects on them must be permitted in the house. If the Rose is in a pot place it in the open air; if planted out, syringe it as above suggested thoroughly, and shade it if the weather be bright. Petroleum applied to Roses in the sun is injurious.

Peas (H. Hutchison).—The "new unnamed Pea" we have seen before, or one so closely resembling it that we are unable to perceive the difference between samples sent to us last year and the year previous from the north of England and those now before us. There is no waste of pod room in this variety; the ends of the pods, instead of tapering and recurving, as is common, being quite square. The pods are of medium length, the majority containing eight peas of equal size, a few contained nine peas, and still fewer seven, of good size and colour. Of the quality we are unable to judge, as the peas are quite too old for cooking. If the variety is a heavy bearer and the produce of superior flavour it will be useful, but there are others larger and of more imposing appearance staged at exhibitions. We recently saw a variety of this blunt-ended type named the "Perfect Marrow," the seed of which was sent to a gardener for trial by Mr. House of Peterborough. This variety we tasted, and it was excellent, the peas being decidedly larger than in the sample you have sent; but whether this was owing to the richer soil in which they were grown we cannot tell. Varieties having pods of this shape are usually very productive.

Planting the Slopes of an Embankment (W. M., L.C.D.R.).—A blue clay with a thin coating of soil is certainly not adapted for fruit-culture, otherwise your plan for turning the sheltered slope of an embankment to account for such a purpose is highly commendable, and without good soil any hints from us as to culture and varieties would be useless. But your wish to render the slopes profitable may be realised by planting them with Ash for hop poles, which, as you are doubtless aware, are always in demand near your embankment, and Ash answers admirably in such a soil. We are intimately acquainted with an excellent gardener who, some years ago, had the management of land only a few miles from the place you mention, and he sold good Ash underwood uncut for from £40 to £50 per acre about every eighth year. Stout young Ash plants of 4 to 5 feet high cost 50s. per 1000, and are planted soon after the fall of the leaves 6 feet apart, or at the rate of 1210 plants per acre. In the winter of the second year from the time of planting, which in your case would be the winter of 1885, they are cut down to within 6 inches of the ground, and in the following year the stools throw up on an average four stout shoots, some more, some less, which attain a height of from 5 to 7 feet the first season. In deep cool soil they continue growing annually with so much vigour as to be large enough for hop poles a year or two sooner than growth of the same age from older stools; but by leaving them uncut till the usual time most of the poles become large enough to split for hurdles and for wooden garden baskets, and are proportionately profitable, such articles being largely made in the district in question.

Lilium auratum (H. S.).—Many causes will induce the shrivelling of the old bulbs. Late-imported bulbs often shrivel. Excessive flowering and the production of seed have the same effect, also keeping them too dry in winter. Planting the bulbs too shallow often results in failure; and when in pots sufficient space should always be left for a good top-dressing when the stems are advancing in growth, as the encouragement of the stem-roots is an important item in the success of the plants. The old bulbs will live for many years if preserved from these dangers and from the decay that is caused by badly drained soil or an excessive supply of water. Young bulbs are, however, annually produced, and if it is desired to increase the stock these can be removed when potting or lifting the clumps. Both with *L. auratum* and *L. lancifolium* it is important that the surface of the soil over the bulbs and around the base of the stems be not fully exposed to the sun, as much injury is often caused in that way. For this reason when in borders outside these bulbs, especially the former, should be planted with small shrubs, such as *Rhododendrons* or others, that will afford the requisite shade. In pots, of course, the top-dressing suffices for this purpose. Flowers of 6 inches in diameter are about the average size. The time at which young bulbs flower depends entirely on their size. If as large as walnuts, and the plants are liberally cultivated, flowers are freely produced the second year.

Alecost or Costmary (R. Coles).—The plant which has puzzled "all the cooks and gardeners of your neighbourhood" has been long known in England under the above names, though it was originally a native of Italy, whence it was sent to this country about 1568. The plant is a member of the family Composite, the botanical name being *Balsamita vulgaris*, and it is also known as *Pyrethrum Tanacetum*, under which it was described by Linnaeus. It is a hardy perennial with creeping roots and fragrant leaves, which were formerly placed in ale by country people, and at one time it was very commonly cultivated in cottage gardens. In France it is sometimes used in salads. It formerly had a great reputation as an antispasmodic, and macerated in oil it formed oil of balm, so much used for applying to wounds, and particularly contusions. It was quaintly described and its uses recorded as follows by Parkinson 250 years ago:—"Costmary or Alecost is a sweet herbe, bearing many broad and long pale green leaves, snipped about the edges, every one vpon a long foote-stalke; among which rise vp many round greene stalks, with such like leaues on them, but lesser vp to the toppe, where it spreadeth it selfe into three or foure branches, every one bearing an vmbell or tuft of gold yellow flowers, somewhat like vnto Tansie flowers, but lesser, which turne into small heads, containing small flat long seede: the roote is somewhat hard and stringy, and being diuided, is replanted in the Spring of the yeare for increase. Costmary is of especiall vse in the Spring of the yeare, among other such like herbes, to make Sage Ale, and thereupon I thinke it tooke the name of Alecost. It is also vsed to be put among other sweete herbes, to make sweete washing water, whereof there is great store spent. The leaues haue an especiall vertue to comfort both the stomack and heart, and to warme and dry a moist braine."

Sunday Work in Gardens (G. A. B.).—It is perfectly true that you did not in your former letter denounce Sunday work in gardens; on the contrary, you said it ought to be done the same as on week days: but the greater part of your letter was devoted to discussing the manner in which head gardeners discharge their duties. Your remarks had a much wider application than

you appear to have been aware of, and they certainly would have been read in a manner you did not intend. It is gratifying to us to perceive you speak in such high terms of the gardeners under whom you have served, and to whom you are indebted for valuable information. Our experience with gardeners, old and young, is not very limited, and we have usually found that the manner in which a head gardener discharges his duties is an indication of the character of his subordinates. A young man ought to feel complimented rather than otherwise when he finds he is trusted, and that his chief does not feel it necessary to be ever on the watch early and late lest any work he has entrusted to another should be neglected. We shall be very glad to hear from you on the subject you mention. On this you ought to be able to write acceptably; but long experience both in working and writing are requisite before anyone can discuss with credit to himself and advantage to others the much greater question into which you entered in your former communication. You allude to early ventilation; there are more Vines injured and more characters lost through the late rising of young men on Sunday mornings than through any other mistake in gardening, but in stating this truth we do not imply that the majority of young men are thus negligent. The exact time for opening the ventilators of a vinery depends entirely on circumstances, and you may rely on it that there are vineries that cannot on some mornings be kept closed after 5 A.M. without injury to the Vines. With these you do not appear to be acquainted; we know of at least a hundred of such structures. You may possibly have one to manage some day, but we do not apprehend you will be caught napping.

Names of Fruit (J. C.).—As an example of the difficulty of naming Grapes from a mere fragment, the three berries you sent were examined by a few of the most competent Grape-growers and members of the Fruit Committee of the Royal Horticultural Society, and opinions were equally divided as to the name of the variety. From the character of the Vine as described in your letter we think it is Gros Maroc, very imperfect in flavour; but a typical bunch is needed for the name of a Grape to be satisfactorily determined.

Names of Plants (W. W. W.).—1, *Lastræa Filix-mas*; 2 and 3, varietal forms of *Scolopendrium vulgare*; 4, *Polystichum angulare latipedes*; the other is quite too shrivelled for identification. (W. J.).—1, *Phlebodium aureum*; 2, *Goniophlebium appendiculatum*; 3, *Nephrolepis davallioides*; 4, *Asplenium Veitchianum*; 5, *Lygodium scandens*, fertile frond. It is a pleasure to name such good specimens so carefully packed as these. (Bedale).—*Deutzia scabra*. (J. H., Crawley).—*Lasiandra macrantha*. (C. A. R.).—The specimen sent is a very poor one, but it resembles *Tragopogon pratensis*. (Amateur).—*Campanula Portenschlagiana*. (J. W. D.).—Specimen quite insufficient. (Sussex).—*Tradescantia zebrina*. (Inquirer).—The fruit is that of *Rubus Chamæmoris*, the *Canna* was not recognisable.

COVENT GARDEN MARKET.—AUGUST 22ND.

BUSINESS is now very quiet, the supply of soft fruits being almost over, a good supply of foreign Pears arriving realising high prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 0	2 6	Grapes lb.	1 0	3 0
" per barrel	0 0	0 0	Lemons case	10 0	20 0
Apricots box	2 0	2 6	Melons each	2 0	3 0
Cherries ½ sieve	0 0	0 0	Nectarines dozen	2 0	6 0
Chestnuts bushel	0 0	0 0	Oranges 100	6 0	10 0
Currants, Black .. ½ sieve	3 6	0 0	Peaches dozen	2 0	6 0
" .. Red .. ½ sieve	4 0	0 0	Pears, kitchen .. dozen	0 0	0 0
Figs dozen	2 0	9 0	" .. dessert .. dozen	2 6	3 6
Filberts lb.	1 0	0 0	Pine Apples, English .. lb.	2 0	3 0
Cobs 100 lb.	0 0	0 0	Raspberries lb.	0 2	0 3
Gooseberries ½ sieve	2 6	3 0	Strawberries lb.	0 3	0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	4 0	Mushrooms punnet	1 0	1 6
Asparagus, English bundle	0 0	0 0	Mustard and Cress punnet	0 2	0 3
Asparagus, French bundle	0 0	0 0	Onions bunch	0 0	0 4
Beans, Kidney lb	0 3	0 4	Parsley dozen bunches	3 0	4 0
Beet, Red dozen	1 0	2 0	Parsnips dozen	1 0	2 0
Broccoli bundle	0 9	1 0	Peas quart	0 9	0 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" .. Kidney cwt.	4 0	5 0
Carrots bunch	0 4	0 0	Radishes dozen bunches	1 0	0 0
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 0
Coleworts doz. bunches	2 0	4 0	Scorzoneria bundle	1 6	0 0
Cucumbers each	0 4	0 6	Seakale basket	0 0	0 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Fennel bunch	0 3	0 0	Spinach bushel	2 6	3 0
Herbs bunch	0 2	0 0	Tomatoes lb.	0 6	0 0
Leeks bunch	0 3	0 4	Turnips bunch	0 0	0 4
Lettuce score	1 0	1 6			



MOUNTAIN BREEDS OF SHEEP.

VARIOUS circumstances have arisen during the past few years, and especially since the year 1879, which have brought the mounta

breeds of sheep more prominently before the public. The large number of farms untenanted throughout the kingdom, many of which have reverted to a state nearly approaching that called "waste," have been allowed in various instances to become unfitted for any stock except some variety or other of the mountain sheep. Again, it is the fact, now mutton is so high in price, that the smaller and lighter-weighting animals are those which afford joints for the consumer of a small size, and in consequence meet a free sale. These, with other points, have tended to give a demand for mountain sheep which has never occurred before to the same extent. It must be remembered that the circumstances to which we have referred have also obliged many landowners to fall back upon those varieties of sheep which cost the least money, and in consequence require less capital invested for stocking the lands untenanted. Various owners of mansions and park lands have also turned their attention to the keeping of mountain sheep in consequence of their light weights and small joints for the table, which they yield for gentlemen's establishments. The various points combined have influenced so many proprietors that these kinds of sheep are now much in request and higher in price than they made five or seven years ago, still there is a great demand for both lambs and wethers when fed for the butcher, which justifies the fact of being more costly to purchase than formerly.

We notice that at the present time all the light weights make a price previously unknown. The market report of sales in a southern county gives the price for fat Scotch lambs at 32s. to 42s. each; Scotch shearing sheep, 48s. to 56s.; extra fed Scotch wethers, 69s. to 72s. 6d. These are for the most part black-faced horned heath sheep, such as are usually sold at the Falkirk tryst in Scotland. In some cases, however, there are cross-breeds of Cheviot blood in admixture with other varieties, and where these crosses are well made they are sure to meet with numerous purchasers. We have thus prefaced the remarks which we propose to make as to the value and capacity for breeding and feeding of different varieties of the hill or mountain breeds of the different districts of the kingdom, the distinction being the result of difference in soil and climate in which they are reared and fed. We hold that the various denominations of sheep are worth the attention of flock-masters in various districts of the kingdom, and may therefore be selected by the graziers in accordance with the history and character of the animals which have been found suitable for fattening in the districts where this kind of sheep are grazed for the market as fat stock.

As we shall have to describe the different breeds of mountain sheep, especially those which are natives of Scotland, we will give the respective terms used for sheep in Scotland particularly, and as they are well described by Mr. Henry Stephens in "The Book of the Farm" we cannot do better than cite them:—"When new born it is called a 'lamb;' if male in Scotland, a 'tup lamb;' when castrated it is called a 'hog lamb;' if female, a 'ewe lamb.' In England a young sheep retains the name of a 'lamb' till it is eight months old. In Scotland, after the weaning and before the first clipping, a 'tup lamb' is called a 'tup hog.' In England, lambs after they are eight months are called, till the first shearing, 'ewe' and 'wether teds,' according to sex. In Scotland, a 'ewe hog' after the first clipping is called a 'gimmer;' a 'tup hog' a 'shearling tup;' and a 'wether hog' a 'dinmont.' The animal corresponding to the name of 'gimmer' in Scotland is called in England a 'thcave' until it bears the first lamb, after which it is termed a 'ewe of four teeth;' the year after a 'ewe of six teeth;' and after that a 'full-mouthed ewe.' The 'dinmonts' in Scotland answer in England to the title of 'shear hogs' till they are deprived of the fleece, after which they are called 'two-shear wethers,' and afterwards 'wethers.' In Scotland the second shearing brings another change of names—thus, the 'gimmer,' if she is in lamb, is called a 'ewe;' if barren a 'barren gimmer;' and an 'eild gimmer' if she is not put to 'tup' or 'ram.' A 'shearling tup' is changed to a 'two-shear tup;' a 'dinmont' becomes a 'wether.' When three times shorn a ewe is called 'winter ewe;' a 'tup' a 'three-shear tup;' a 'wether' undergoes no change of name, but still continues to be called by that name. After the fourth shearing a 'ewe' is a 'three-winter ewe' or an 'aged ewe;' a 'tup' is known as an 'aged tup.' When a ewe fails to be with lamb a second time she is called a 'tup ewe' or 'barren ewe;' when she ceases to give milk a 'yeld ewe;' when removed from the breeding flock, at whatever age, she is called a 'draft ewe;' when put aside unfit for breeding, a 'gimmer' is called a 'draft gimmer;' and when drafted out of the fat or young stock, lambs, dinmonts, or wethers are called 'sheddings,' 'tails,' or 'drafts.'" We have thought it right to quote these distinctions and eognomens, for young men or students in agriculture may be a little puzzled at times on the subject of sheep nomenclature.

The Cheviot sheep are the choicest variety of mountain sheep, and are, in fact, peculiar to those hill districts in Scotland where

fertile vales, usually in grass, but frequently under cultivation, which circumstance has made them a valuable breed, as they fare better than other mountain sheep which may have to live as best they can on the heather-covered mountain sides and glens both in summer and winter, many being lost and buried in the snow during severe winters. There is a distinction of character in the Cheviot breed from most of the other mountain sheep, because even when pure bred they are of quiet habit and docile and easily managed, and thus they are more easy to keep within bounds, a matter of some importance when introduced for feeding upon farms partially run to waste. There are not, however, so many pure Cheviots to be obtained as formerly, for the flocks in various instances have been crossed with the Leicesters or other long-woolled sheep, after which they have been often purchased for fattening, not only in the best arable districts of the Lothians, but also in Northumberland, Westmoreland, and other northern counties, where they as a cross-breed have been found to answer a good purpose for fattening on arable farms. In fact, those hill districts previously fed only by the black-faced heath breed are now frequently stocked either with pure Cheviots or cross-breeds, but more care is required and taken in their management than formerly occurred when stocked with the black-faced heath sheep; and are more sought for by the dealers to go south who attend the Falkirk trist and other Scottish sheep fairs.

How long this state of things as regards stocking the hill districts may continue we cannot say, but there is a strong feeling and disposition existing in the minds of the farmers to keep and rear animals of more weight and value than the pure mountain sheep both in Scotland, England, and Wales. By a judicious style of management of the cross-breeds this may be done; but provision must be made for them in the winter months, not only by shelter in the vales, but also a certain amount of good feeding on hay and roots, with the addition of artificial feeding stuffs and corn, such as bean and barley meal, which will enable the animals to withstand the northern climate, and attain heavy weights of mutton if fed with the judgment displayed by many of the long-woolled breeders and feeders in the north and north-midland counties of England. We must, however, suppose that many of the mountain districts of Scotland will still be stocked with the pure mountain breeds, unless these districts should be appropriated to a greater extent in the future only for shootings and deer pastures, which idea seems greatly on the increase at present; and as far as rent is concerned, if it pays more than the tenant farmer can make of the land by sheep-breeding, it may eventually tend to alter the management of the hill districts of various counties in Scotland and other mountain ranges.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Harvest is now in full progress in all the early districts of the kingdom. Preparations, too, should be made in cold and north-western counties in order that everything necessary to the progress of the work may be ready when the grain is ready for cutting. Horses now not required in actual harvest work should still be employed on some kind of tillage work, such as ploughing on the stubbles of the early grain crops which have now been cleared for some little time, such as early white Victoria Oats, Winter Oats, Rye, Winter Vetches, and early Peas. Stubble Turnips may now be sown or drilled with 3 cwt. of bone superphosphate per acre, and as they cannot be expected to yield large bulbs they may be drilled at 15 or 18 inches between the lines, and thereby obtain a fair weight of hulbs by leaving more plants in the lines; or if required for ploughing-in as manure for the next crop of corn there need not be any expenditure either in hoeing or otherwise, as the best state for ploughing-in is when the plants are too thick for bulbing, and yet obtain a full and luxuriant foliage growth which is valuable for manuring purposes.

Some work will still be going on in forwarding the Wheat fallows. We are also ploughing-in a fair crop of second growth of Clover and grass, which is buried under furrow in a satisfactory manner by the use of the drag chain, and although the ground works very hard and requires four horses to the plough, yet it is all the better for the future Wheat crop. We have known those who dislike ploughing-in a Clover crop preferring to take the crop for hay, and this may be the case if the land is in a high condition as regards manure, and we could be sure of a good quality of hay; but let this matter be compared with a crop of hay reckoning the cost of cutting, making, carting, stacking, and thatching, cutting out and selling with delivery, which makes a serious charge even when $1\frac{1}{4}$ ton per acre has been obtained and well made, especially if we consider the risk of being injured by rain. Ploughing and pressing or rolling not only manures the land sufficiently for a full crop of Wheat at one operation, but gives the land time to become stale and mellow, so essential for the successful growth of Wheat. The value of the crop of Clover ploughed in will prove equal to the application of 14 tons of good yard dung, irrespective of which there is the carting and spreading of the dung to be considered. Those who have not tried the plan may

take courage in so doing, and reap the advantage by the crop of Wheat succeeding next harvest.

Some horses will now be used in working the reaping and binding machine. These should be worked in relays for not more than four or five hours in succession, and when the corn is dry at reaping time, a large staff of men will be required as soon as it is fit to stack. We approve of making round ricks, especially in out-lying fields, the ricks to be moderate-sized and built in pairs, so that the threshing machine may thresh the two without removal; also, the ricks being made in about half a day may each be threshed in half a day in winter time. In this way we frequently avoid the difficulty and loss consequent upon a sudden change to rain when the rick only contains half a day's work either in making or threshing.

Hand Labour.—This must be so arranged that the root crops do not suffer from want of hoeing during the harvest time. By employing the reaper and self-binding implement fewer men will be required, and may be spared for work which is often neglected in the absence of machinery. Women, too, ought to be available in the harvest field, but they are not so generally obtained for harvest work as formerly, much to the disadvantage of themselves and families, for we have known women in the harvest work earn as much in some cases as the men. It is, however, much to be observed that since the men under ordinary farm labour have received higher wages the women have struck work on the farm. The drawback to the farm in many districts is very serious, for such work as weeding the corn is not done, and the corn fields are showing large growths of docks, thistles, and other weeds, committing great injury in many cases.

Live Stock.—This is now the season when the ewes of all the down and polled breeds of sheep are expected to have the rams running with them, and while that is the case a little extra change of food, such as rape and summer tares besides their Clover or pasture, is desirable, especially in those flocks where a large number of twin lambs are required or desired. This is especially the case in the best down and long-woolled flocks where flock-masters feed high, which enables the ewes to maintain their twin lambs.

The best pastures in various districts of the kingdom will have made the hullocks now nearly fit for the butcher, and as the price is high they should be sold or retained to the Christmas period, because when we reach the month of October and early part of November the markets are generally crowded with oxen coming out of the pastures, and sometimes not in high condition, which in fact is the feeder's time to buy and not to sell. We have frequently bought to great advantage bullocks just beneath the butcher's quality in October, and done well by feeding them in the boxes for sale either at Christmas or later on, when they seem to be required. The early horned ewes of the Dorset and Somerset breeds are this year forward in lambs, and will no doubt be selling very high at the October fairs at Appleshaw and Weyhill in Hampshire, where they are bought by dealers in large flocks. Although they were very dear last year, we know they gave a better return for their food than any other sheep, and were soon off the land.

OUR LETTER BOX.

Egg-producing Fowls (M. C. B.)—Minorcas or Plymouth Rocks, or a cross between the two, would probably suit you; but laying is more a matter of strain or family than breed. The feeding is fairly right, but we should substitute oats, buckwheat, and dari fed separately for the mixture. The laying is decidedly bad. Do you supply crushed oyster shells, or other similar shell-making material?

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at sea and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.											
August.											
Sunday	12	30.189	60.8	54.1	W.	60.0	72.6	47.4	111.3	39.7	—
Monday	13	29.986	71.4	64.2	S.W.	60.9	81.6	54.1	124.8	55.8	—
Tuesday	14	29.801	69.6	61.7	S.W.	63.4	78.6	62.4	124.4	55.3	—
Wednesday	15	29.686	63.2	56.9	W.	63.7	69.6	56.9	116.6	53.6	0.010
Thursday	16	30.027	59.1	50.7	N.W.	62.6	69.2	52.4	113.8	48.3	0.015
Friday	17	30.105	59.1	58.4	S.E.	61.8	70.1	48.0	85.7	43.3	0.013
Saturday	18	30.178	66.1	62.7	N.W.	61.7	76.6	58.6	120.2	57.9	—
		29.936	64.2	58.4		62.0	74.0	54.3	113.8	50.5	0.038

REMARKS.

- 12th.—Bright morning; dull afternoon and evening.
 13th.—Very fine hot day.
 14th.—Fine and warm, but very rough.
 15th.—Gusty in morning; occasionally slight showers.
 16th.—Fine and calm.
 17th.—Close damp morning; fine afternoon and evening.
 18th.—Rather dull at first; fine bright day.

Although both Monday and Tuesday were hot days, the average for the whole week is by no means high. The most noticeable feature was the strength of the wind on the 14th and 15th.—G. J. SYMONS.



COMING EVENTS

30	TH	
31	F	Crystal Palace Dahlia and Fruit Show (two days).
1	S	Lille International Horticultural Show (nine days).
2	SUN	15TH SUNDAY AFTER TRINITY.
3	M	
4	TU	
5	W	Glasgow Autumn Show; Bath Show (two days); Brighton (two days).

THE APPLE CROP—EARLY APPLES.

THIS year every Apple tree worthy of cultivation ought to be in bearing. It will, therefore, be a good time for the grower to visit some adjacent nursery, or better still, if possible, the plantations of a good market grower, where he will be able not only to see the fruiting properties of the tree, but its general habit, mode of growth, and liability to canker. At the same time he will be able to study the soil to see whether it resembles that in which he intends planting. Having made a few notes during the last few weeks of different varieties that succeed in most soils that are at all suitable for Apple-cultivation, I purpose in the first place to allude chiefly to the earlier sorts, so that intending planters may have the opportunity of seeing them.

There is one difficulty in many nurseries in studying the fruit, and that is the predatory habits of the boys of the district necessitating the removal of the fruit at an early stage; but the appearance of the fruit spurs will always give an idea of the fruitfulness of the trees. Many nurserymen have a quarter devoted to fruiting trees, so that the purchaser after inspecting the stock can see the tree in bearing. This is the case at Messrs. Lane & Sons, Berkhamstead, where all the most noteworthy varieties can now be seen in full bearing. I think if I were limited to one tree of an early sort I should select the Early Julien. It is useful both for kitchen and dessert. You can begin to use them when the size of walnuts, and, having been twice over the trees for culinary purposes, you can leave some good yellow fruit with a pleasant brisk flavour for dessert. It is very suitable for a pyramid or bush tree, its heavy-cropping properties being against it as a standard, although there are many good orchards of it in cultivation.

The Red Joaneting is still popular, but I believe we have in a new dessert Apple, Mr. Gladstone, a formidable rival. It makes a good bush tree, and is also a constant bearer. Its appearance is also in its favour, having a bright crimson colour when ripe. An equally handsome Apple, but one now well known, is the Worcester Pearmain. It has a remarkably clean and healthy growth, and is an annual bearer. It makes a good bush, and if grafted on an old tree makes a very handsome standard. There are few Apples that can rival it in appearance on the table, and the flesh is more mellow than that of an old favourite, the Red Quarrenden, which is still very popular, but of too firm a texture to suit every palate.

A good contrast to the Worcester Pearmain, and an equally good Apple, is the Yellow Ingestre. This is usually a good bearer, and the texture and flavour are equally good. Another Apple that should be also grown is the Irish Peach. This is handsome in appearance and suits every taste. I wish some of your readers would state if they have found it liable to canker. The Oslin, to those who like an Apple with a distinct flavour of an aromatic kind, will be found desirable. I am not sufficiently acquainted with the habit of the tree to say more about it. The Duchess of Oldenburg with its upright growth and general cropping tendency is also

desirable, although I do not consider the quality of the first class. There is a very pretty Apple grown in Middlesex, Duchess's Favourite (called also Duchess of York and Duchess of Gloucester). This has something of the habit of growth of the Worcester Pearmain, and equals it in colour, but in shape is like the Golden Knob. I have no doubt it will become popular as it becomes known away from its locality. The Kerry Pippin for a small garden is always suitable and of good flavour.

I think I have mentioned sufficient early dessert Apples, and if grown for home use I should recommend the following:—Early Julien, Mr. Gladstone, Worcester Pearmain, Irish Peach, and Yellow Ingestre; and if for market purposes Early Julien, Worcester Pearmain, Yellow Ingestre, Duchess of Oldenburg, and Red Quarrenden. There are many other good Apples, and no doubt in different localities they would be more suitable. If your readers would give their experience it would be welcomed, I have no doubt, by many.

For kitchen use Lord Suffield will always be popular where it can be grown, but in many parts of England it is a failure. Many growers have found their plantations destroyed by canker and other causes. The Codlins, Keswick and Manks, will always be grown on account of their cropping annually. The latter makes a compact pyramid, full of fruit spurs, and often producing fruit as handsome in appearance as Lord Suffield; but on account of its heavy-cropping properties deficient in size. It is advisable to go over the trees twice, the latter picking then producing good fruit.

An Apple now becoming a great favourite on account of its freedom from the diseases that Apple flesh is heir to is the Ecklinville Seedling. This tree makes a good pyramid, compact in growth, and a constant bearer. To show the rapid strides this Apple has made in public estimation, Messrs. R. Smith & Son of Worcester have now more quarters of this variety than any other excepting their equally popular Worcester Pearmain. Lord Grosvenor (Jolly Beggar) makes a handsome tree with bold foliage, and the fruit hangs on the branches like ropes of Onions; but I believe in unsuitable soil the fruit becomes misshapen. There are two varieties that should be grown by everybody—Stirling Castle and Small's Admirable. The former is the popular favourite at present, and perhaps advisedly so, on account of its more compact growth; but where space is available I prefer the latter. This year it is laden with fruit wherever I have seen it growing. Golden Spire has an upright growth and would be suitable for a garden or shrubbery, and I believe it would be a good plan to plant it round a walk. Potts' Seedling is a fine-foliaged tree, but I have not yet found all the good qualities in it that many growers in the north have awarded it. I think with Warner's King and Stone's Apple (Loddington) I have named sufficient cooking varieties for early cultivation. Warner's King has a dark green foliage and a very large and handsome fruit, but I am afraid it is liable to canker. The Stone Apple especially, grafted on other trees, will always be a favourite. I think I may say for both purposes—home use and market cultivation—Manks Codlin, Ecklinville, Small's Admirable, and Loddington will never fail. I will give a few more notes on later varieties in a week or two.—L. A. K., Maidstone.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

I WANT to ask what is to me, and probably to many others, a very serious question. If, as I am about prepared to do, I take up a life membership of £10 10s. in the "Gardener's Benevolent," may I look upon it as an investment positively returnable to me or my wife in yearly pension on either I or she in course of time becoming incapacitated from active work by increasing years? From what appears from time to time in the gardening papers (notably in a contemporary last week), some writers seem to throw discredit on the Society and its mode of working. Such insinuations—for they are not direct statements of charges that anyone

could meet very well, though they read disagreeably and raise doubts—make it difficult for a country gardener, who knows nothing of the inner workings of any of the London gardening societies, to make up his mind whether to enter this Society, which from its name ought to be his best friend, and that at a time when he may need friends the most. Will you come to my assistance by publishing this note? as it may perhaps elicit a reply that will encourage other country gardeners to put their savings into the Society.—P.

[We readily publish this letter, and commend it to the notice of the Secretary of the Institution in question as the person best qualified to give an authoritative and explicit reply.]

DENDROBIUM NOBILE.

MUCH has been written about Orchids of late years, and about none more than *Dendrobium nobile*. When thoroughly well done no Dendrobe is more beautiful, not even *D. Wardianum*, although for long many persisted in believing the latter to be the better of the two. If it did come to a question of having only one I certainly should prefer *D. nobile*. The lovely shading of claret that tips the segments of the perianth is wanting in *D. Wardianum*. In size, too, when well grown it is not behind the latter.

That question of growing it well has something mysterious in it apparently. First-rate Orchid-growers fail with it, or only partially succeed. Others, again, not claiming to have anything more than a partial acquaintance with Orchids in general, their knowledge practically being confined to a few dozen species grown for the value of their bloom for cut flowers, frequently find it easier grown than Potatoes or even Cabbages. Under certain conditions it grows and multiplies exceedingly, under other conditions it dwindles and disappears.

Once I bought a few plants at a sale. A few months later they flowered. Some of the blooms were submitted to a well-known connoisseur and it was pronounced a poor variety. Two years later blooms were submitted to the same gentleman from the same plants: these were pronounced good, and the grower was advised to make away with the first lot. Yet one year more and other blooms were submitted. These caused raptures of delight. The possessor was assured he had the finest nobile for many a mile, and an offer was made to exchange a piece of *D. Ainsworthii*, then even dearer than now, for one! The same thing happened with *Lycaste Skinneri*, and, doubtless, many readers will recall how *Odontoglossum Alexandræ* improves as the plants strengthen. The only thing that caused the metamorphosis in the *D. nobile* was that when obtained they were leafless, almost lifeless; at the end of three years they were strong and flourishing. So much for varieties.

Rather than attempt to set up old half-dead plants with impaired constitution, or even to establish imported pieces, if immediate blooms were not an object I should greatly prefer the small growths that issue in spring from old flowering shoots. My first attempt at Orchid-growing was with one such, and as exceptional success followed the attempt the method of cultivation will be detailed. Considerable experience has been gained since then both in the way of succeeding and also of failing. The very fact that I "succeeded" in both may, perhaps, be not without use, for as different results followed different ways of treatment it points out what course to avoid as well as what course to follow.

The piece in question, about 4 inches long and about as thick as an ordinary cedar pencil, was procured in spring. Four years later that small bit had developed into a plant with between twenty and thirty leading growths as thick as one's thumb, and from 2 to 3 feet long. It was placed in the smallest sized pot among fresh charcoal and fresh sphagnum only. It was kept moist, and placed in an ordinary plant stove. It broke double, and the growths were twice as long at least as the first. The usual thing to do when growths of *D. nobile* are made is to first ripen them off by keeping them rather dry, then resting. In this case neither was done, and the consequence was the new pseudo-bulbs broke double before the first were full grown. When this happens it is supposed that the second growth must needs be weakly. With many Orchids, especially with *Lælias* and *Cattleyas*, as well as with some *Dendrobiums*, this is the case, but we never found it so with *D. nobile* unless an unsuccessful attempt at "ripening" by withholding water had been practised. The four growths in question were twice as strong as their predecessors, and all were covered with thick green leaves, while the pot was filled

with healthy roots. By the succeeding spring each new stem broke double, and the plant was shifted into a 5-inch pot, the same compost, fresh sphagnum and charcoal only, being used. No attempt was ever made at what was called ripening and resting, with the result of a huge plant in the time we have stated, with numerous small ones on the way.

But, up till then, no flower had been produced. Instead of one crop of pseudo-bulbs and one crop of flowers, there had been a double crop of pseudo-bulbs of increasing strength annually. But Orchids are grown for their flowers, and ripening is necessary to secure these. The usual way to succeed in this is secure a rest for the plants. This often occurs through weakness, as in the case with a very large majority of plants, whether through their being in a rootless condition, the result of improper soil, and often of improper watering, or by the withholding of water at a certain stage. In all such cases there is shrivelling, more or less, and when that occurs strong plants and flowers in anything like their proper character are an impossibility.

The way I adopted of ripening the large plant in question was to move it in September to a Melon pit and to expose it to the full sun. Water was not withheld, but only enough was given to keep every leaf and growth plump and fresh. Because of shady conditions under which the plant had been previously grown a few of the youngest leaves were scorched at their apex, but not to an extent calculated to be markedly injurious. The great majority remained fresh, only taking in a bronzy green and gaining in substance. Despite the very dry air and clear sunshine to which it was exposed it broke afresh, such was its vigour. Knowing that if the new growths were allowed to develop they would probably be weakly under such conditions, and that probably there would still be no flowers, every one was pinched when 2 or 3 inches long. The stump healed and remained fresh, while the buds plumped up so strongly at their base that it was feared they would start again. They did not, possibly because of the now low temperature of the house in which they were grown. In the February following the plants flowered. A few on the recently formed shoots appeared, but the older shoots were perfectly covered. After flowering the plants broke from the pinched shoots strongly, and made up shoots fully equal to the strongest. Again it was ripened as before, and this time no attempt was made to start again. The flowering habit was now induced.

All this appears very simple, yet after succeeding with dozens of such plants and in the same manner, with appliances of what would be pronounced of an inferior kind—only a small stove to grow Melons, raise Vines, and force flowering plants, and a smaller Melon pit—yet with a couple of good Orchid houses, a warm and a cool, I failed and did much mischief to good plants. But both experiences are valuable, the failure most so, especially as I came to understand what was wrong. How the mischief happened, and how I determined its cause, would be a long story. Lately I have been visiting a good number of gardens, and have observed where and how failure occurs, and coupling my experience and observation, it may be better, rather than write any more histories, to point out what conditions are best and what worst in the culture of *Dendrobium nobile*. The history already given will best explain how to produce a lot of fine healthy plants; the remarks to follow, how to avoid spoiling them.

In the first place *Dendrobium nobile* is almost always grown too far from the glass and too shady, whereas the plants should be kept as near the glass as possible, and the shading should be thin and only put on during the hottest part of the day. The sun before ten and after four on a house facing south should not be kept off at all. The air should be warm, but not close, moist, and motionless, as is too often the case. These conditions bring on damping and destruction. By August no shading should be given at all, or only for an hour at mid-day. By October the plants should be in a cool place, and should remain there till wanted for flower.

The root conditions are also of importance. The first is to keep the plants in comparatively small pots. A quantity of material not crowded with roots very soon gets unhealthy and contaminates the whole mass, then the roots fail to thrive. I have never found anything so good as fresh sphagnum and fresh charcoal, but they must be fresh, otherwise the fibre of peat and clean new potsherds are the next best. If proper material and small pots are used there is no need for half filling the pots with crocks as is usual. Better have the pots wholly full of roots, as when yearly potting is necessary to dispose of inert potting material the plants will certainly be in poor health and the flowers puny.

The pseudo-bulbs should never on any account be embedded in the slightest degree. This almost universal practice among

gardeners who are not Orchid-growers is by itself sure to prevent success. The young growths come from the base. If the base be covered the eyes push weakly. At any rate the new growths are pushed up the stem from buds that would otherwise have remained dormant, and such very seldom indeed produce vigorous growth. Plants so treated get weaker yearly, even though other conditions be right. A layer of green growing moss is almost an essential in successful Orchid culture. When the bases of the pseudo-bulbs are kept clear of the surface, as is absolutely necessary in the case of most Orchids, the roots start above the surface. This is the right place for them to start, and where they always do in nature. If the surface of the pot is covered with dead matter, however, the roots will hardly enter it; indeed, such will likely be covered with slimy matter, and when the roots touch it they will decay. When the surface is growing sphagnum the roots enter it readily and branch in all directions.

Dendrobium nobile neither wants to be soaking wet when growing, nor parchingly dry when resting. A healthy moisture is the best state for the material at all stages. When pots are full of roots it is easy watering. A little too much is not injurious, especially when the plants are exposed to plenty of light and air; but when the material is in too great quantity and the roots too few, when the tops are shaded and the air still and moist, watering becomes a task needing no common skill.—A. H.

FORCING KIDNEY BEANS.

THOSE who have to maintain a perpetual supply of French Beans will soon need to be preparing for their late autumn and early winter crops. November is a very important month in most large establishments. Outdoor Beans, if not then cut off by frost, are either tough or tasteless, and the change from a plentiful supply of the choicest vegetables to one of scarcity is not a pleasant one to contemplate.

The first or second week in September is a good time to make a first sowing, and there is nothing gained by adopting half measures and sowing outside or in makeshift sort of frames, as plants brought on this way, even if sown a month earlier, do not flourish as well as those which are sown in heat and grown well at once. Most of the French Beans which I see forced are too much starved. They are either crowded too closely together or they have not a sufficiency of soil, and consequently the Beans are not so good as those which are produced outside in summer. If well grown the French Bean is considerably improved by forcing, and even at midwinter it may be said to be of superior quality to those which are produced in an average garden at midsummer; but to secure this quality it must be grown quickly and vigorously in a very light house and without insects.

To half fill an 8-inch pot and insert three to five beans in the handful of soil it contains, to place the said pot on a high and dry shelf, and then do all you can to wash the nutriment out of the soil by watering it once or twice every day, is a prolific way of growing red spider, but it is not the system best calculated to produce a plentiful supply of good succulent Beans. If pots must be used at all they should be filled to within an inch of the rim at first, for it is important to get a good strong start, and as heavy retentive soil cannot be used, some good manure should be placed in the bottom of the pots and pressed down rather firmly, so that the water cannot run away too quickly. Beans do not emit roots from the stems when earthed up, and although when they are starved out at the bottom of the pot some of the roots find their way upwards, and also some of the manurial properties of the soil may be washed downwards, yet the plants do not, I think, get as much support from surfacing as is generally supposed.

But I have not used pots for this purpose for many years, and should never think of using them again, for I have found there are great advantages in having a good mass of soil. It does not get washed out so quickly for one thing, and perhaps that is the principal advantage. For supplying a rather large establishment I have found that sowing six or eight boxes about every three weeks and keeping them in a good light position would yield a continuous supply, say a couple of dishes a week all through the winter and spring. The boxes are 32 inches long, 12 inches wide outside, and 8 inches deep inside. A layer of half-decayed dung is spread on the bottom about a couple of inches thick, and the remaining space is filled with rather rich material slightly lighter than that which would be suitable for ordinary bedding plants. If new loam can be had it may be used, and old Mushroom-bed refuse, or something similar, in equal proportions, and it will suit them perfectly; but my French Beans have not had the luxury of new loam, and to make amends for that I have added a little stronger manure, say an eighth part of soil from a dry earth closet and a pinch of bone dust.

The boxes after being filled are placed in the house (or if it is hot sunny weather they will do in a good position outside), a day or

two before sowing to get the soil thoroughly aired and warmed, and then about a dozen beans are sown along the centre of each. "What a waste of space and soil!" your economical man will say, but I have seen both ways tried, and have proved that we get greater weight and better quality from the liberal treatment I recommend than from the starvation plan.

As it is all-important to keep them growing vigorously throughout their existence a little extra stimulant is given before flowering commences. If I had the washings from a cattle shed I should prefer that, but in the absence of liquid manure I give a slight dressing of Standen's or Crown Manure, a level tablespoonful being ample for each box. A few twigs are placed along each side of the row to keep the plants from falling about, and they very soon reach the sides of the box, and the twigs are hidden. Osborn's Forcing is the variety preferred. I tried the new Ne Plus Ultra, but although it is a very good Bean, equally early and rather larger, it is also rather taller, and that is an objection. I daresay those who grow their supply in pots, and consequently not so vigorously, would like this Bean very much.

The French Bean requires a night temperature not lower than 60°, and when well supplied at the root it revels in a sun temperature of 90° to 95°.—WM. TAYLOR.

PHYLLOXERA AT ASHTON COURT.

IN the Journal of August 23rd you give an account of Ashton Court, and remark that a letter had been received (along with samples of a pest that had been found in the roots) from Mr. Austen. This you say is nothing less than the dreaded phylloxera. It would be extremely interesting to all connected with Grape-growing if Mr. Austen would say if he had received young Vines or cuttings from anyone within the last year or two. If he has not it must be thought that the phylloxera is capable of spreading itself without being actually conveyed on the Vine. This is a point of much interest, and I hope Mr. Austen will kindly say if he can account for the introduction of this dreaded pest, or if he thinks it has been conveyed by other means than the transfer of Vines or Vine cuttings. It has hitherto been the comfort of many Vine-growers that the phylloxera can only be spread by means of the Vine; but if it can transfer itself in a winged state, or by other plants than the Vine, to other places where Vines are grown, then the danger is increased a hundredfold. Any information that Mr. Austen can give on the matter will be much prized by—A VINE-GROWER.

USEFUL HARDY PLANTS.

A FEW notes on some good herbaceous plants may be of interest, preference being given to those that are very effective or useful for cutting.

Rudbeckias Newmanni and *purpurea* are in fine condition. The colour of the former is orange yellow with dark maroon centre, and the latter deep reddish purple with dark centre. They are amongst the most useful and effective hardy herbaceous plants either for the border or the shrubbery. *Senecio pulcher* has flowers borne on tall stems; colour reddish purple with golden yellow centre. It blooms during the autumn months.

Thalictrum adiantifolium—the foliage of this useful plant resembles Maidenhair Fern, and is very useful for cutting. The old *Rockets* seem to be coming into favour again. Like many other old plants they are useful for cutting. *Aquilegias* are valuable, being effective, light, and elegant for table decoration. *A. chrysantha*, *A. glandulosa*, and the beautiful hybrids *A. californica hybrida* and *A. cœrulea hybrida* are amongst the most useful.

Delphiniums are amongst the most stately of all herbaceous plants. There are dozens of beautiful varieties of different colours, but blue predominates. *Verbascums* are very showy plants; they reproduce themselves very freely from seed, and they can be divided easily. *Pyrethrum uliginosum*, a very stately plant, growing to the height of 5 or 6 feet, is very effective in the autumn. Large white flowers, yellow centre. *Anthericum Liliastrum major* does well in the borders, but prefers well-drained soil. It is also very effective as a pot plant for the conservatory. Flowers large, white, almost like a Lily, and fragrant.

Potentillas are very useful. There are several beautiful varieties, but *Le Vesuve* is one of the best. *Hemerocallis flava* is very good for forcing in pots for the conservatory. The *Tigridias* are not grown so much as they ought to be, their colours being brilliant. The individual flowers only last one day, but the stems produce a succession of blooms. *Geum coccineum plenum* has bright scarlet flowers that last a long time. *Helianthus multiflorus* is very effective for the shrubbery border: it increases very fast. *Anemone japonica Honorine Jobert* and the rose-coloured forms are very handsome. *Campanula persicifolia alba* and the double form are fine plants. Another good old plant is *Anomatheca cruenta*, a bulbous plant, which is best in a warm nook near a wall. If it is not disturbed it does not

require any care except a top-dressing with light sandy soil after the foliage dies down. One more useful plant is *Hookeria latifolia*, which has beautiful dark bronzy foliage. It is most striking in the spring and early summer for cutting purposes.—A. YOUNG.

DUKE OF BUCCLEUCH GRAPE.

WHEN at Drumlanrig lately I had an opportunity of seeing some fine samples of the Duke, and also of noting a fact that interested me not a little. The Vines were growing in a partially sunk three-quarter-span house, some of them planted outside, others confined entirely to an inside border. The inside and outside Vines were alternate, and the spectacle was presented of beautiful bunches and splendid spotless berries on those Vines planted outside, and side by side bunches that had every berry badly spotted, these being on the inside Vines. Generally the reverse has been the case, but here we have a striking example of the very opposite. The Duke is much appreciated by the noble owner whose name it bears, and its cultivation has been largely extended at Drumlanrig. Notwithstanding that it has a delicate constitution and requires special care and attention, the Duke, when obtained in such perfection as exhibited on some of the Vines at Drumlanrig, well repays its cultivator.

What the reason is for the spotting of those planted inside it would be interesting to discover. Generally, the writer has seen the Duke finest on Vines confined to borders where perfect control could be exercised in regard to moisture. When planted in outside borders and exposed to much wet cracking has often been a source of trouble, but at Drumlanrig this does not seem to be the case.—VISITOR.

CUCUMBERS.

As no one has yet noticed Mr. S. Castle's request on page 26 to give their experience on the old system of culture, I venture to trouble you with a few remarks showing how we have succeeded this year. Our practice is to give sufficient air to prevent scorching of the foliage, ventilation being liberal in the morning if the weather is very bright, and gradually reduced in the afternoon when the temperature declines inside, and at length the lights are closed, syringing at the same time freely, so as to give a rise to 95° if possible, but not higher. Fire heat is afforded if required to prevent the temperature falling below 65° to 70°, but is not used unless really necessary. The shoots are well thinned, tied, and stopped, and the foliage is kept as clean as possible. Shading is practised in very bright weather, just enough to prevent injury to the foliage. Soil consists of a good turfy loam used moderately rough, so as not to bind together, with about a fourth part of coarse leaf soil added. Plenty of water is given to keep the soil always thoroughly moistened, at the same time guarding against saturation and consequent canker, liquid manure being used when the condition of the roots, crop, and weather show it to be advisable. Owing to circumstances beyond control at the time of sowing no bottom heat was used.

The house is a span-roof running from east to west. It is 30 feet long inside by 12 feet wide; the angle of roof is 22°; the bed on which the plants were grown is in the centre of the house, and as a path 2 feet wide runs round both sides and one end it is only 28 feet long by 8 feet wide. The trellis does not extend over the path, and is 15 inches from the glass.

The seeds were sown on April 19th, two seeds being placed in each hill of soil, of which there were ten, five on each side of the bed, the weakest plant in each hill being eventually removed. Some seed was also sown in pots at the same time in case any of the seeds failed to grow. This proved to be the case with some, and as others had to be planted in their places this gave them a check for a time, which accounts for one plant fruiting fourteen days before the others. This one, not having been disturbed, grew where it was sown, and yielded the first fruit on June 4th. On June 18th several of the others had fruit ready, the numbers cut on that date and after being as follows:—Total quantity of fruit cut up to June 12th, 13; 18th, 36; 20th, 73; 27th, 153; 30th, 223; July 7th, 328; 12th, 406; 16th, 435; 23rd, 500. Thus nearly 400 were cut in the month from June 18th to July 18th. The greatest quantity cut in one week was 148, from June 27th to July 3rd; and on July 10th fifty were cut. These were all large full-grown fruit, such as would fetch the best price in the market.

And now comes a partial failure, which is only mentioned in the hope of preventing others from making the same mistake. Up to this time the plants could not have done better, but they now required another top-dressing, and, our stock of good turfy loam having run short, we were obliged to use the remains of an old turf pit which had been lying at least five years. This, although mixed with leaf soil as usual, soon ran close together owing to the fibre having perished; then the supply of fruit diminished to about half what it was previously, and some of the plants began to canker. This was prevented extending by careful attention, and the plants are now (August 18th) still healthy, and if we could spare the house for them

would probably continue bearing a long time. The total number cut up to August 18th is 654. They have never got over the close soil, and their roots have never appeared on the surface since.

And now a word as to the variety. I have already stated there are ten plants in the bed. Six of these are Veitch's variety of Rol-lison's Telegraph, which I can truly say I have never seen equalled yet for general purposes by any other variety. The remaining four plants are from home-saved seed which unfortunately got crossed, and these have not borne so freely as the others by a long way. I should think, taking a plant of each, the proportion would be three of Telegraph to two of the other variety. Thus it will be seen the total quantity cut would have been much greater had all the plants been of the best variety.—W. H. DIVERS, *Burghley*.

SEVERAL of your correspondents have written on the subject of Cucumber-growing without ventilation, and I should like to add a short account of my experience to that already given.

About a month back I tried the plan of growing the plants without ventilation, by simply not opening any of the ventilators. The houses were from 90° to 100°, and very wet and humid; the result was that the constant wet and condensation kept the blossom on the young fruit in such a saturated condition that they damped off, fruit and all. I was again obliged to open the sashes, or I should not have secured any fruit.

Again, nine days ago I wanted an extra lot of Cucumbers, and I tried the same plan with the same result of damping off. I now go on with plenty of fresh air all day, giving a large supply of water to the roots of the plants, and I never syringe the leaves. My plants are particularly healthy and the admiration of all who see them.—T. E. ROBERTS, *Denbigh*.

P.S.—I may add that I think the reason of failure is, that my houses are very well constructed and almost air-tight when closed. The Prescott houses, on the other hand, are roughly built, and very well ventilated through the chinks between the glass.

CHIONODOXA LUCILÆ.

THIS is a charming early spring-flowering bulbous plant, and as the time for planting is not far distant a few remarks may not be out of place. The bulbs should be planted as early as they can be obtained, and the best way to display the full beauty of the *Chionodoxa* is to plant them in good clumps or masses. No conception can be formed of its true character when single bulbs are dotted about, but the contrary is the result when planted in masses, and credence can readily be given to the accounts of it in its native home. Good patches are delightful amongst rockwork or in borders of mixed plants, but is more lovely still rising out of the grass in close proximity to trees where it will not be overshadowed. Well may it be termed the "Glory of the Snow," for it is indeed delightful when in flower and the ground is covered with snow, as we were able to see it last spring. It is not injured by severe frosts, even when in full bloom.

It has been recommended for pot culture indoors, but judging from my experience it will never become popular for this purpose. It appears naturally even outside to flower rather irregularly, and this is even more marked when grown in pots. From its earliness we might conclude that it would prove equally as serviceable for decoration in pots as *Scilla siberica*, but this is not the case, as the slowest system of forcing proves detrimental. Even under cool-frame treatment in pots, as we grew it here last year, it was most unsatisfactory, while the other bulbs flowered profusely outside. Its cultivation will not again be attempted here in pots.—SCIENTIA.

AMERICAN BLACKBERRIES.

I WISH Mr. Muir could visit the garden at Ellough Rectory, near Beccles in Suffolk. He would see American Blackberries there which form really a splendid sight; the plants are loaded with fruit, all of them so fine that when ripe they look very much like Mulberries. The rector, Mr. Earnshaw, tells me that they have been planted for four years, and that it is important that they should not be moved nor unnecessarily disturbed. As he is a bee-keeper the flowers of his berries were all fertilised, and unless Mr. Muir has given his plants the same chance I venture to submit that as yet they have scarcely had fair play. At all events so impressed were the party with me with what we saw in Mr. Earnshaw's garden (I had never seen Blackberries cultivated in this way before), that some of us certainly intend to follow his example, and if there is any spare space introduce the cultivated American Blackberry.—E. BARTRUM, *Berkhamsted, Herts*.

BRODIÆAS.

(Continued from page 134.)

Brodiaea lactea, Watson (fig. 31).—Leaves narrow, slightly glaucous. Scape from 1 to 2 feet high, smooth, terete, umbellate at the top. Flowers usually numerous, the umbels of my plants measuring nearly 4 inches across, and thickly set with flowers upon very slender pedicels from 1 to

2 inches long. Colour pure white, with a green midrib half an inch or more across. Sereno Watson describes forms with sparsely flowered umbels with flowers of a pale purple colour, but such I have never seen. This plant has evidently been a bone of contention among our scientists, for it is burdened with many synonymes, among which are the following—*Hesperoscordum lacteum* and *hyacinthinum*, *Lindl. Bot. Reg.*, t. 1639; *Allium lacteum*, *Benth.*; *Milla hyacinthina*, *Baker*, &c. It is a very pretty species, the umbels lasting a long time in beauty, flowering in June and July. Native of the coast regions from Monterey to British Columbia.

B. multiflora, *Benth.* (Fig. 32). A handsome species, with long narrow leaves. Scape from 1 to 2½ feet high, terete, roughish, umbellate. Flowers crowded, about three-quarters of an inch across, the obtuse segments longer than the tube, of a blue-purple colour. This is closely



Fig. 31.—*Brodiaea lactea*.

related to *B. congesta*, but from which it is easily distinguished if specimens are examined carefully. It is synonymous with *B. parviflora*, *Torr & Gray*, and a good figure of it is given in *Bot. Mag.*, t. 58, 89. Found in the regions from the Sacramento Valley to Oregon, also plentiful in many portions of the Sierra Nevada. Flowering with us during June and July. Free-growing, and quite hardy.

B. terrestris, *Kellogg*.—Leaves nearly terete, narrow, longer than the scape; the latter is from 4 to 8 inches high, slender, terete, pedicellate at the top. Flowers three-quarters to 1 inch long, broadly funnel-shaped, of a bluish purple colour, with yellow staminodia; pedicels from 3 to 4 inches long, very slender. This very pretty species is synonymous with *B. Torreyi*, *Wood*, also with *B. grandiflora* var. *macropoda*, *Torr*; and although it is very scarce under cultivation, it is not by any means difficult to grow, flourishing where the rest thrive. Native of the regions from Monterey to Mendocino County.—*J. T. R.*

JUDGING COTTAGE GARDENS AND THEIR PRODUCE.

I AM very glad indeed to see this subject brought out so prominently in your pages, and I trust the result may be a multiplication of cottage garden societies conducted under the best possible rules and regulations. As yet societies of the kind are far too few, and if all your readers who are capable of starting and conducting them would only consider the good they are capable of doing I feel sure we should soon hear of a beginning being made in all parts of the country. As it is they are creeping into existence, and it only requires help, such as you can give, to sow them broadcast.

I never had anything to do with such a cottage society as that mentioned by Mr. Iggulden (page 135), which embraced fourteen parishes, but I fancy the limits of these must have been more circumscribed than those in Wales, as a judge could not go through more than one parish here in a day, and he would require a fortnight's holiday to go over fourteen. One, or two parishes at most, would, I am inclined to think, be enough to be worked and properly managed by any small society such as I am most in favour of.

When the first show of the Cottage Garden Society was begun here six or seven years since we could have taken the exhibits from a number of other parishes into our 300-feet-long orangery, but now the produce from the parish of Margam alone crowds the building, and that a society answers and pays when confined to one parish there need be no doubt. As for instance, the first year we only gave £13 in prize money, but at our late sixth Show we gave over £40 besides

some valuable specials. Again, on our first show day the receipts at the door were only £9, while on the last they were £26, and throughout we have been able to prepare for a rainy day, as our reserve fund in the bank is something over £50. This has, of course, nothing to do with judging produce, but it may enable some to judge of how a society may be worked up by degrees with advantage to all parties.

In coming to "Reader's" questions on judging, we would always have a rule in the prize list that those gardens containing the best crops suitable for a cottager would be preferred by the Judges. First in importance we would take Potatoes, then white Cabbage, Onions, Turnips, Carrots, Leeks, Beans, Peas, Cauliflower, Celery, Parsnips, Vegetable Marrow; and winter greens would receive more marks and stand higher in our estimation, either as seen growing in a garden or shown in a collection, than such crops as Asparagus, Globe Artichokes, Beet, Endive, Salsafy, Seakale, or Spinach. Those "fancy" articles are properly grown in a gentleman's garden, and as such count at exhibitions; but they cannot be cultivated or cooked with profit by an ordinary cottager, and I hold that societies should offer prizes for nothing but that which can be produced with the greatest profit to the cultivator. In our prize list, a copy of which I beg to enclose, the highest prizes are offered for crops most suitable for a cottager, and this is what I would always advocate. Flowers are undoubtedly very attractive, and the cultivation of them is always a good sign; but I think it would be a great mistake to place them before vegetables in a cottager's garden. In the first place, their extensive culture would be sure to interfere with the supply of vegetables for use, and in the winter time, when these are often expensive to buy, the summer-flower-growing cottager would sadly miss his Onions, Parsnips, Carrots, Potatoes, and other crops. A well-filled old-fashioned flower bed or a beautiful lot of window plants should have a strong mark of encouragement, but a superabundance of flowers should be checked, and the exuberant taste and energy shown here should be partially diverted to other productions. The great aim of cottage garden societies is to encourage high cultivation, profitable cropping, and home comforts generally, and with those objects in view all prize lists should be so framed as to develop these qualities.—*J. MUIR, Margam Park, South Wales.*

[Assuming that the relative merits of vegetables for cottagers are indicated by the value of the prizes, they stand as follows according to the Margam schedule:—Potatoes head the list with four classes, red and white rounds and red and white kidneys of equal value.



Fig. 32.—*Brodiaea multiflora*.

Next follow spring-sown Onions, Peas, and Parsnips (equal); then a step lower are Cabbages, Carrots, Leeks, and Broad Beans (equal); then in the third rank are Kidney Beans, autumn-sown Onions, Red Cabbages, Turnips, Vegetable Marrows, Rhubarb, and Cucumbers (equal); and last, as adjudged of least importance, Lettuce and Parsley. Cauliflowers are not included in the cottagers' classes, nor are the "fancy" vegetables enumerated by our correspondent. Cauliflowers rank as of fourth-rate importance in the amateurs' classes; and one of the rules particularly states, "The Committee shall decide who are cottagers and who are amateurs;" and another rule provides that "Cottagers may compete in the amateurs' classes by paying 2s. 6d.; but no amateur can compete in the cottagers' classes."

A GRAPE WITHIN A GRAPE.

THIS morning (August 23rd) I cut a berry from a Black Hamburg bunch to ascertain if they were quite ripe or not. When I bit the berry I discovered another berry inside it. It partook of the shape of a Grape

seed, but was at least four times larger, had a perfect skin, but was not so well coloured as the parent berry. When held up to the light there was no appearance of seeds in it, but the flesh was exactly the same as an ordinary berry. There were three seeds in the parent berry in addition to this curiosity. On showing this freak of Nature to my father he remarked that he had seen a berry inside another before, but not one partaking so exactly of the shape of a seed. I do not think such a thing is very often met with, however, and after many years' close connection with Grapes I have only this once seen such a curious growth.

Have any of your readers ever met with anything of the kind? I have seen two berries united like Siamese twins, have seen them so much united that they were almost one berry to all appearance, have seen a little one growing out of the top of a big berry, and a berry growing directly out of the main stem of the Vine, but have never met with one like this. Though not of any practical value, still a note of any such freaks of Nature will, I am sure, be acceptable to all who grow Grapes and take an interest in anything relating to the history of that noble fruit.—JOHN THOMSON, *Clovenfords*.

THE LONDON PARKS.

An annual tour through the metropolitan parks has become a regular portion of the year's routine with many gardeners who, by the liberality and good sense of their employers, are enabled to note all the most recent additions to useful bedding plants, the most tasteful carpet designs, and the most effective of the general beds. The knowledge thus gained can be utilised to good purpose in the following season's arrangement, and hundreds of gardens have been thus greatly improved of recent years with increased satisfaction to both employer and employed. In these great parks every care is exercised to procure the very best results; and the public, indeed, have a right to expect something out of the common, for great expense is naturally incurred in propagating and growing so many hundreds of thousands of plants, preparing and planting the beds, and the general attention required. It may, however, be taken as a most pleasing indication of the care bestowed upon the management, that as a general rule the London bedding is unsurpassed in effectiveness and beauty; and though mistakes are occasionally notable they are quickly rectified, and what appears as an error of judgment at times is really due to an unavoidable lack of necessary material to complete previously formed designs. Further, there are some who would judge the combinations of colour in beds by hard-and-fast theoretical artistic rules, and thus introduce a sameness that it is most desirable to avoid. These can always find abundant material to cavil over, but fortunately the general public taste can appreciate a judiciously employed discord or striking contrast as well as the most delicate harmony, and it is satisfactory to observe that the park superintendents are doing their best to promote originality of design by introducing diversity of arrangement; and in several cases this season some of the most admired beds are quite at variance with the stereotyped rules on the arrangement of colours. An additional interest is thus imparted to the display, and visitors will find abundant food for reflection by inspecting any of the parks, which are now in their best condition, and should be seen, if possible, while the present fine weather continues.

HYDE PARK:

This is essentially "the" park of London in extent, beauty, and popularity, and during the early summer months presents on fine afternoons a scene such as probably no other could equal. The widely famed Rotten Row and the Drive may be seen thronged with the *élite* of London fashion for hours; but as August wanes the stream lessens, there is a general flight to country estates, watering places, and the Continent, pedestrians taking the place of the riders and imparting a new but scarcely less animated phase to the scene. It is these that may be daily observed thronging round the numerous flower beds which extend from Stanhope Gate to near the Marble Arch by Park Lane, and what may be termed the habitual frequenters of the Park scarcely remain long enough to witness its floral maturity.

Invariably a visit to Hyde Park in August is time well spent, but this season it would be a valuable investment, for rarely have the beds looked better, or the arrangements been more original and varied. This is no mean degree of success, as of recent years bedding-out has seemed to be growing more stereotyped, and it has become an urgent necessity that efforts should be made to resene it from such degradation. Valuable assistance has been afforded in this respect by the superintendents of the parks, and the results so far obtained give good promise of still further successes in the same direction. There is an increasing favour for the mixed style of planting—that is, several distinctly coloured variegated or flowering plants are arranged in oblique lines, so that when viewed from one side there is either an effective contrast or an agreeable combination of tints. Variegated Pelargoniums and Veronica Andersoni variegata, with Violas and Verbenas, are great favourites for this purpose; but one of the most effective beds that we have seen is the following, which is near Park Lane. It is of oblong form, with three rows of Lobelia cardinalis, the plants in the centre row alternating with Golden Treasure Fuchsia, those in the two outer each alternate with Sunray Fuchsia; all these are on a ground of Gazania splendens, and edged with bands of Iresine Lindenii, Pelargonium Golden Harry Hieover, and Lobelia Porcelain Brilliant next the grass. Here we have a strange contrast of colours, the dark-red foliage and brilliant scarlet flowers of the Lobelia next the golden and variegated foliage of the Fuchsias, Sunray having also rosy

purple flowers. These, again, are contrasted with the dark-green leaves and rich yellow flowers of the Gazania framed in dark-red Iresine, yellowish Pelargoniums, and bright blue Lobelias next the grass. This might appear almost alarming to a rigid colourist, but its very boldness renders it irresistible, and the observer will notice that it awakens far more admiration from the majority of the visitors than most of the others. It has, indeed, the merit of novelty to recommend it, and however it might be criticised it yet is pleasing.

Another "mixed" bed stands out prominently from all the rest, and deserves especial attention—namely, that planted with varieties of Phlox Drummondii, and margined with Gnaphalium lanatum, Iresine Herbstii, and Golden Feather. The Phlox has grown very strongly, but compact and even, and the colours are very evenly mixed, so that a charming combination of shades is produced. Crimson, lilac, purple, scarlet, rose, pink, blush, and pure white are abundant, with many intermediate tints. There is too much diversity in the marking of the flowers. Some are selfs, others are bicolors with a light centre and a darker margin, or *vice versa*; others, again, are tricolors, having a distinct zone of colour between the centre and the margin; the latter are very pretty, and some bear a surprising resemblance to Cinerarias. When a good strain is obtained, such as that represented in the above bed evidently is, Phlox Drummondii is a most valuable bedding plant, as the flowers are large, most freely produced, and brilliantly or softly coloured.

Carpet beds are well represented, several exceedingly pretty designs being notable amongst them. Alternanthera versicolor grandis, A. paronychioides aurea, A. amabilis, A. magifica, and A. amœna are largely employed, the golden variety being especially good, and appears to have coloured exceedingly well in most places this season. Sedum glaucum, S. acre elegans, and the indispensable Echeveria secunda glanca and Mesembryanthemum cordifolium variegatum, with Leucophyton Browni and Antennaria tomentosa furnish the neutral tints, while the favourite ground plant is the dark Herniaria glabra, which is used much more largely and generally with better effect than Mentha Pulegium gibraltarica. In a few beds Lamium maculatum aureum has been introduced, and as it has assumed a brighter golden colour than usual this year it appears very well, and if it were always as good it might be safely recommended. Unfortunately, in a wet season or in rich soil it often becomes of a dingy greenish yellow that is far from satisfactory. Two large oblong beds near one of the small gates, about half way to the Marble Arch, are very telling, and though it is almost impossible to convey an adequate idea of a carpet bed by description the chief features may be briefly pointed out. The centre plant is an Agave americana, which is surrounded by Alternanthera aurea. Then there is a scroll design in A. amœna in a neat ground of Herniaria glabra, a few clumps of Sempervivum arachnoideum, and large Echeverias encircled with the Golden Spurrey (Spergula pilifera aurea), which is of good colour, and seems preferable for small designs to the Golden Stitchwort. The margin is composed of bands of Alternanthera aurea, A. magifica, and Echeverias. Opposite to this bed is another of similar size and shape, but with a centre of Alternanthera versicolor, surrounded with Mesembryanthemum cordifolium, a bold chain of A. paronychioides major with bands of A. aurea and Herniaria glabra, margined with Kleinia repens, Alternanthera magifica, and Echeveria secunda glanca.

In the ordinary bedding a large number of Pelargoniums are employed, and as they include most of the best varieties for that purpose some of the leading and most distinct may be noted advantageously. Taking the scarlet Zonals first, the following are the chief varieties:—C. Smith, brilliant colour, large flower and truss, vigorous; Ernest, very bright, truss large but scarcely high enough above the foliage; Henry Jacoby, extremely dark, a most useful free variety; Mrs. Schwind, cerise scarlet, distinct and floriferous; C. Schwiud, deep shade, large compact truss, strong habit; Mr. Plimsoll, bright clear shade, very effective; Sir H. S. Stanhope, glowing colour, dwarf, compact, and free, a good variety; Rev. F. Atkins, brilliant, grand truss; Princess of Wales, salmon scarlet, small flower, but very free and distinct; Miss Maud Holden, rich shade, beautiful variety; Mout Rouge, one of the best scarlets, very showy, large dense truss, and extremely rich in colour; Dr. Rawson, a grand dark variety, flower and truss large, most effective; Johu Gibbons, brilliant true scarlet, truss fine, moderately vigorous; Col. Wright, good colour, showy; General Outrara, dark, few flowers, but showy; and Mrs. Gordon, handsome flower and truss, clear rich scarlet, with a white eye. Good pink varieties are not so numerous. The following are, however, reliable as seen at Hyde Park. Mrs. Leavers, one of the best dark pinks, very rich and clear in colour, flower and truss fine, habit compact but vigorous; Lucy Bosworth, a strong variety, with large flowers and truss, clear light pink, white eye; Lady Bailey, light pink, small truss, but free and early; Olive Carr, not very free-flowering, but the blooms are of good colour; and Lucy, fine bright pink, tall, but free, good truss and small flowers. The only white Zonal is La Vestale, which, however, is not very satisfactory, the flowers being few. The best salmon is Mrs. Clifton, which has large flowers shaded lighter on the margin, very distinct. The variegated forms employed are Rosamond Wright, silver-edged, pink flowers, pretty; Robert Fish, gold foliage, scarlet flowers; Queen of Queens, silver edge, very clear and good; Golden Fleece, golden variegated; and the old Manglesi variegata.

Starting from Stanhope Gate the visitor should take the right hand path nearest to Park Lane; he will then have on his left hand a series of circular and oblong beds alternating, some planted in the ordinary style and others with carpet designs. On the right also are a number of beds, chiefly of oblong form, which are continued the whole distance. On the left, however, the single row is succeeded by two rows also in the

turf, the opposite beds mostly corresponding, the centres being either Pelargoniums or mixed Blue King. A few of these beds may be briefly enumerated, and in most cases the names alone will suffice, commencing with the centre plants. Pelargonium C. Smith, edged with Gnaphalium lanatum and Lobelia Blue Stone; Pel. Lney Bosworth, Iresine Lindeni, and Lobelia pumila magnifica; Pel. Ernest, Ageratum Cannell's Dwarf, and Lobelia pumila Ingrami, white, free, and good; Pel. Henry Jacoby, Iresine Lindeni, and Lobelia pumila magnifica; Pel. Mrs. Schwind, Iresine Lindeni, and Koniga maritima variegata; Pel. Rosamond Wright, mixed with Iresine Herbstii, edged with a scarlet dwarf Tropæolum and Fuchsia Cloth of Gold pegged down, a distinct and pleasing bed; Pel. C. Schwind, Veronica Andersoni variegata, and Lobelia pumila magnifica; Pel. Mrs. Leavers, Coleus Verschaffelti, and Mesembryanthemum cordifolium variegatum; Dracæna congesta, Pel. Lady Plymouth and Heliotrope Jean d'Amour mixed, edged with Iresine Wallsi, a very dark variety of the Herbstii type, and Lobelia Omen; Acacia lophantha, Pel. Manglesi variegata, Iresine Wallsi, and Lobelia Omen.

A series of oblong beds, with rounded ends, are all edged alike with Golden Feather and Iresine Herbstii, the best being the undermentioned. Verbena Ariosto Improved with Veronica Andersoni variegata; Pel. Lady Bailey and Gnaphalium lanatum; Phlox Drummondii and the last-mentioned edging plant; Pel. Sir H. S. Stanhope and the Gnaphalium; and white Verbenas edged with Veronica Andersoni variegata. In the first double row of beds the following were good:—Pel. Olive Carr with Iresine Lindeni and Lobelia Porcelain Brilliant, a free-flowering, rather tall variety, bright blue, with a white centre; Grevillea robusta, a few Iresine Lindeni, ground of Mesembryanthemum cordifolium variegatum edged with Pel. Robert Fish and the same Lobelia; Abutilon Thompsoni, with a ground of Iresine Lindeni and Heliotrope Jean d'Amour edged with Golden Harry Hieover and the above Lobelia, this is a very good combination and extremely pleasing; Melianthus major mixed with Veronica Andersoni variegata and purple Violas, edged with Iresine Lindeni, Pel. Robert Fish, and Lobelia Porcelain Brilliant. In the second series of double beds the edging is uniform—namely, Lobelia Blue King next to the grass; Pel. La Vestale and Pel. Robert Fish; Pel. Princess of Wales and Pel. Queen of Queens; Verbena venosa mixed with Pel. Ariosto and edged with Golden Fleecy; Pel. Mont Rouge and Golden Fleecy; Verbena Nemesis and Veronica Andersoni variegata mixed, and Pel. Verona.

Many others are planted in a similar style, but the above are the most distinct and will serve as a guide to the method adopted. Several good groups of succulent plants impart considerable diversity to the effect, while some beds have been devoted to the Tuberous Begonias; these, however, are not very notable, except a circle of Lady Stanhope, a large-flowered bright pink variety, which is in capital condition. Most of the others seem to have suffered very much by the storms we experienced a short time since. Around the fountain in the small dell near the above beds single Dahlias are planted freely and have a good effect, while subtropical plants are placed near the carriage drive on the Kensington side and near the head of the Serpentine, several good beds being there observable; but that form of bedding is not very largely practised in Hyde Park, which, from its exposed position, is not so well fitted for it as those in lower situations. It may be remembered that this Park is now under the superintendence of Mr. Brown, formerly at Regent's Park, who has well maintained the reputation he had previously gained.

THE RANELAGH AND HOSPITAL GARDENS, CHELSEA.

Visitors who are making a tour of the parks should by no means omit this from their list, as, though there is nothing on a very pretentious scale, the gardens and shrubberies are well kept. The flower bedding arrangements are possibly a little too dazzling for some tastes—scarlet Pelargoniums, Calceolarias, and yellow Violas being very freely employed, especially on the terrace in front of the Hospital; these, however, at least possess the merit of brightness. Some of the central beds are planted with white Dahlias, and these have a striking effect in contrast with the rich colours surrounding them. Two large conical mounds of variegated and Zonal Pelargoniums in alternate bands are also conspicuous features in that portion of the garden. A few tastefully designed carpet beds are observable in various parts, but the extremely neat lawns, the dense shrubberies, and number of single specimen weeping trees—such as Elms, Willows, Ashes, &c.—are the most pleasing features. The turf is in excellent condition, and the surface is considerably varied, sloping up to the margins of the shrubberies, which are raised several feet above the level of the paths in some cases.

In front of the Hospital are two very distinct and attractive carpet beds which deserve particular notice. One is termed the Crown bed, the design being a representation of a royal crown well depicted and appropriately planted. The ground is of Alternanthera amœna edged with Mesembryanthemum cordifolium variegatum and Echeveria secunda glauca. The upper outline of the crown is in Alternanthera paronychioides aurea and Golden Feather, with a margin of Echeveria glauca metallica. The interspaces are filled with Alternanthera versicolor grandis, the base being Herniaria glabra and Cerastium tomentosum, Mentha Pulegium gibraltarica being used in a few places. This bed, being raised and sloped towards the Hospital, has a good appearance from the terrace. The other carpet bed is a geometrical design chiefly of interlacing bands of Echeveria secunda glauca, the enclosed spaces being filled with Iresine Lindeni in the centre, around this Mesembryanthemum cordifolium variegatum, Alternanthera magnifica, A. versicolor grandis, A. paronychioides major, and A. amœna, the edging being of Echeveria secunda glauca with a band of Golden Feather on each side. The ribbon border above noticed is about 300 yards long, and is

planted with Cerastium tomentosum next the grass, and the following in rows:—Viola lutea grandiflora, Pelargonium Vesuvius, P. Daybreak, P. General Outram, P. Lucius, and dwarf Sunflowers.

In the Ranelagh Gardens is a carpet bed termed the Grecian Honey-suckle, which has been much admired by many persons, and is unquestionably distinct in design and effect. It is formed of a series of serpentine bands, which radiate from the base of the bed and curve inwards at the apex. These bands are of Echeveria glauca metallica filled in with Sedum glaucum (centre). On each side are bands of Mesembryanthemum cordifolium variegatum and Alternanthera aurea, the interspaces being filled with A. versicolor grandis, A. magnifica, and A. amœna. The general management is very creditable to Mr. Gibson, under whose charge these gardens have been for several years, and that they are greatly appreciated by the residents in the neighbourhood is abundantly proved by the numbers which daily assemble there at this time of year.

In connection with the above the Pensioners' Allotment Gardens deserve notice, and alone are well worthy of the visitors' attention, for just now they are particularly gay. It is known to many that some scores of plots of ground adjoining the Hospital are placed under the care of the pensioners, who cultivate them to the best of their ability and sell the produce, chiefly to visitors. At one time Musk was very largely grown there, and quite a brisk trade was done with the roots and plants; but much less attention seems to be paid to that now, and æstheticism appears to have even invaded this quiet spot, for Sunflowers and Dahlias are most powerfully and almost painfully in the ascendant. One very advanced æsthetic hero has indeed a large central patch of white Dahlias, surrounded by a dense hedge of Sunflowers; but pleasing as this may possibly be it is doubtful if the results are so substantially useful as when the more humble, but popular and saleable, Musk was grown. A few plots are devoted to diversified collections of old-fashioned plants, Carnations being great favourites, and still fewer decidedly utilitarian cultivators have their land occupied entirely with vegetables. One very pleasing feature is the cleanliness distinguishing the whole of the ground. Scarcely a weed can be seen—most satisfactory evidence of the attention given to them by the white-bearded veterans, who can be daily seen engaged in work which evidently brings them both pleasure and profit.—L. C.

VINES IN AN INEXPENSIVE BORDER.

A CORRESPONDENT, "J. C.," appears to have afforded one more proof that good Grapes can be grown without great expense having been incurred in making borders; still "2 yards wide of turf sods" for the Vines to "start in" ought to have done something. The question is whether the Vines would have done equally well with half the quantity of sods, and the remainder of the soil treated as directed (page 164). In all likelihood there would have been no difference in the results; indeed it is not improbable that good Grapes would have been produced without any "sods" at all, as the natural soil with the additions mentioned would have provided all that was requisite for success.

I have seen many excellent houses of Grapes where very much less expense had been incurred in border-making than in the example referred to. One of the most striking is in a garden near London, once famed for grand Azaleas as grown by Mr. George Baker. The estate, Sisters House, Clapham Common, has changed owners somewhat frequently, and the vinery in question has been devoted to different purposes. It is a span-roofed structure upwards of 100 feet long and 25 feet wide, not more than 9 or 10 feet high at the apex, and about 5 feet at the sides. It was erected by Mr. Lucas, the great London builder, and then occupier of the Sisters estate, for an orchard house and Peaches with other fruits in pots and planted out were grown in it. Subsequently the property passed into the hands of Mr. Basset, a great patron of Orchids and plants generally, and which his gardener, Mr. Baker, grew so splendidly. The house under notice was then devoted chiefly to the fine specimen Azaleas that were sold a few years ago. A few Vines appear to have been planted at intervals for affording a little shade to the plants, and not with the object of producing superior Grapes.

The present owner of the Sisters House estate is Thomas Wallis, Esq., and as there were no plants in the house when his gardener, Mr. Holmes, took charge, he thought he would try and make something of the Vines. No border whatever was made. The inside of the house was floored with gravel, in fact resembled, as the greater part of it does yet, a hard carriage drive. This was for standing the plants on. On each side of the house the gravel was broken up to a width of something less than 5 feet, and the young Vines that were planted had a little fresh soil placed over their roots, the same as in planting any ordinary fruit tree, and the broken-up narrow border was thickly surfaced with stable manure, neither lime, bones, nor anything else was added. Seeing the Vines progress, the gardener roughly affixed some wires at a good distance from the roof, arching them over from

side to side, and now that the crop of fruit is hanging, the house resembles a tunnel of Grapes. How many hundreds of bunches there are it would be difficult to estimate, but when ripe they are cut often at the rate of forty or fifty a day for giving away to friends of the family and hospitals, and at this rate the supply is maintained over many weeks. The bunches are medium-sized, berries good, well-coloured, and not a shanked bunch to be seen. It is not an exhibitor's crop—that is, a few very large bunches, but rather what might be termed a first-rate market and family crop, consisting of a vast number of bunches ranging from 1 to 2 lbs. in weight, yet sufficiently meritorious to win prizes at the Crystal Palace fruit shows. The varieties are chiefly Black Hamburgs, but Black Alicante and Mrs. Pince are well represented. They are not, however, ripe enough for exhibiting at the Palace this year.

The roots of the Vines have no doubt found their way into the kitchen garden, which is naturally well drained, the soil resting on gravel, and fertile by good cultivation. Yet the fact remains that the Vine border cost nothing in the formation, and all that is done to support the Vines is a heavy annual dressing of manure on the narrow strips inside the house. This is no mere sprinkling, but a covering quite 6 inches thick, always kept moist, and in this the roots multiply and feed. They also penetrate the gravel, and if flower boxes or pots stand there for a time, thus keeping the gravel moist, they form on the surface like a network. This is a hint for those who practise digging their borders to keep them light and open, thus effectively preventing the increase of surface roots which it is desirable to encourage.

Observing the cleanliness of the foliage of the Vines in question, the gardener was asked how often he syringed them. His reply was significant; he observed, "I have been here seven years, and they have never been syringed yet; with all the work in this garden I can spend my time better than in syringing Vines." It is certainly only by extraordinary industry that all the "work" can be done so well, and it is equally clear that the Vines have not been neglected. The floor of the house is kept moist, and the practice of damping does not cease when the Grapes commence colouring. One Vine, and one only, has been slightly attacked with red spider during the very hot weather. This rod was less vigorous than the others and will be cut out, another cane having been provided from a stronger Vine for taking its place. This is an excellent practice—that is, removing any weak Vines and taking additional rods from others that are strong and vigorous, as such Vines will support from three to six rods as well as one. Very few of the Vines in question are limited to one or two rods, and they are trained where there is room for them, the plan obviously being not to waste any roof space yet never to crowd the foliage. At one end of the house Mrs. Pince is thriving admirably, but all the bunches are not filled equally well. Those at the bottom when in flower were dusted with Hamburg pollen, and these are all that can be desired, but those at the top that it was thought needed no such assistance contain a few small berries.

That good Grapes can be grown where the soil is naturally well drained and fertile without expensively made borders is quite evident, for there is little doubt that at the least five thousand bunches have been cut from Mr. Wallis's vinery during as many years, while not a pound was spent in making the border.—J. W. R.

THE GREENHOUSE AND ITS INMATES.

(Continued from page 143.)

PASSIFLORA.

No plants are more easy to grow than Passion-flowers. They may be grown in pots, but we decidedly advise the amateur to plant them out. If a hole can be made anywhere in the greenhouse floor and a pailful of soil placed in it, or even outside the house, by all means do so and put the plants out. If the roots are to be outside, a hole must be made through the wall and the stem introduced to the inside through it. During hard frost the part of the stem which is exposed should be covered with some straw and a mat over it. The shoots should be trained up the rafters to the top of the house, along the apex, and down the back wall, until a main rod is attached to the apex of the house and down each rafter. From these main rods young shoots should be allowed to grow in spring, and to the leading stems all growths should be pruned in autumn, for during winter the spray would obstruct too much light. The shoots should be allowed to festoon the roof and hang perpendicularly. When so allowed to ramble the effect is charming. Some trimming and tying may be necessary, but the less the better. Tying the shoots up in neat bundles is bad taste. They are not quite suitable for small houses, as they are robust growers, but where room can be afforded them they should always find a place.

P. caerulea racemosa is the commonest species, and is a very strong grower. *P. Campbelli* and *P. cinnabarina* are more moderate in growth,

and are, therefore, better fitted for small houses. *P. edulis* is strong and produces eatable fruit. *P. Innesi* is a very beautiful free-flowering variety, and perhaps the best for a small greenhouse. *P. Lawsonii* and *P. Munroi* are also fine greenhouse Passion-flowers.

PLEROMA.

Pleroma elegans and *P. sarmentosa* are very beautiful, easily grown blue-flowered plants, which thrive well in an ordinary greenhouse. Fibry loam, peat, and sharp sand suit them well. While growing pinching should be attended to, so as to cause the plants to assume a dense pyramidal form. Pinching should cease by midsummer, and the plants will bloom in autumn. Before they start into growth in spring any necessary pruning should be done, but if pinching has been properly attended to this will only consist in cutting the growth regularly back.

POLYANTHIUS NARCISSUS.

These Narcissi are very sweet flowers, which may be had in bloom at the same time as the Hyacinth, with exactly the same treatment. The bulbs may be potted more closely together than Hyacinths, say three in a 6-inch pot. The following half-dozen varieties are the best grown:—*Whites*: Bazelman major, Gloriosa superba, and Queen of the Netherlands. *Yellows*: Bathurst, Newton, and Prince Albert.

PRIMULA SINENSIS.

Amateurs with few appliances for raising annual greenhouse plants which are rather tender, such as the one at the head of this note, will be cheaper to buy plants when only a dozen or so are wanted than to buy seed and undergo the trouble of raising seedlings; indeed, the Chinese Primrose requires more heat than is afforded by a common greenhouse or cold frame, though they may be very successfully raised where there is a Cucumber frame on a hotbed. At the same time small plants fit for potting are to be had by post from those who make Primulas a speciality almost as cheaply as seed can be bought. We, however, will give directions whereby they may be raised from seed. It should be sown about April or May in pans or pots of light, rich, fine soil, and very slightly covered, and then placed in a warm house or on hotbed; failing these, in the warmest corner of the greenhouse. Watering must be carefully done and the soil kept moist, for if it once becomes thoroughly dry after the seeds have commenced germinating they will be destroyed. To prevent excessive evaporation a square of glass should be placed over the mouth of the pot, and the pot placed where it is not exposed to the direct rays of the sun. After the plants have made four leaves they should be pricked off into a box into soil composed of light rich loam, leaf soil, and enough sharp sand to make it porous. The box must be placed in a warm atmosphere until the plants are growing, when it may be removed to a cold frame facing north. Too much air should not be given, and the frame should be closed rather early in the afternoon. Of course the plants may be kept in the greenhouse if no frame is to spare, but they will do better in such a frame.

By the time the plants are crowded in the boxes they should be transferred into 3 and 4-inch pots according to their strength. As soon as these pots are filled with roots potting into 5 and 6-inch pots should be done. Owing to the thinness of the necks of the plants the latter are somewhat liable to fall. This tendency may be overcome by deep potting, which is better than supporting the plants with three short stakes inserted in a triangle close to the collar of the plants. By the beginning of October it will be necessary to take the plants inside, as they do not thrive in a low temperature. It is this which causes damping during winter. To counteract this tendency a little artificial heat should always be kept in the house and careful waterings given. By careful waterings we mean thorough soakings when the plants require it, and not a drop when they do not.

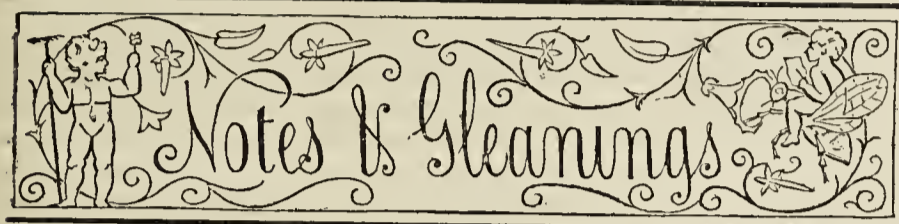
Double varieties require to be propagated by means of cuttings. This should be done in spring where there is a warm hotbed at work. The different crowns should be cut singly with a sharp knife, and one or two of the lower leaves cut off, so that a small piece of stem may be bared for insertion in the soil. Then each cutting should be fastened to a short stake and potted into a small pot in sandy soil. They should then be plunged into the bed and shaded when necessary. Water should be given carefully. When they are rooted they should then be treated as advised for seedlings.

PELARGONIUMS.

Pelargoniums of the Zonal type are known and appreciated everywhere, so we do not need to say a word for them by way of recommendation. Two small houses of yearling plants are best. The best time to insert cuttings is in August, using boxes, and light sandy soil. They will at this season strike readily out of doors. During winter they may be kept in the boxes, where they will require very little room at a season when every available inch is valuable. In March they should be shaken out of the boxes and potted in small pots. Compost of loam and leaf soil, with a good sprinkling of bone meal, will suit them well. The centres should be pinched out when the plants are quite small to induce the plants to branch freely. Potting when necessary and ordinary greenhouse treatment otherwise are all that is wanted to insure success in the cultivation of this class of Pelargoniums.

The Show or Fancy varieties should be raised from cuttings in July, which should be potted as soon as rooted into soil similar to that recommended for the other class. They should then be grown as sturdily as possible in a cold frame until October, when they should be removed indoors. An occasional syringing with soapy water will keep green fly from appearing, and it is necessary to keep it down, or there is no reason to expect the plants to flourish. Fumigating may be necessary

if the plants are affected, but soapy water will prevent its appearance if timely and repeatedly applied. Pinching should be attended to in order to induce a bushy habit. After the plants have done flowering they should be gradually ripened by being placed out in the full sun, and water gradually withheld until the wood is quite brown. They should then be cut well back and allowed to start into growth, when they should be shaken out of the old soil and repotted into fresh, and then put into a cold frame and kept close until new roots have formed, when ventilation must be liberal until it is time for removing them indoors. By this treatment very large plants may be produced, but for an ordinary greenhouse small plants are preferable. All classes will be much benefited while they are flowering if they receive an occasional supply of liquid manure.—A. H.



THERE is every likelihood that this will be an ABUNDANT YEAR FOR APPLES, and it is not improbable that, judging from past experience, we shall have a vast number sent to us to be named. The experience has already begun, and we shall do our best to supply our correspondents with the information they require. At the same time we must inform them that the naming of fruits requires a great deal of time and patience given to it. It is not like naming plants, where the botanist has large herbaria and profusely illustrated works to refer to for the identification of his plants. The pomologist has no such resource, and is dependant almost wholly on a good memory, actual comparison, and past experience to carry him through. We hope, therefore, that our readers will be lenient towards us, and we shall do the best we can to enlighten them; but patience must be exercised, and they are not to expect that we can relinquish work of great importance and of a more pressing nature to attend promptly to their requirements. We say our readers, for it is only to them that we extend this privilege of naming fruit. At no time shall we be able to name more than six varieties out of any consignment, however large it may be, nor can we possibly reserve the surplus for naming in future issues. We draw special attention to this, as a disposition exists to send fruit by the peck, and even by the bushel, on the assumption that the whole will be named in a series of issues. The reservation of all the surplus fruit that is sent to us would render our office quite uninhabitable.

— THE proposed FRUIT SHOW of the Royal Horticultural Society this autumn will probably be held at Chiswick, as the projectors, it appears, have been unable to come to terms with the Committee of the Fisheries Exhibition to hold the Show at South Kensington. As at present arranged, it is not intended to issue a schedule or to offer prizes, but to invite all the principal growers to assist in forming a thoroughly practical and instructive exhibition of fruits. The Apple crop being so good this season a particularly fine display of these useful fruits may be expected, and under the energetic management of Mr. L. A. Killick, who has taken such an active part in the scheme, together with Mr. A. F. Barron, a Show that will be fully creditable to the Society will undoubtedly be provided.

— WE are glad to learn that our correspondent "SINGLE-HANDED" has completely recovered his strength after his serious illness of last year, and, as may be seen by our advertising columns, is seeking a situation. We trust he will succeed in obtaining an appointment where he will have scope for the exercise of his undoubted ability as a gardener. His writings are familiar to our readers, and his work, which we have seen, is equal in merit to his literary productions. More need not be said. We observe, too, that a further supply of his Auricula seed, for which there was such a great demand last year, is now available.

— A BATH correspondent desires to thank Mr. Pettigrew for noticing the existence of the PHYLLOXERA in his excellent description of Ashton Court. He thinks all cases should be made known, as no fault whatever can attach to a gardener who has the misfortune to have to contend with the destructive pest. Mr. Austen goes further than this, for he writes—"I think it is much to be regretted that similar cases are not made public, as they certainly ought to be. There can be

no doubt that the phylloxera is much more common than is generally supposed. It ought to be made compulsory that anyone having their Vines so affected should destroy them at once. Unless something of this kind is done it will never be stamped out." We quite agree with Mr. Austen on this matter.

— THE INTERNATIONAL POTATO EXHIBITION, to be held at the Crystal Palace on the 13th and 14th of September, is the subject of much inquiry as regards its objects and the terms of competition. In respect of such matters we refer inquirers to the Secretary, who will afford every needful information. But it gives us pleasure to announce that in compliance with the requests of many friends and supporters of the movement the Executive Committee have enlarged the plan of the luncheon, which will henceforth be graced by the presence of ladies. Single tickets for gentlemen only will be issued at 6s. each, and double tickets for gentleman and lady at 10s. These charges will not include wines.

— THE following SELECT GLADIOLI were shown by Messrs. Sutton & Sons at the recent Reading Show, and comprise some very distinct and excellent varieties:—Ambroise Verschaffelt, Carnation, Célimène, Eglantine, Horace Vernet, L'Unique, Madame Desportes, Madame Furtado, Mons. A. Brongniart, Mons. Legouvé, Merveille, Pasquin, Princess Mary of Cambridge, Rosa Bonheur, Rossini, Shakspeare, Aréthuse, Africaine, André Leroy, Archduchess Marie-Christine, Atlas, Baroness Burdett Coutts, Dalila, Dumont d'Urville, Flamboyant, Flamingo, De Lesseps, Hesperide, La Candeur, Mdle. Marie Mies, Pericles, Rayon d'Or, Victor Jacquemont, and Zampa.

— MR. W. BULL states that the rare and handsome LILIUM PHILIPPINENSE is now flowering in his nursery, King's Road, Chelsea; also the new Liliium speciosum carminatum and the white Easter Lily of Bermuda.

— THE new scarlet-flesh MELON BENHAM BEAUTY, shown and certificated at Reading recently by Mr. Howe, gardener to Sir R. Sutton, Bart., Benham Park, is one of great promise, and well merits the honour accorded for it. As remarked in our report, it is said to be a cross between William I. and Hero of Lockinge, both well-known favourites, and is remarkable for the great depth of flesh, the rich and delicious flavour, and its moderate size, all qualities calculated to recommend it to notice. Mr. Howe has for some years paid great attention to the culture of Melons, and with more than ordinary success; but the variety he has now obtained will still further increase his fame.

— A CORRESPONDENT writes:—"The fruit at TAUNTON SHOW was wonderfully good, and staged in great quantities. Mr. Austen won the first prize for ten dishes, and Mr. Iggulden for eight." We may add the omission of the fruit classes from the report of the Show, published last week, was not designed, but caused by an accident, the result of which was that only a portion of the report arrived at this office.

— A "DUBLIN SUBSCRIBER" desires to know through the Journal "the names of a few ORNAMENTAL WATERFOWL suitable for a large pond, the prices of the birds, and where they could be obtained; also if there is a catalogue of waterfowl published, and by whom." Can any of our correspondents give the information?

— SOME unknown correspondent has sent us flowering and fruiting clusters of ROSA RUGOSA, showing, we presume, the ornamental character of this useful species. The fruits, bright scarlet in colour, almost resemble small Tomatoes, with the addition of very long calyces growing from the centre of each. There are several varieties of this Rose having flowers varying from rich crimson to pure white, and all are beautiful to those who delight in single flowers. A flowering and fruiting spray of Rosa rugosa is well represented on page 293, vol. iii, the issue of September 29th, 1881.

— THE annual LONG ASHTON EXHIBITION, which was held on August the 21st, bids fair to become the most popular among the many held in the neighbourhood of Bristol. The Society owes much of its success to the liberality of its President, Sir Greville Smyth, and his gardener, Mr. J. Austen, the former allowing the tents to be erected in the beautiful park at Ashton Court, the flower garden being also open to all visitors, while the latter works hard and successfully in arranging the numerous exhibits. The Treasurer, T. Dyke, Esq., also takes great interest in the Society. Ostensibly a cottagers' Show, there are yet a sufficient number of classes open to amateurs and their gar-

deners, and the whole being well filled a good and varied display is the result. In the plant classes the most successful exhibitors were Mr. Miller, gardener to G. Corner, Esq., Portishead; Mr. H. K. Ward, gardener to W. H. Budgett, Esq., Stoke Bishop; Messrs. Pease and Harris; and Messrs. Parker & Sons, Bristol. Cut flowers generally were a great feature in the Exhibition, the Roses especially being well shown by Mr. E. S. Cole, gardener to W. Pethick, Esq.; Mr. J. Burgess, Bath; Mr. J. Howe, gardener to L. Fry, Esq., M.P.; and H. Derham, Esq. The Gladioli shown by Mr. H. K. Ward were particularly good, as also were the Asters shown by Messrs. Burgess, H. K. Ward, and A. R. Tanner. Dahlias were also well represented, the prizes going to Messrs. A. Hill, H. Derham, and E. S. Cole. The fruit generally was good, and many of the examples would have won at larger shows this season. The best collection of six varieties was staged by Mr. J. Vallance, gardener to J. C. Wall, Esq. Other exhibitors were Messrs. Howe; E. T. Hill, gardener to T. Pease, Esq.; E. S. Cole; R. Symes; H. O. Wills, Esq.; J. Leech; Bannister, gardener to H. St. Vincent Ames, Esq.; A. M. Otway; A. M. Edwards; and S. Otway. About twelve creditable collections of vegetables were shown. Mr. Bannister was awarded the first prize for an even well-selected lot. Messrs. Virgo (gardener to the Rev. C. A. Fowler), Hood (gardener to J. Leech, Esq.), and E. T. Hill (gardener to T. Pease, Esq.), followed. Plants, cut flowers, fruit, and vegetables were shown in great quantities by amateurs and cottagers, and all gave signs of improved culture. The cottagers' gardens are also remarkably well cultivated.

— PART 36 of "PAXTON'S FLOWER GARDEN" contains the usual letterpress and coloured plates of the following plants:—Three-tongued Oncid (*Oncidium trilingue*), a comparatively dull but curious species with yellowish-pink flowers, from Peru. Accompanying this plate are descriptions of thirteen species of *Oncidium* allied to *O. trilingue*, and grouped as *Oncidia microchila*—*i.e.*, the small-lipped *Oncids*. *Pentstemon azureum*, which is described as possessing "bright azure blue" flowers, these, however, being represented in the plate of a dingy lavender. The Gleanings and Original Memoranda contain notes upon *Anthurium splendidum*, *Billbergia Porteana*, *Dracæna Lindenii*, *Lælia Crawshayana*, *Microglossa albescens*, and *Odontoglossum tripudians Harryanum*. Part 77 of "Familiar Wild Flowers" [also with the following from Messrs. Cassell & Co.] gives plates of *Polygonum aviculare* and *Colchicum autumnale*, with descriptions of the characters and history. Part 54 of "Familiar Garden Flowers" has plates of *Camellia japonica* and *Heliotropium corymbosum*, which appears to be an error, for the common *H. peruvianum* is represented, and, moreover, the other plant has flowers which are not fragrant, though they are larger.

— AMONG the more remarkable of the ORCHIDS NOW IN FLOWER AT GLASNEVIN we give the foremost place, by reason of its novelty, to that beautiful pure white *Dendrobe*, *D. Dearii*. The peerless purity, except a faint shade of green in the throat, of its flowers makes it quite remarkable, and it will no doubt become a great favourite with Orchid growers. Another notable Orchid, and a pretty one too, is *Epidendrum nemorale*, with flowers of pale delicate lilac, the lip only being prettily streaked with rosy purple. *Oncids* are represented by the old but pretty yellow *Oncidium flexuosum*, the yellow and chocolate *O. crispum*, the curious and pretty *O. dasystylum*, its flowers mimicking a bee, and *O. Wentworthianum*, and *O. obrysatum*, remarkable for the great length and floriferousness of their flower spikes. Of *Odontoglossum* the most conspicuous are the lovely *Odontoglossum Roezlii*, and its perhaps still more lovely white variety; also *O. Lindleyi*, *O. tripudians*, and *O. hastatum*. A remarkably fine variety of *Brassia bracteata* impressed us very much as being a great advance on the normal form, each division of the perianth being fully a span long, and we thought the raised bosses of olive green on the lips and the black dots on base of the sepals much more pronounced than in the more familiar form, *Aerides odoratum*, *A. quinquevulnerum*, and *Saccolabium Blumei*. Among Slipperworts (*Cypripedia*) *C. Roezlii*, remarkable for the lateral petals being distinctly banded and margined with crimson, Veitch's fine var. of *C. superbiens*, noteworthy for its dark, almost black, lip and the lateral petals being, as in the preceding (but not so pronounced), banded with crimson; *C. Dominicanum*, with its curious tail-like appendages, *C. Reichenbachii*, and several others. Numbers of *Disa grandiflora* serve to make the various shelves gay, and the rarer and less showy waxy white *Disa megaceras* is also in flower; and for last, but by no means least, we reserve what we felt inclined to regard as the gem of the whole, an

exquisite specimen of the lovely little *Dendrochilum filiforme*, with no less than a dozen of its minute and exquisitely graceful flower scapes, challenging an amount of admiration which the more showy aristocrats of the tribe fail to win.—(*Irish Farmers' Gazette*.)

— IN a notice in the *Journal of Forestry* of Newbattle Abbey, the residence of the Marquis of Lothian, situated some seven or eight miles from Edinburgh, and near Dalkeith, it is stated that in front of the mansion stands a HANDSOME BEECH, which surely deserves to be named "The Pride of the Lothians." It has a circumference of branches of 140 yards, and at 8 feet up the bole the girth is 20 feet. In 1798 this tree was measured and found at the same height (8 feet) from the ground to be 16 feet in circumference.

— WRITING in the "American Gardener's Monthly" respecting the MANETTI ROSE, Mr. H. B. Ellwanger has the following:—"Since the Manetti became known as a desirable stock on which to graft Roses our firm has made use of them, importing or growing a considerable quantity each year. This June we will have 55,000 Roses in flower that are on Manetti roots, and we have planted out for July budding upwards of 90,000 Manetti stocks and 10,000 Grifferaie stocks. This is one-third of our entire stock of Roses, and will show in what estimation we hold the Manetti. Now, as to the qualities, good and bad, of the Manetti as a foster-parent. It throws out suckers from the roots, which, if undisturbed, ultimately choke the variety it has been budded with. This is certainly an objectionable feature, but it will not weigh much when placed in the balance and compared with the qualities which commend it for use. By budding Roses on a stock like the Manetti or Grifferaie we propagate many varieties which cannot be grown from cuttings, at least not without great loss; such kinds are Baroness Rothschild, Abel Grand, Marguerite de St. Amand, Crested Moss, Gracilis, Persian Yellow, &c.; we also propagate varieties of somewhat feeble habit, like Horace Vernet, Louis Van Houtte, Marie Baumann, Xavier Olibo, &c. These sorts are among the most beautiful Roses, but they need the vigour of growth which another stock can alone supply. The matter may be summed up thus: Persons who know nothing of Roses should obtain varieties which are on their own roots, and be content with kinds like Général Jacqueminot, La Reine and Paul Neyron. Amateurs who are capable of discriminating may be safely trusted to plant budded Roses of such kinds as are improved by being worked; the suckers of the Manetti are easily cut off and give very little annoyance to those who know Roses." [Manetti stocks rightly prepared do not produce suckers in England.]

— A NEVADA correspondent writes to *Vick's Magazine* as follows relative to LILIUM WASHINGTONIANUM at home:—"The Lily stalk comes up through the Manzanita and Madrona shrubs, and is cool at the root. The deep snow, leaves, and the shrubs cover it in winter and keep it cool in summer, and it likes the sun when in bloom. I think it should do well among shrubbery. It is never very warm where it grows; the nights are generally cool. It grows around Lake Biglar, Tahoe, and high up in the mountains, some miles from here, but I have never seen it in the foot hills on this side (eastern slope) of the Sierras. It is certainly a hardy plant, and I think just wants putting in the ground and letting alone."

— FROM the same publication we cite the following relative to FLOWERS IN MIDDLE FLORIDA:—"Florida has been well named 'The Land of Flowers.' Its wonderful climate seems to be especially adapted to the growth of every blooming tree and shrub and plant, from the hardy natives of colder latitudes to the most tender and delicate blooms found elsewhere only in conservatories and hothouses. From majestic Century Plant, which blooms but once in its long life of about twenty-five years, to the tiny Violet, there is a wealth of perfection in colour and perfume throughout the greater portion of the year, that would make the fortune of a florist who could possess them in sufficient proximity to a good market. Among the blooming trees and shrubs which adorn the woods and fields of middle Florida, without the aid of cultivation, are the stately Magnolia, whose powerful fragrance fills the air for miles in the early spring; the Red Bay, with its Magnolia-like flowers, more delicate in perfume than the Magnolia; the Snowdrop Tree, with drooping pure white blossoms; the Sparkle-berry, the Dog-wood, the Clove Tree, the Red-bud, the wild Crab-apple, the Swamp Willow, and a hundred others of greater or less beauty. The wild Vines, too, are a brilliant feature of every hedgerow and thicket. Earliest and sweetest is the yellow Jasmine, with its golden bells, filling the air with the most

delicious fragrance. The Woodbine, with crimson clusters; the Virginia Trumpet Creeper; the family of Honeysuckles; the Cherokee Rose, and many others, known and unknown, grow and clamber and thrive along the roadsides and in the depths of the forest with a luxuriance seen nowhere else in America. The numerous varieties of the Water Lily inhabit every pond and lagoon, all more or less beautiful; many remarkably and peculiarly fragrant, and many so rare as to be found wild in no other locality on the continent. The cultivated flowers, as may well be imagined, are almost infinite in variety and incomparable in perfection. The *Camellia japonica* is apparently at home here, and attains, with age, an immense size. Several in Tallahassee are from 10 to 16 feet in height; and Quincy, in Gadsden, the adjoining county, boasts of two which are nearly or quite 25 feet in height. Roses bloom the year round, and the bushes become trees; the stem of one here measuring, at the height of 4 feet, 12 inches in circumference. Eight varieties of the Jessamine are found here, and the Cactus family flourishes astonishingly. It is too great a task and would require too much space to name more; suffice it to say that probably in no other region on this continent can be found or cultivated in the air so great a variety, or such magnificent specimens of the several kinds, as may be found in the numerous flower gardens and private collections of the middle Florida towns. The ladies of Tallahassee especially excel in the gentle art; and as there is but one greenhouse for trade purposes, and not a single professional florist in all middle Florida, the name the Capital City has fairly acquired as 'The Flower City of the Land of Flowers' is a distinction of no common significance."

VIOLA ARDWELL GEM.

WHEN on a visit to Castle Kennedy last September I saw this fine bedding Pansy for the first time. I was so pleased with the effect it produced in the flower garden, where it is extensively grown, that I asked Mr. Fowler to favour me with a few cuttings of it later on in the autumn, a request he most kindly granted. I learned that it was a great favourite with him, and as far as my experience goes I consider it is the best light yellow self in cultivation. It is a hardy variety, has a compact dwarf habit, and when planted it soon covers the ground. The flowers are large and of good substance; they stand erect on a strong flower stalk, and are produced in great abundance from early in spring till late in autumn. Mr. Fowler informed me that it was originated at Ardwell, a gentleman's seat in Wigtonshire not far from Castle Kennedy, and that it is scarcely known out of the immediate district. I find that it grows and flowers as freely here as I saw it do at Castle Kennedy, and it is greatly admired for its close dwarf habit and the size, shade, and productiveness of its flowers.—A. PETTIGREW, *Castle Gardens, Cardiff.*

SEASONABLE NOTES ON FRUIT TREES.

THIS is a most important month both as concerns the produce of the present year and that of succeeding crops; and although we have all been somewhat disheartened as to certain crops of the present year, we must still hope on, even as our ancestors did in their day. If we cannot always wage war successfully against inclement springs, we can at least put in requisition all those modes of practice which, being based on a knowledge of Nature's laws, can alone be depended on.

The remarks I intend to offer will refer principally to trained trees. It is quite unnecessary here to go farther. Any principle which will apply to trained trees will apply, in degree, to the most ordinary standard or espalier, modified, of course, by degrees of hardihood and modes of training.

One of the first objects to be considered at this month is the ripening of the wood; a second is the equalisation of the sap, so as to produce a due equilibrium in the trees; and lastly, to accommodate fruits hastening towards ripening.

And let not the ripening of wood be deemed a mere cuckoo-cry because it is brought forward almost periodically. It is of so much importance in the eyes of those who try to remind the less-informed, that they feel it a duty to keep the subject alive; and such must be the case until these principles are, to all concerned, familiar as "household words." On this thorough consolidation depend the health, character, and utility of tender fruits. And what does all this mean? Why, that the tree has been treated according to its requirements, that by the fall of the leaf all Nature's processes have been fully carried out—nothing left in arrears. As there happen to be many late growths in fruit trees of healthy habits, it becomes us so to control these as to sustain a proper equilibrium in the trees. This we call equalising the sap.

Then we have to consider the immense value of a free access

of sunshine to the would-be fruit-blossoms of the succeeding year. I begin to think that we have hitherto underrated the importance of this matter; and that the various processes of disbudding, stopping, &c., might be carried still further without in any way deranging the system of the tree. As for being so nervous about incipient fruit-buds losing their balance and "going to wood," I can only say it is a somewhat morbid fancy. Certainly, in very gross trees we may meet with such things; but sorry is the condition of that operator who is afraid to act in the face of this bugbear. Such forget that, admitting this trivial affair, we obtain an equivalent of ten times the value. I have a lot of Pears which, having a thin crop, have been in the habit since May of producing much spray. I have had this stripped away entirely, or nearly so, this season; and on examination I find the fruit-buds exceedingly profuse, and in a most decided and advanced condition. Besides this, we want some sunlight to the fruit. This is admitted on all sides. So that here we have four or five reasons of high consideration for securing sunlight and subduing grossness. The reasons against such are as nothing in the scale; certainly must be allowed no preponderance. I may now point to a few of our fruits by way of illustration.

THE PEACH AND NECTARINE.—Of what possible benefit can it be that so many shoots are usually nailed to the wall during summer, as is the practice with many? Some cannot find pluck enough to do away with supernumeraries. Where rods or young shoots are required as leaders, or to fill given spaces, by all means let them be reserved. The rest may be cut back to about three leaves. This, of course, is approaching a spur system; but I have tried it for two or three years, and feel assured that it is the good plan after all. Of course there will have been a liberal disbudding in spring; and where there is a profusion of shoots, and the disbudding is duly performed, the rest during summer may be fairly pinched back. Such spurs on growing trees will, of course, produce bunches of small spray afterwards; and this must be closely pinched early in September; after which, little more will be produced. But what about the terminal points of such trees? These may all be pinched on the spray, merely removing the growing points. In all cases of pinching, however, let this be an exception:—Wherever any shoots are poor or show leanness, pinch not, but suffer spray and all to grow to the end.

THE APRICOT.—The habit differs much from the Peach, and a somewhat different handling is required. One thing may be observed, that complete sunlight from midsummer until October is indispensable in securing the organisation of perfect blossoms for the ensuing year. Pinching back of fruit-spray must, therefore, be constantly resorted to. But with regard to the leading shoots a different policy should be observed. These should never be pinched, unless for two reasons:—First, as robbers, or leaders, exceedingly gross—such may have their points pinched about midsummer, or, indeed, earlier. Secondly, when they are over-topping their bounds.

THE PEAR.—Here we have a most unruly subject. If any novice were to form a judgment of all Pears and their habits, modes of fruiting, and various vagaries that Pears are heirs to by merely having grown Louise Bonne of Jersey and a Beurré d'Amanlis he would think that folks made too much fuss about Pears. But their habits differ more, perhaps, than those of any one family of fruits. I alluded to severe operations on this fruit previously; and I can but repeat that, at this period above all others, it is necessary that sunlight be secured to all portions of the trees. All rambling leaders of trained Pears may be pinched immediately; many, it is to be hoped, have received this treatment before.

Still there remains another material consideration as concerns September; and I would here put the question—"Have you any trees still infested with insects?" The Peach, above all, deserves particular attention at this period. Red spider is very apt to get ahead whilst the wood is ripening; and at such period so robs the trees that the buds are imperfect, and the following year we hear lamentations about blossoms not setting and fruit falling. Insects of whatever kind must not be played with but destroyed at once by the best means at disposal, or no one has a right to expect healthy and productive trees.—R. E.

HERBACEOUS PLANTS AT WOOD LAWN.

THOUGH the majority of hardy plants for the decoration of borders and rockwork have either finished their flowering or are past their best, there are still many that have yet to contribute to the display. The tall perennial Phloxes (the garden varieties of *P. acuminata*, *P. paniculata*, and *P. pyramidalis*) are more conspicuous in this respect than any other class of hardy plants

that are expected to come into bloom for the next few weeks. Of those fairly open at the present time Harrison's Seedling is the most effective. Its bold leathery foliage and its fine trusses of white bloom, which have a faintly tinted pink eye, recommend it strongly. It is a grand variety for forcing either as an exhibition plant or otherwise. Apart from this and one or two other forms, the greater portion of the varieties grown here have yet to flower.

Pinks have been very showy and continue so; for though the great masses of the common white form are past their best, John Ball and numerous allied sorts come forward to take their place, and a further succession will be kept up with the Carnations and Picotees, of which a number of varieties are represented here.

LYCHNIS (AGROSTEMMA) CORONARIA var. *ATRO-SANGUINEA* is very showy and useful. Its dark red flowers are abundantly produced, very persistent, and exceedingly useful when cut for decorative purposes. It commences to flower in early summer and continues till autumn. It is, however, a somewhat delicate plant, and succumbs to severe frost in a wet winter. It grows $2\frac{1}{2}$ or 3 feet high, and produces seeds in abundance, which germinate readily either in a frame or outdoors; and if the young plants are placed in 60-size pots, kept in a cold frame for the winter, and planted out in spring, its absence from the flower border never need be conspicuous. There are several varieties of this plant all well worth growing. The type has ordinary red flowers not nearly so dark as the above. The variety bicolor has white flowers with a red centre, and alba is pure white.

ACHILLEA PTARMICA FLORE-PLENO is a well-known old occupant of the flower border, and its rambling habit may have caused it to be less grown than it used to be. It varies in height according to soil and situation, ranging from $1\frac{1}{2}$ to 2 feet, loaded with innumerable double pure white flowers fully half an inch in diameter disposed in compound corymbs. The flowers are very useful for bouquet work. Though this plant has an unpleasant intruding habit it may be kept in subjection by cutting round it with a spade or trowel once a year, say every autumn when the borders are being forked.

ACHILLEA SERRATA, Retz.; *PTARMICA SERRATA*, DC.—This is a beautiful and interesting plant, 10 to 12 inches high. The leaves are more deeply notched than those of *A. Ptarmica*, and of a beautiful green resembling those of a Pink. Flowers white, larger than those of *A. Ptarmica*, and disposed in a similar fashion. It is not very common outside of botanical gardens, and its native country is uncertain. It is a plant well adapted for the rockery, and equally so for the border, lasting a long time in flower.

LYCHNIS CHALCEDONICA.—One of the best and most showy of the taller-growing herbaceous plants. Three feet may be given as its average height, and it is admirably adapted for planting in the back row of the herbaceous border in a line with such plants as *Liliums*, *Delphiniums*, *Aconitums*, &c. it prefers a deep rich soil like the rest of the genus. The flowers are of so intense a scarlet and so useful as to rank it as one of the very best of herbaceous plants.

LYCHNIS PYRENAICA.—A rare species inhabiting the Western Pyrenees at an altitude of 3000 to 4000 feet. It is a low-growing plant, making dense rosettes of glaucous spatulate leaves of a leathery texture. The flower stems are sub-erect or inclined, very wiry, and bearing numerous pure white flowers about half an inch across. It might be described as bearing great resemblance to a much-reduced *Silene inflata* with its inflated or bladder-like calyx wanting. It is thriving remarkably well with us. We grow it in a pan containing good loam and lumps of limestone plunged in a cool part of the garden; but its most suitable situation would be on the rockery in crevices of limestone, and we intend to have these as soon as it is deemed desirable to divide the plant. It blooms more or less throughout the whole summer.

ENOTHERA FRASERI.—A very showy and also useful plant, as it flowers at the time when the earlier summer-flowering plants are past. If a border is expected to be gay from spring till autumn this is a plant to give valuable help. It produces its orange-yellow blossoms in profusion, and grows to the height of $1\frac{1}{2}$ foot. It likes good retentive soil, and should not be grown in a dry corner or on a dry bank, or disappointment will be the result. We have it represented here in clumps every few yards in the front portion of the borders, and it is very effective. We grow another somewhat allied species under the name of *Æ. fruticosa*, but whether this appellation be correct or not I cannot say. Be it what it may it is a handsome species, and I slightly prefer it to Fraser's *Enothera*. It grows 2 feet high; the leaves lanceolate, with a slightly toothed margin, and under three-quarters of an inch diameter in the broadest part. Flowers pure

yellow with a green calyx. The leaves of *Æ. Fraseri* are shorter but broader, more irregular in outline, with but rudimentary serratures, and its green calyx striped with purple. Both are very good plants for pot culture, but under such conditions they should be supplied with abundance of water.

ENOTHERA PUMILA.—This we grow on the rockery. It is a diminutive plant, 6 to 9 inches high. The stems are thin and wiry, furnished with small pure yellow flowers a quarter of an inch across, and has been in bloom for two months. Its situation in a garden should be on rockwork, as in this position it looks more in place. Seeds are freely produced, which readily germinate and make plants. The perennial *Enotheras* are best increased in autumn by dividing the plants.

MORINA LONGIFOLIA.—This is worth mentioning, inasmuch as it is both handsome and, unfortunately, as yet much too uncommon in gardens, although it was probably the first species introduced into cultivation. It is readily raised from seed, and will grow in ordinary garden soil if it can only have a moderately light position. Some clumps are growing here in partial shade, and have not flowered so freely as those in positions exposed to the sun. It is a vigorous Thistle-like plant, with dense crowns of radical leaves a foot in length and about 2 to $2\frac{1}{2}$ inches broad, quite smooth, lanceolate in form, undulate and acutely lobed, with the margins spinose. Flower stems 2 to 3 feet high and quite erect. The leaves in whorls of fours, becoming smaller upwards and ultimately bracteate, supporting whorled capitula of fifty or more flowers. Each spike produces from eight to twelve of these whorls, and in robust plants the lower capitula are supplemented by additional heads of flowers on stalks 2 to 3 inches in length. The flowers at first are white, about half an inch across, slightly irregular, funnel-shaped, with the long slender tube not more than one-sixteenth of an inch in diameter and over an inch in length. They are rather fugitive, and a somewhat singular phenomenon is that the flowers change from white to a carmine colour on the approach of falling. The short duration of the flowers is compensated for by the number successively produced in each capitulum. As a matter of curiosity it may be well to add that some of the flower stems have the leaves in whorls of threes, and this symmetrical arrangement applies equally to the bracteate ones throughout the entire inflorescence. It is a native of the Himalayas, our plants being from seeds sown two years ago last April; they commenced flowering at the end of June, and their season is not likely to terminate for several weeks.—T. ENTWHISTLE, *Wood Lawn, Didsbury*.

DESTROYING WASPS' NESTS.

I NOTICE in your impression of the 23rd inst. that "T. W. S., Lee," calls attention to the above subject. Until the 24th inst. we scarcely knew we had any wasps to deal with, but since the above date they have made such a raid on nearly all kinds of fruit, that it is distressing to see the havoc they have made in such a short time on late Grapes. To prevent their entering the vineries we have fixed some hexagon or Nottingham netting in front of the ventilators. We have used tiffany, but we found it too close—it did not admit air enough. The simplest way I have found for dealing with wasps' nests is as follows. When we find a nest we mark it with a stick, and a piece of white paper on the top of the stick. This is to show its whereabouts without much difficulty. After dark we take a lantern, procure some turpentine and cotton waste or rags, saturate them with the turps, then push it in the hole, and place a piece of turf or some soil over it to make it airtight. If there are no other outlets this application is almost sure to kill them; no digging-out is necessary. A few wasps may be seen about the nest next day, because some will remain all night in the trees when the weather is fine and warm. We have adopted the above plan for several years, and have found it simple and effectual. Sometimes we have adopted the following plan, which is very clean and simple—We procure a half-pint or a pint beer or soda-water bottle, pour two or three tablespoonfuls of turps into it, push the neck of the bottle into the hole, and press the soil or a piece of hemp firmly round the neck to make it as nearly airtight as possible. If, however, there are other outlets from the nest, they must be treated in a similar way.—G. R. ALLIS.

TROPICAL AMERICAN MAIDENHAIR FERNS.

THE American continent, and particularly that portion of it included between Mexico and Peru, possesses a large number of beautiful native Ferns, amongst them being several of the most handsome species of *Adiantums* cultivated in English gardens. Such distinct and well-known forms as *A. lunulatum*, *A. peruvianum*, *A. trapeziforme*, *A. polyphyllum*, *A. macrophyllum*, *A. concinnum*, and *A. tenerum* are all found in this district, though necessarily confined to it. As is common with many other Ferns, some are widely distributed throughout other portions of the globe. The one to which special attention is called in these notes—viz., *A. tetraphyllum*, is extremely variable in different parts of

America, and as it extends from Mexico through the West Indies to Brazil, and is also found in Tropical Africa, it can be readily imagined that the climatic conditions alone would produce much diversity of aspect in such a Fern. A notable and elegant variety is that shown in the woodcut (fig. 33), *Adiantum tetraphyllum gracile*, which was introduced by Mr. W. Bull of Chelsea through one of his collectors in Colombia a few years since, and it was thus described in the list of new plants for 1880:—"A handsome stove Fern. It is of moderate stature, and remarkable for the beautiful reddish tint assumed by its fronds when first developed, and continuing until they are fairly expanded. The fronds are bipinnate, on slender black stipes, arching over elegantly at the top, and dividing into from four to six linear pinnae. The red colour of the young fronds adds very much to the ornamental aspect of the plant, which is, moreover, of an elegant mode of growth."

EDINBURGH GARDENS.

FOR open spaces, wide streets, splendid architecture, and unrivalled situation, "mine own romantic town," as Sir Walter Scott wrote it,

the Waverley Market, at the extreme east end of the valley, level with the street above, is a regular parterre of flower beds and cement walks. To break the monotony of the level roof, which few would suppose other than *terra firma*, at present there are many fine specimens of Sweet Bays from 5 to 10 feet high, pyramidal shape, in tubs. These are in the finest health. But there are no others. Sweet Bays, and nothing but Sweet Bays, are surely not in good taste. In the nurseries of Edinburgh are to be found specimens of coniferous plants that would lend variety by furnishing grace in form and different tints of green, and not in summer only, but in winter, when everything seems bare and dreary. We understand that Edinburgh people are proud of their Waverley Market garden and prize their Bays, not altogether because of their beauty, but because of their cost!

All things considered, the plants that fill the beds are in pleasing health, and no expense is spared in keeping the gardens neat and clean. For a town garden the grass is wonderfully fresh, and, being well kept, is a very pleasing feature, affording relief to eyes tired out with the glare of masses of stone.

Though praise is given for the condition of the garden, conscientiousness compels us to add that it is not deserved for the floral arrangement. Criticism is not always pleasant, but it is often useful, and we think that it is our duty to the public to point out what to avoid as



Fig. 33.—*ADIANTUM TETRAPHYLLUM GRACILE*.

stands pre-eminent among not only the towns of Great Britain but of the world. Prominent in all of these respects stands Prince's Street, with its long line of splendid buildings on the north side of the street, and its noble expanse of lawns, trees, flower beds, and monuments in the immediate front, with the grim, old, historical castle crowning the beetling rock to the right hand, and Old Edinburgh stretching before far to the left, between the castle and Holyrood, while New Edinburgh lies to the back. The space between the old and new towns is named in old maps the North Loch, but it is now dry. In what was once the bottom runs the North British Railway—at once a landscape nuisance and a travelling necessity. As an eyesore, however, it is not so very objectionable, as it runs at the bottom of a cutting, while steep on either side rise high banks, vying in some instances with Highland scenery in ruggedness of aspect. The slopes in front of Prince's Street have been formed into magnificent terraces, on the top and at the bottom of which are flower beds and shrubs arranged in a style that does great credit to those who designed and carried out the work; nay, more, on the top of

well as what to follow. Public gardens exercise an educational power, and the masses are apt to follow what is either praised or even not mentioned, whether right or wrong. It is not often that arrangements are so constantly wrong as they have been, and are, in the case of the Edinburgh gardens; and had this year given us the first examples, we might have supposed that in future the defects would be remedied, but as the mistakes of the past are perpetuated this hope cannot be indulged in. Without further taking up space in generalities we will point out how most of the arrangements clash with all recognised rules of good taste.

Let us begin with the garden over the Waverley Market. Two-thirds of this garden are in walks, and the walks are cement of a greystone colour. The edgings of the beds are light stone mouldings. Three-fourths of the beds are edged with *Lobelia St. Martin's Blue*, a beautiful plant with dark foliage and blue flowers, with a line of much dwarfier *Echeverias* second. On a sunny day the glare of the pavement makes this almost, if not quite, invisible, and the effect is not superior to what

common coal dust or even wet mould would be. With such a wilderness of pavement one would have thought nobody would ever have dreamed of anything but a good green band to relieve the eye, and the last thing St. Martin's Blue Lobelia. Next to the Lobelia comes a row of Echeverias in flower (an orange red), then yellow, then blue—the three primaries, the one combination every small boy is, in every good garden, taught to avoid. The body of the beds are a curious mixture of odd plants. Here and there are dotted nice plants of *Centaurea ragusina* surrounded by the only colour that could make this handsome plant look ill—a slaty *Ageratum*, which hides its grace and spoils its colour.

A few beds are planted on the carpet system, and here, as elsewhere, are noticeable traces of lavish care. As far as high keeping and satisfactory material are concerned there is nothing left to be desired; but here also the same faults in arrangement occur. Next the stone edging a green band of *Saxifraga* is placed, and beside the green the primary from which it is derived in the form of Golden Feather. Indeed, there is hardly a discoverable instance where correct arrangements of colour are seen.

Cut out of the grass banks facing north and south, in conspicuous positions near Waverley Bridge, are two star-shaped beds with eight diamond-pointed rays. We had supposed that everybody knew that red was the complement of green, and that contrasts were the proper thing for beds which had to be viewed from a distance as these are, a pretty wide space intervening between them and the nearest view point. The powers that be in Edinburgh hold different views, or at least act as if they did—though it may be doubted if any views at all are held on the matter. As a matter of fact these stars, which might have been made to arrest the attention, are as nearly invisible as possible, but that is something the public—or at least the portion that is not colour-blind—have to be thankful for, for their colours are so arranged as to pain. Of all things in the world the edgings here, as elsewhere on the grass, are Golden Feather. It is not a single instance of this that occurs, it is universal; and to make matters worse, just inside the yellow—where it is as bad as yellow next the green, or St. Martin's Lobelia next the stone—is a band of red. With unconscious kindness, however, the railway company by means of numerous engines have nearly obliterated this discord, and toned down the clashing colours with soot. How very different would the effect have been if the red had been next the green grass, and if a band of white had been used to separate it from the yellow, affording a contrast on the one hand and a harmony on the other, coupled with, in one instance at least, with a pleasing and attractive complement. The material was there, the rules also exist—indeed are well known, or should be by those who essay to be public teachers; but though the material was to hand every rule has been broken.

In the north Violas are favourites because they thrive. Moreover, they present shades of colour that make very pleasing complements; oranges and blues, yellows and purples. The merest tyro in colouring knows that any primary colour is complemented by the secondary formed of other two primaries; thus yellow is a primary and is complemented by purple, purple being a blending of blue and red. Again, blue is complemented by orange, blue being a primary, but orange a secondary formed from red and yellow. With Violas how difficult to go wrong, how easy to be right! At Edinburgh they have got over the difficulty. Nowhere in our search could we find complementary colours beside each other. Yellow and blue Violas we could see, the one making the other as had-looking as possible; oftener blue Lobelia and yellow Violas or Golden Feather; but purple and yellow, orange and blue—never!

Between the Scott monument and the galleries on the Mound there is a long bed filled in the ribbon style. Evidently a grand attempt at effect has been made here. It is big enough to be a garden in itself, and its expense cannot have been small. And what is the result? We will give the arrangement, and then ask a question. It is surrounded by turf. The first line on the south side next the grass is the inevitable Golden Feather, then blue Lobelia, then *Ageratum*, then variegated (white) *Pelargonium*, then scarlet ditto, then *Centaureas*, then pink *Pelargonium*, then scarlet *Pelargonium*, then yellow Violas, then *Ageratum*, then bronze *Pelargonium* and red Beet, then Lobelias, then Golden Feather, blue Lobelia again, *Cerastium* as an edging, then the turf. Such is the arrangement. The question is; Could any arrangement be more displeasing? Those who have studied colour arrangement in flower gardens will mostly answer, No. But this would be too fast, for worse arrangements exist in the same garden. Difficult as that may seem, it is a fact. One would have thought that the example and the teaching of a Thomson would have been more far-reaching. At all events, in the capital city of the country, famous for its gardeners as well as its doctors and soldiers—indeed, everything else, one would have expected something better.

Our criticism has been severe, but not too much so. We feel it our duty to the public to do what in us lies to improve matters and to secure the best gardening possible, and hope what we have had to say may be regarded as the first step towards better things. It must not be supposed that prejudice or personality has in any way influenced us. To show that national prejudice has nothing to do with the matter, it may be well to say that the writer is exactly what he signs himself; and that personality is not the cause, by saying that he does not know a single member of the staff in these gardens that he is aware of. We like to see things right, and dislike to see them wrong; that, and that alone, has impelled the penning of this paper.—A SCOTSMAN.

FREESIAS.

AMONGST the bulbs of recent introduction there are none more interesting and valuable, I think, than these. I have not grown *F. refracta*,

but *refracta alba* and *Leichtlinii major* are most delightful, and apparently of easy culture, as they have flowered and seeded with me very well. The former I had from Colchester, the latter from Messrs. Sutton & Sons, Reading, in whose catalogue it is figured this year. The flowers can be hardly said to form a spike, as the flowering stem runs out horizontally, and the large flowers are produced perpendicularly on this horizontal stem. As many as nine blossoms from 2 to 3 inches in length are produced; they last a long time, and are of a delicate French white with an orange throat. The odour they exhale is something very peculiar and most delicate; indeed, I hardly know anything in flowers like it, and it is very valuable for cutting, as the unopened buds expand when cut and placed in water. *F. Leichtlinii major* is a cross probably between *Leichtlinii* and *refracta alba*. The bulbs which Messrs. Sutton have to offer are grown in the Channel Islands, that paradise for Cape bulbs, and everyone ought to grow it who possesses a greenhouse, however small it may be.—D., Deal.

EFFECTIVE PLANTS IN SUBURBAN GARDENS.

CAMPANULA TURBINATA.—This charming species thrives and flowers exceedingly well with us. We employ it in many different ways—in groups on rock beds, and in masses on large beds. In whatever position it is used it succeeds, and is a decided acquisition on account of its dwarf and floriferous habit.

PRIMULA CAPITATA.—We have half a dozen plants of this charming species of *Primula* growing strongly on one of our rock banks. Each plant carries from two to three trusses of lovely blooms. They are planted in a warm position, using plenty of old mortar and decayed Kentish ragstone in the soil.

DIANTHUS GLACIALIS.—An exquisite little gem, so dwarf and floriferous. It does well here planted out in shady nooks of the rockwork. It is now going out of flower. Similarly dwarf and pretty is the chaste little *Erinus alpinus*. This grows well in little corners of the rockwork with a few pieces of ragstone around it. *Androsace villosa*, *Saxifraga lantoscana*, *Rubus arcticus*, and *Helianthemum* in variety have adorned the nooks and crannies of our rock banks and beds for some time past.

LILIUMS.—These are flowering well with us now. *Auratum* is now opening with splendid buds. A large quantity of fine bulbs were planted out here a couple of years ago, but their number and quality decrease considerably each season. We find the easiest method of obtaining fine plants and blooms is to take up the bulbs after flowering and place them in pots, growing them until April, then planting out in the border. We adopt the same plan in regard to *longiflorum*, *lanceifolium*, *Fortuni* and *candidum*. *Thunbergianum*, *tigrinum* and *bulbiferum* grow very freely in masses in the borders. These were planted out some years ago.

DICTAMNUS FRAXINELLA.—A handsome plant both in flower and foliage. It succeeds well with us in the centre of a small bed. *Senecio puleher* will soon be in flower. Grown either singly or in clumps it is effective. The old *Francoa ramosa*, with its long graceful racemes of white flowers, plunged out in the rockwork looks charming.

Small beds filled with masses of single *Petunias*, German Asters, Indian Pinks, and a very fine strain of double *Tagetes* are lovely. The latter makes a most effective and showy plant for bedding out. It is uniform in growth, and, given a good strain, its flowers cannot be surpassed for beauty and variety of colour. Still smaller beds of *Tuberous Begonias* are flowering well, and also of *Bouvardias* in the following varieties—*jasminoides*, *flava*, *Hogarth*, and *longiflora*. These succeed very well bedded out, and are flowering freely too. The little nooks and crannies of the rockwork contain groups of seedling *Mimulus*, *Zinnias*, *Lobelias*, and *Alternantheras*.

Rock beds are far more interesting and pleasing to the eye, if skilfully arranged and planted with masses of showy plants, than endless lines and intricate designs of form and colour. Geometrical designs are very well if used with taste, but in many gardens this is often sadly wanting. Again, on the other hand, we may carry rockwork gardening too far. A skilful eye will, however, always discover the happy medium.

We grow a number of small plants of *Agapanthus umbellatus* in pots. These are plunged in the rock banks and beds. They are now flowering and are very effective. We also use *Hydrangea Thomas Hogg* and *hortensis* similarly. Our blooms are deep blue in colour: this is attained by mixing a small quantity of sulphate of iron with the soil, mostly peat, when potting. An occasional watering is given with a weak solution of the latter too. We have had a grand show of *Roses*. Standards and half-standards will not succeed with us: we grow only dwarfs. In a garden like ours we have to make the best of everything, therefore grow most of them in borders on the margins of the shrubberies. A little *Mignonette* seed is sown broadcast amongst these in early spring, thus affording a bright green and highly perfumed carpet to the *Roses*. Beds of *Hydrangea paniculata* are coming in flower. This is a grand plant. The mixed borders are gay with groups of single *Dahlias*, *Delphiniums*, *Antirrhinums*,

Carnations, Marguerites, Phloxes, and many others too numerous to mention.—SUBURBANUS.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 28TH.

THE conservatory was again devoted to the exhibits before the two Committees, but comparatively small space sufficed to contain the plants, flowers, and fruits staged.

FRUIT COMMITTEE.—L. A. Killick, Esq., in the chair. The following members were also present:—Messrs. W. Denning, J. Roberts, H. Howcroft, G. Bunyard, J. Lee, R. D. Blackmore, and Dr. R. Hogg. Mr. Taylor, gardener to J. McIntosh, Esq., Duneevan, Weybridge, was awarded a cultural commendation for three fine well-ripened bunches of Foster's Seedling Grapes. Several Melons were sent from Messrs. R. T. Veitch & Son, Exeter; Mr. Cross, The Gardens, Hotham House, Yorkshire; and Mr. J. George, Victoria Road, Putney. Mr. L. A. Killick, Mount Pleasant, Langley, Maidstone, was awarded a letter of thanks for a collection of early Apples—Duchess of Oldenburg, Red Joanneting, Worcester Pearmain, Irish Peach, Yorkshire Beauty, and Ecklinville Seedling. Messrs. J. Carter & Co., High Holborn, showed specimens of their Purple-top Yellow Dutch Turnip, which is of moderate size and very even. From the Society's garden at Chiswick a collection of thirty-six Tomatoes in pots was sent, representing a large number of varieties from different firms. The plants were in excellent condition, and mostly bearing good crops of fine fruits. A cultural commendation was awarded for them. Mr. Eckford showed samples of the new large-podding and free Peas—Victory, Progress, and Magnificent. Mr. C. H. Pearse, Grey's Court, Henley-on-Thames, also sent samples of Reading Giant and Latest of All Peas.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. The following members were present:—Messrs. J. McIntosh, H. Cannell, H. Bennett, J. Wills, W. Bealby, H. Ballantine, J. Dominy, W. B. Kellock, Shirley Hibberd, and George Duffield. Messrs. J. Carter & Co., High Holborn, showed a group of 140 Asters, mostly dwarf, compact, and floriferous, some having as many as a dozen flowers in 48-sized pots, and six or seven in small 60-sized pots. The chief sections or varieties were the dwarf Chrysanthemum-flowered, the Dwarf Bouquet, New Crown or Cockade, Pyramidal German, French Pæony-flowered, New Glohe German, Quilled German and Victoria. A bronze Banksian medal was awarded. A silver-gilt Banksian medal was awarded to Messrs. Kelway & Son, Langport, for a large and choice collection of Gladiolus spikes, including a great number of varieties, richly, brightly, and diversely coloured; the flowers large, and the spikes massive. G. F. Wilson, Esq., F.R.S., Weybridge, exhibited a choice collection of Lilies representing several very beautiful varieties of *L. auratum*, *rubro-villatum* being especially noteworthy, having broad dark red bands down the centre of each petal. *L. Leichtlini* and *L. tigrinum splendens* were also shown from the open air, with *L. speciosum rubrum* very richly coloured from an orchard house. A medal was recommended for these flowers.

Mr. T. S. Ware, Tottenham, London, was awarded a silver Banksian medal for an extensive and beautiful collection of single Dahlias, including some scores of fine varieties. A few of the most distinct and effective were the following:—Rosalind, rose edge, white at base; Mauve Queen Improved, rosy mauve; Victory, white; Buffalo, orange buff; Francis Fell, crimson; Darkness, maroon, very dark; Rachael, orange scarlet; Lutea grandiflora, large yellow; and Christine, bright pink. Mr. Eckford, gardener to Dr. Sankey, Boreatton Park, Shrewsbury, sent flowers of several pretty varieties of Sweet Peas—Blue Beauty, blue and purple; Grandeur, scarlet; Princess, blush; Meteor, scarlet; Blue King, rich blue; and Fascination were the chief varieties, the last-named having a pink standard and blue wings and keel. Mr. C. Turner, Slough, showed a stand of two dozen handsome blooms of Show and Fancy Dahlias, the following being of excellent quality:—Cecilia, bright yellow; Mr. Harris, dark scarlet; Flag of Truce, pure white; Clara, bright pink; George Rawlings, maroon; and Drake Lewis, rich scarlet.

Messrs. H. Cannell & Sons, Swanley, were awarded a vote of thanks for a box of handsome double Zinnia blooms, scarlet, orange, yellow, rose, and crimson. A pretty stand of single Dahlias was also shown, including a small white Cedo Nulli, Crimson Star, Yellow Boy, and Nora, dark maroon. Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfield, Bickley, was awarded a cultural commendation for a small plant of *Angræcum Ellisi* in a basket, with a raceme about 18 inches long, bearing twenty-one fine white flowers with long spurs. A similar award was also granted to Mr. J. Barnard, gardener to W. Vanner, Esq., Camden Wood, Chislehurst, for a plant of *Dendrobium secundum* with about fourteen spikes of small rosy flowers. Mr. C. Bennett, Shepperton, Middlesex, was awarded a vote of thanks for a small but pretty collection of Gloxinias, all unnamed seedling varieties, ranging in colour from pure white through blush, rose, crimson, scarlet, and purple. Some, too, had a central bright colour margined with white, or, *vice versa*, with the throat dotted. The flowers were large and of good form. A vote of thanks was accorded to Mr. Cummins, gardener to A. Smee, Esq., The Grange, Wallington, for a plant of *Lycaste Smeana*, a charming species, with flowers rather smaller than *L. Skinneri*, the sepals white, petals white dotted with purple, and the lip of similar colour. A vote of thanks was accorded to Mr. E. Noble, Bagshot, for flowers of *Clematis Jackmanni alba*, which were very faintly tinted with purple.

First-class certificates were awarded for the following plants:—

Zygopetalum maxillare (Heims).—An old and well-known species with a rounded dark blue-purple lip, with a toothed projection at the base, bearing a fancied resemblance to the jaws of an animal. The sepals and petals are greenish with brown blotches. The flowers are borne in racemes of six to eight, and Mr. Heims' plant had about a dozen racemes.

Tuberous Begonia Madame Grody (Bealby).—Flower very double, large and full, white with a yellow streak in the centre of the petals. Very delicate and distinct in appearance.

Gladiolus Lady Cavendish (Kelway).—Very handsome; large flower and spike, bright rosy mauve with darker streaks.

Gladiolus Duke of Edinburgh (Kelway).—Distinct and effective; warm scarlet, centre of lower petals white.

Gladiolus Sir Trevor Lawrence (Kelway).—Massive spike and large flowers, brilliant clear scarlet with a dash of purple in the lowest petal.

Dahlia Bedding Gem (Ware).—One of the star-shaped single type, orange-scarlet, and very free.

Dahlia Negress (Ware).—Also a single variety, with large deep maroon flowers, the centre rich yellow.

Candytuft Empress (Biddle & Co., Loughborough).—A grand variety, with spikes 3 or 4 inches long, the flowers of great size, and pure white.

Double Marguerite Aurora (Cannell).—A form of the Chrysanthemum coronarium type, with rich yellow double flowers and finely divided leaves.

Dahlia Midget (Cannell).—A diminutive single scarlet variety, rich colour. Small, but free and effective.

Gloxinia Alabaster (Bennett).—A variety with large, well-formed, pure white flowers. Very clear and good.

MEETING AT CHISWICK.—At a meeting of the Floral Committee held in the Society's Gardens, Chiswick, on Thursday, August 23rd, 1883, G. F. Wilson, Esq., in the chair, the following first-class certificates were awarded:—

VERBENAS.

Swanley Gem (Cannell).—Fine compact habit; the trusses and pips very large; white, shaded and edged with pale blue. Very effective.

R. F. Schule (Cannell).—Good dwarf habit, very free-flowering; trusses and individual flowers large, of a fine, warm, rosy pink with white eye.

Marion Baker (Cannell).—Close compact growth; the trusses of medium size, the pips large with white eye, light rosy carmine—a very pretty shade of colour.

Faust (Cannell).—Habit very close, very free-flowering; the trusses large, individual flowers large, of a very rich fiery carmine. Very pretty.

Beethoven (Cannell).—Dwarf habit, remarkably free-flowering; trusses and pips of large size, of a deep rosy lake colour. An excellent bedding variety.

PELARGONIUM AS A BEDDING VARIETY.

Dr. Orton (Pearson).—Very close and compact habit, free-flowering; the trusses large, holding on well; individual flowers large, of good form, intense crimson scarlet. A good bedding variety.

PELARGONIUM AS A POT PLANT.

White Perfection (Eckford).—Plant of vigorous growth; the trusses of medium size, freely produced; individual flowers large, of fine rounded form, pure white.

SWEET PEAS.

Orange Prince (Eckford).—Flowers very large, of a beautiful shade of salmon pink. Very distinct and pretty.

Invincible Carmine (Laxton).—A very fine self-coloured carmine variety; flowers very large and of good substance.

Invincible Striped (Carter & Co.).—A very distinct and pretty variety; very lively carmine, boldly striped.

Blue Edge (Carter & Co.).—Very showy variety, having the standards very light rose; the wings white with distinct edge of blue. Very showy and effective.

New Carmine Rose (Hurst & Son).—This variety in the cut state was certificated at South Kensington on August 14th, and the Committee on seeing it growing unanimously confirmed the certificate then awarded. This is a very pleasing and distinct variety both as regards growth and colour of flowers, and is well worth cultivation.

TYDÆAS.

Venosa.—Plant of tall habit, the tubes bright carmine-magenta shaded, beautifully veined and dotted with purple.

Robert le Diable.—Flowers very large, freely produced, of a most intense, almost black, crimson. Distinct and showy.

Harlequin.—Plant of somewhat tall habit; the flowers large, the tube shaded with magenta and veined and dotted with purple.

Podalyre.—Flowers of medium size, the tubes of a pleasing cherry red veined and speckled with purple. Showy.

Esculap.—Flowers of medium size, the tubes bright scarlet, richly spotted and veined.

IMPATIENS SULTANI.—A first-class certificate was also awarded to this now well-known Balsam.

In regard to the Sweet Peas the Committee considered the variety *Bronze Prince* (Eckford) to be superior to *Invincible Black*. Those named together in the following list were considered identical:—

Princess (Eckford), *Butterfly* (Benary), and *Butterfly* (Carter & Co.).

Duchess of Albany (Eckford) and *Captain Clark* (Benary).

Purple Striped (Carter) and *Black Purple* (Benary).

Red and White (Benary) and *Painted Lady* (Carter).

Scarlet Striped (Carter) and *Red Striped* (Benary).

Emperor (Eckford) and *Grandeur* (Eckford).

Dark Red (Benary), *Scarlet* (Carter), and *Invincible Scarlet* (Benary and Carter).

Black Purple (Benary), *Purple* (Carter), and *Light Blue and Purple* (Benary).

HISTORICAL JOTTINGS ON VEGETABLES—No. 7.

THE ONION.

SAYS a modern author concerning the Onion, "There is supposed to be a prejudice against this vegetable. I rather think it is a cowardice with regard to it. I doubt not all men and women love the Onion, but few confess their love—affection for it is concealed. Happy is said to be the family which can eat Onions together: they have a harmony of aspiration. There is a hint here for the reformers. In the Onion lies the hope of universal brotherhood. Let them become apostles of the Onion; let them eat and preach it to their fellows, and circulate tracts of it in the form of seeds." It is a well-known fact that even the lovers of Onions seldom care to have the

aroma of this vegetable wafted to them upon the breath of their dearest friend; but our good ancestors were untroubled with squeamish sensibilities of the kind. They consumed unhesitatingly at any meal when it liked them, not only Onions and Leeks; they also patronised the still stronger Garlic, though it was never much favoured by English dames. The modern Italian ladies, however, are said to be fond of those mixed dishes in which Garlic and its allies figure as flavouring; and some think, although it is impossible to decide the point, that from Italy we received the Onion early in the Christian era. No distinct reference to it can be discovered until the reign of Edward III. Chaucer in one line joins Garlic, Onions, and Lettuce, doubtless so eaten as a salad.

The common Onion of our gardens (*Allium Cepa*) has been too long under cultivation for us to ascertain its native country. Dr. Kitto suggests it is a Persian plant, that land, and other countries lying adjacent, being prolific in species of *Allium*. From authentic records we know that the Onion was a familiar vegetable to the ancient Egyptians at the time the pyramids were built, and probably before that. The migrating Israelites indulged in lamentations over the savoury plants of Egypt, the Onion among them, which they deemed so far superior to their insipid food in the wilderness (Numbers xi., 5.). Herodotus, father of history according to some people, father of lies according to others, speaks of the large consumption of Onions by the Egyptian labourers, and his statement, which does not stand alone, has been thought irreconcilable with the statement of some authors, that they worshipped the Onion. Pliny, however, only attributes to the people of Egypt a custom of swearing by the Garlic plant and the Onion, or it may have been that a reverence for these was confined to a certain class, such as the priests. Modern Egyptians afford proof of their attachment to this bulb, and many tourists have noticed the superior flavour of the Onions grown upon the soil of Egypt; and under higher temperatures generally the bulb is milder and more succulent than in Britain.

It is very curious to note the differences of opinion that are shown by old authors as to the dietetic or medical qualities of the Onion. Some of the Greeks said the plant was good for the complexion, and increased the strength of the body and mind. By some the Onion was accused of being hurtful to the digestion as well as injurious to the eyesight. Gerard, the diligent herbalist and gardener of Elizabeth's reign, makes more than one attack upon the Onion, while his condemnation of the bulb when eaten raw (in which state he says it is innutritious and tends to cause drowsiness) implies that persons did occasionally eat Onions uncooked. Then, as to the tear-producing effect of smelling them, although several had said that this "clarified" the organ of vision, Gerard questioned the supposed fact. The Spanish Onion is supposed to have been first seen in England about the time of Gerard, but it is doubtful whether it then came from Spain. In oldish books on gardening four varieties are mentioned—the Spanish, Portuguese, Strasburgh, and Welsh. We have been unable to ascertain positively at what date English folks began to eat the young plants as "Spring Onions;" Abercrombie and other gardeners of Georgian days have no allusion to the gathering of the plants when green.

That the English public of three hundred years ago were not of the opinion of Gerard appears from the steady sale of Onions along the streets of London, and probably in smaller towns also, which is indicated by the mention of this vegetable as a part of the stock of the early costermongers. Indeed there were those who dealt in Onions alone, and a seventeenth century print shows us one of these: able to buy a horse and cart, he is represented as bawling, "Buy my white St. Thomas's Onions!" Why St. Thomas was supposed to have to do with any sort of Onions is a question. They could not have been left in the ground until his December anniversary, nor hardly sown at that time. Another author gives the cry as "Ropes of hard St. Thomas's Onions," a test of quality certainly, as softness would prove incipient decay. Onions were made up into ropes by the growers or dealers when there were those living who had seen William Shakspeare, and this usage has continued to the present time. Fields of Onions were in existence near London City while the great civil war was raging between King Charles and his Parliament: these were in districts now covered with houses on the north and east of London, such as St. Luke's, Whitechapel, and Shoreditch; and in the latter direction, but farther out, quantities of Onions are still grown, as in the neighbourhood of Barking in Essex, for instance.

Bradley, who wrote of the Onion in the reign of George I., declares that it was considered to be the most important vegetable for kitchen use, although consumed in less quantities than others. He might have backed his assertion by a reference to the witty and erratic Dean of Dublin, who has said—

"This is every cook's opinion,
No savoury dish without an Onion."

The market gardeners of a century ago or longer had a plan of growing Onions and Leeks together. The former were pulled during July

and August, and the space left allowed the latter to attain to a greater size. Another method they had was to plant broad rows of Onions and Leeks 5 or 6 feet wide; the "alley," or space between, was about 18 inches across. Cucumbers were planted out in these spaces, and allowed to spread amongst the Leeks as the Onions were taken up. A notion prevailed in some quarters that it was always desirable to sow Onions during the increase of the moon. "Let the condition be precisely the same," writes Sir Francis Bacon, "as to soil and moisture, yet the difference in growth, when they are planted before the full moon and after it, would astonish anyone unaware of the reason." A similar idea appears to have held possession of many gardeners with respect to various seeds and roots; and as we cannot think there could be any foundation in fact for such a theory, we must attribute it to a superstition powerful enough to persuade men contrary to their own senses.

It has been stated that upwards of a thousand persons are employed through a considerable portion of the year in selling Onions about the metropolis, and they are certainly consumed more by the poor than by the middling class. From its containing sulphur the Onion may serve to check the spread of some diseases.—J. R. S. C.

FALKIRK HORTICULTURAL SOCIETY'S SHOW.

THE fifty-second annual Exhibition of the above Society was held in the Town Hall, Falkirk, on Friday and Saturday last under very favourable auspices as regards weather. The Show itself was one of the best held of late years, the large Hall being well filled with exhibits mostly of a superior character, while not a few were of very special merit. In the class for four foliage plants Mr. T. Boyd, Callendar House Gardens, was first with healthy well-grown specimens, conspicuous among which was a very fine plant of *Yucca aloifolia variegata*. In the class for two stove plants Mr. James McMurrich, Westbank, Falkirk, was placed second with a good *Eucharis* well bloomed and a magnificent *Pancreatum*. Mr. Boyd was first with a well-bloomed *Clerodendron Balfourianum* and a handsome *Begonia metallica* in capital form; but many were of opinion that the Judges might have placed Mr. McMurrich first without their judgment being called in question. For two greenhouse plants there was only one entry, but seldom have we seen a better plant of *Statice profusa*, while the other—an *Oleander*—was a fine healthy plant of large size. Two pictures handsomely framed were offered for this, and were worthily awarded to Mr. Wm. Murray, Parkhall, Polmont. Roses were fairly well shown; but cut flowers generally, with the exception of *Pelargonium* trusses and bouquets, were rather poor. Mr. McMurrich took the lead with all of these. Two very nice plans, very neatly filled, of model flower gardens gained first and second prize to Mr. Peter Newton, Callendar House, and Mr. W. Sorley, Powfoulis, Grange-mouth, though the Judges had some difficulty in awarding the prizes, the two being very nearly equal.

Vegetables we have seen better at Falkirk, but Mr. Boyd's first-prize collection was up to par. Vegetables were very creditably shown by the cottagers; indeed, those in the classes for Leeks, Shallots, Onions, Parsley, Cabbages, Beet were decidedly superior to those in the gardeners' division. Mr. Boyd took first for Tomatoes with six very handsome Hathaway's Excelsior weighing 3 lbs., one weighing 15 ozs.

In the fruit classes Mr. Boyd showed splendidly. His collection of eight kinds would have been difficult to surpass anywhere. The two bunches of Black Alicante Grapes were perfect models in every respect, while his Royal George Peaches and Elruge Nectarines were of good size and splendidly coloured. The same may be said of the dishes of Brown Turkey Figs and Black Heart Cherries, both of which were in the best condition possible. In the collection and also in the single competition he showed Best of All Melon in a style that gained universal admiration, and also a fine Queen Pine. The hardy fruit was very backward, everything shown being very green. It is not possible for us to name a tithe of even what is worthy of notice in a provincial show, but among amateurs Messrs. Watson and Chisholm deserve mention for the fine Fuchsias they showed, and the collection of Potatoes, six varieties, six of each, with which Mr. McMurrich gained first prize. We understand that the Society's funds are in a flourishing condition, and that the drawings at the Show in question were fully up to the average of recent years. In closing this notice we ought to mention the excellent way the Show was managed by the Secretary, Mr. Haing of Glebe Street.

PIT FOR MELONS.

I AM much obliged to you for your advice through your correspondence columns. Your further assistance will be of great service to me. I suggested that slabs be placed a few inches above the flue so as to form a chamber; but do not slabs retain too much heat for the earth to rest on? An idea of mine is that earth should be heated downwards, not upwards. I have had Melons on slabs, the slabs about 3 feet from the ground, the space below being filled with horse dung; it heated the stones, but the earth next them was dust-dry which I could not moisten, the consequence was that generally the Melons failed before the crop was ripe. The conclusion that I have come to now is to have a lean-to house erected instead of a pit, and to have it as high as will allow me to train the Melons to a fixed roof. The height of the front wall, as I formerly proposed, is 4 feet, and I wish to have a doorway at the end 3 feet wide. Queries.—Should there be any glass in front? What height should the back wall be? What width should the bed be to grow the Melons in? How will it be ventilated? I intend to make it 20 feet long. I want to utilise it for boxes of cuttings in winter and spring.—J. T. S., *Thurso*.

[However good the idea is, as suggested by Nature, of heating the earth downwards, it cannot be successfully carried out in affording

bottom heat for Melons that are required to ripen early in the season. For cutting in August and September we have for years grown Melons without the aid of either flues or hot water for affording bottom heat. A start is given to the plants by a few barrowfuls of leaves and manure, and the heat of the pit does the rest. We should not think, however, of covering the manure with slabs. We placed the soil on it, and had the roots become too dry, causing the plants to fail before the crop was ripe, the fault would have been ours, either by not having prepared the fermenting material properly or by watering inefficiently afterwards. Thin slabs do not materially obstruct the heat, but a flue may be surrounded with rubble if preferred, placing on this fermenting material, then soil with no slabs intervening. By this plan, if the Melons fail through drought at the roots it will be the fault of the cultivator and not of the system. A correspondent described on page 168 last week how the base of a bed might be kept moist if it cannot be done by other means. And now to the queries. Mr. Luckhurst appears to have answered them in anticipation, and has at the same time given a choice of three structures in one figure.

Fig. 34 shows sections of three houses: A, a snug little lean-to—propagating, Melon, or Cucumber house. B, a semi-span possessing all the advantages of A with the important additional one of a stage for stove plants and Orchids; or it could be turned to account for a variety of useful purposes, especially the early forcing of Roses, flowering shrubs, such as Deutzias, Weigelas, Lilacs, as well as Lily of the Valley and bulbs, or for wintering bedding plants. This house would also answer

vourite, Charming, and Elegant, were from 10 to 12 feet in height, and well furnished throughout. H. Pocock, gardener to G. P. Haden, Esq., was placed third, and an extra prize was awarded to Mr. J. Matthews, gardener to W. R. Brown, Esq., both exhibiting several fine specimens. Mr. Pocock was first with four Fuchsias, having fine specimens of varieties included in the sixes. Mr. Lye was a good second, and Mr. J. Matthews a close third. Fuchsias were also well shown by amateurs and cottagers.

All the classes for stove and greenhouse flowering and fine-foliaged plants and Ferns were filled, and many noteworthy specimens were included in the long array of plants. Mr. J. F. Mould, Exotic Nursery, Pewsey, had the best nine flowering plants, these being *Ixora Regina*, *I. Colei*, *I. Williamsi*, *Erica Austini*, *E. cerinthoides coronata*, *E. Iveryana*, *Allamanda nobilis*, *Dipladenia Brearleyana*, and *Clorodendron Balfourianum*, all well flowered and fairly fresh. Mr. J. Matthews was a creditable second, his group including *Erica Marnockiana*, *Allamanda nobilis*, *Dipladenia amabilis* and *Ixora aurantiaca* in good condition. The third prize was awarded to a good collection staged by Mr. H. Pocock. Mr. Tucker was placed first with six flowering plants, the best of these being *Lapageria rosca*, *Ixora Williamsi*, and *Bougainvillea glabra*. Mr. Matthews was a creditable second. The best three plants, consisting of well-flowered specimens of *Stephanotis floribunda*, *Dipladenia Brearleyana*, and *Bougainvillea glabra*, were staged by Mr. H. Pocock, the remaining prizes going to J. Matthews and G. Tucker.

The first group of fine-foliaged plants staged by Mr. Mould included good examples of *Cycas revoluta*, *Croton Andreanus*, *C. Victoriae*, and *C. Warreni*, the second and third prizes going respectively to Mr. J. C. Drummond, Bath, and Mr. A. Shadwell, gardener to T. Chandler, Esq., Devizes, both exhibiting creditably. The latter was first with a single specimen, showing a handsome

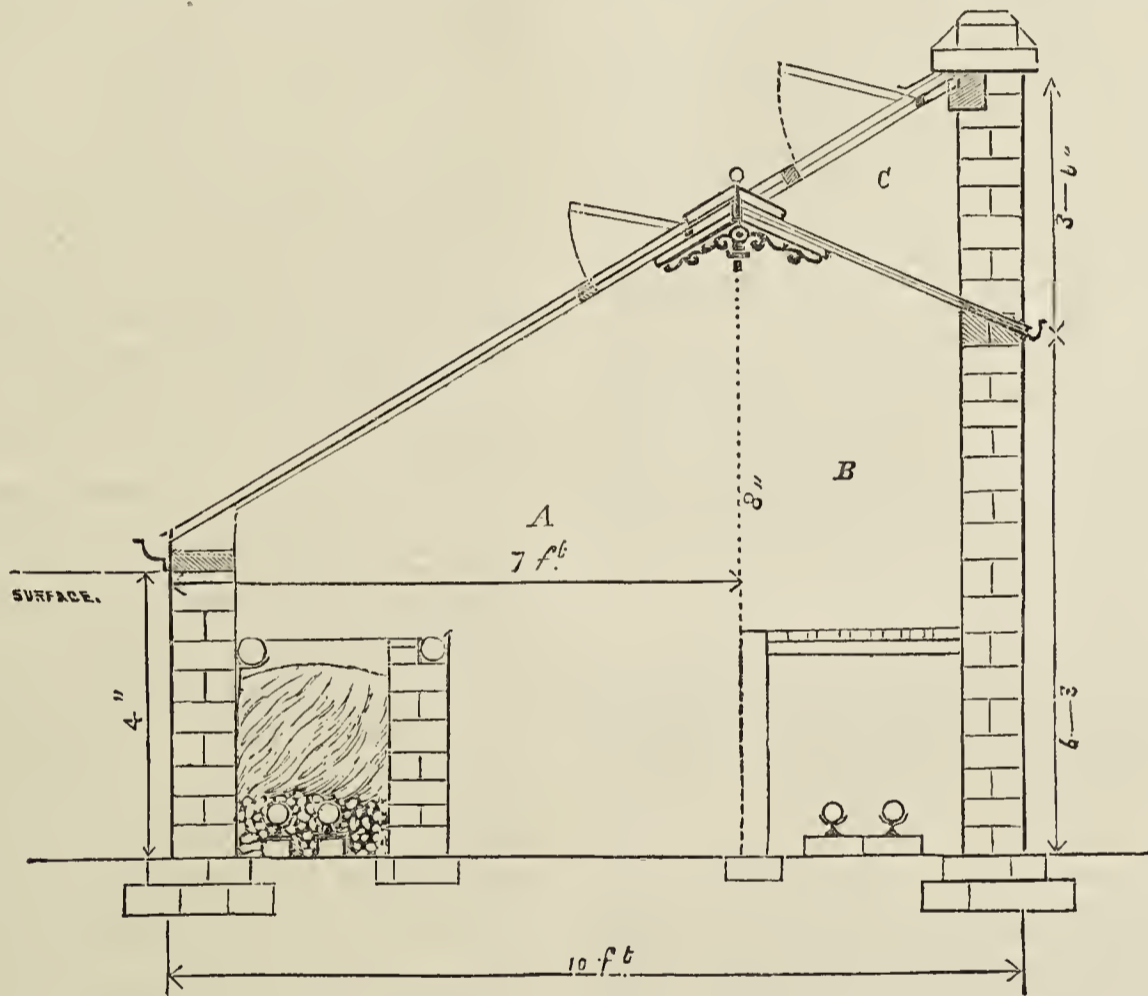


Fig. 34.—COMBINED SECTION OF PROPAGATING PIT, MELON HOUSE, AND VINERY.

admirably for Vines in pots and Kidney Beans. C shows a section of a loftier elevation—a lean-to, forming the most simple style of vinery as well as the most efficient. Sweep away all internal fittings—the stage, the inner wall, the soil and rubble; put plenty of pipes near the floor, not on it, but just elevated a few inches upon pipe stands, so as to turn all the heat to account and let none of it be wasted by absorption into walls and floors, as is too often the case; pierce the front wall and plant Vines in the soil, and we do not see what more a skilful Vine-grower would require, or what advantage a more elaborate state of things would confer upon a non-skilful one.]

TROWBRIDGE SHOW.

AUGUST 22ND.

FLOWER shows have been annually held in Trowbridge for thirty-four years, and to all appearance the great interest taken in them by the general public is still unabated. Many thousands of people visited that last held, and a more generally successful exhibition could not well be arranged.

Fuchsias are always a great feature, not only here, but at other Wiltshire exhibitions, and this season they appear to be better than ever. The veteran Fuchsia grower, Mr. J. Lye, gardener to the Hon. Mrs. Hay, was awarded the first prize for six specimens, but Mr. G. Tucker, gardener to Major Clarke, had still finer plants, although scarcely forward enough. Mr. Lye's immense pyramids consisted of Bountiful, Lye's Favourite, Hon. Mrs. Hay, Mr. Bright, Emily Lye, and Doel's Favourite. Many of Mr. Tucker's finely grown pyramids, and which consisted of Arabella, Bountiful, Doel's Fa-

plant of *Croton majesticus*, Mr. Mould following with a large *Allamanda*. Mr. Mould was first with *Ericas*; Messrs. J. Matthews, J. Lye, and W. C. Drummond being the other prizewinners. *Caladiums* were successfully shown by Messrs. J. Matthews, and G. Pymm, gardener to Mr. J. Gouldsmith; *Gloxinias* by Messrs. H. C. Mayall, Bath, and A. A. Walters, Bath; *Begonias* by the same exhibitors and Mr. J. L. Graham; *Pelargoniums* by Messrs. J. Lye and A. S. Hall, Bath; *Coleuses* by Messrs. J. Matthews and G. Pymm; *Petunias* by Messrs. A. T. Hall and W. C. Drummond; and *Cockscombs* by Mr. G. Tucker and Mr. J. Jane, Chippenham, the specimens in every instance being very creditable.

Ferns are quite a speciality at Trowbridge, and several fine groups are arranged by local growers. Mr. G. Tucker took the lead with, among other noteworthy specimens of *Gymnogramma peruviana cristata*, *G. sulphurea*, *Adiantum gracillimum*, *A. farleyense*, and *A. concinnum latum*. Mr. H. Pocock took second honours, and Mr. Jas. Coke, gardener to Mr. A. P. Stancombe, and Mr. W. Plyfield, gardener to J. Kemp, Esq., were awarded equal thirds.

Cut Roses were wonderfully fine for this time of year, and although Messrs. Keynes & Co. succeeded in defeating Messrs. G. Cooling & Son, Bath, the stands were nearly equal in merit, those shown by the latter being the freshest in the afternoon. Among Messrs. Keynes' twelve triplets the most noteworthy blooms were of Reynolds Hole, C. Lefebvre, Helen Paul, Xavier Olibo, A. Colomb, and Capitaine Christy. Among Messrs. Cooling's were beautiful blooms of Madame Victor Verrier, Madame Swartz, May Quennell, C. Lefebvre, and Maurice Bernardin. Messrs. Cross & Steer, Salisbury, were a creditable third. The best blooms in Messrs. Keynes and Co.'s premier stand of twenty-four singles were of A. Colomb, Marie Baumann, J. S. Mill, Beauty of Waltham, John Hopper, Rosieriste Jacobs, Marie Van

Houtte, Etienne Levct, and C. Lefebvre. Several of these were in Messrs. Cooling's stand, and also Madame Victor Verdier, E. Y. Teas, Madame Hunnibell, Bouquet d'Or, and François Michelin. Mr. M. A. Durban, Bath, took the third prize. The amateurs also showed Roses in grand condition, Miss Watson Taylor being especially successful. Among Miss Taylor's fine stand of eight triplets the best blooms were of Jean Ducher, Marie Baumann, A. Colomb, Horace Vernet, and Mrs. Jowitt. Mr. J. Campbell, gardener to S. P. Budd, Esq., Bath, and Mr. J. Davis, Wilton, took the remaining prizes for very creditable exhibits. Miss Taylor was also first for twelve singles, these including Belle Lyonnaise, Sultan of Zanzibar, Marie Rady, Souvenir d'Elise Vardon, and Catherine Mermet. Mr. Budd and Mr. T. Hobbs were placed equal seconds, both following the premier stand very closely. Dahlias were also particularly well shown by Messrs. Keynes & Co.; and Messrs. G. Humpbries, Chippenham, J. Wheeler, Warminster, A. A. Walters, Bath, were all successful exhibitors, while Messrs. G. Cooling & Son had a great variety, including singles and new semi-doubles, but not for competition. Mr. S. Bishop, gardener to G. S. Jones, Esq., Mr. S. Frances, Weston, and Mr. C. Bailey, Bath, had the best boxes of twenty varieties of choice cut flowers, and took the awards in the order named. Mr. H. S. James, gardener to Mr. A. Taverton, Farleigh, was the most successful exhibitor of vases, wreaths, and bouquets; and Messrs. Cross & Steer, Salisbury, was also a winner of prizes in the same line. Mr. M. Hookings displayed great taste with bouquets, wreaths, and vases filled with hardy flowers, and several others exhibited creditably.

There was rather less fruit than usual, and that may have influenced Mr. King, gardener at Devizes Castle, when he staged such enormous dishes of fruit in competition for the prizes offered for a collection. At any rate he made a very effective display, and the fruit, too, was of first-class quality. The collection included six fine bunches of Black Hamburg and a similar number of Muscat of Alexandria Grapes, large heaps of Pine Apple and Prince of Wales Nectarines, Exquisite and Barrington Peaches, Jefferson and Green Gage Plums, and Eastnor Castle Melon. Mr. A. Miller, gardener to W. H. Long, Esq., M.P., Rood Ashton, took the second prize, his collection including good Lady Downe's and Foster's Seedling Grapes, Belle Beauce and Barrington Peaches, and Best of All and Premier Melons. Mr. King was first with Black Hamburg Grapes; Mr. W. J. Coles, Devizes, second; and Mr. A. Miller third. The best Muscats of Alexandria were staged by Mr. W. Shelton, gardener to W. K. Waite, Esq., Mr. A. Shadwell being second, and Mr. A. Miller third. Mr. J. Jordan took the lead with Any other white variety, staging fairly good Buckland Sweetwater, Messrs. Miller and W. J. Loosemore taking the remaining prizes. Mr. J. Jordan was awarded a first prize for Black Alicante Grapes. Melons were well shown by Mr. W. J. Weston, gardener to the Rev. C. C. Layard, Combe Hay, Mr. T. King, and Mr. A. Miller; Plums by Messrs. G. Kitchen and W. J. Morris; Peaches by Messrs. J. Palmer, gardener to Miss Jarrett, and G. Pymm; Nectarines by Messrs. J. Palmer and T. King; Apples (dessert) by Messrs. A. T. Hall and G. Pymm; Apples (culinary) by Messrs. F. Smith, Salisbury, and W. J. Smith, Bath; and Pears by Messrs. Hall, Bath. Large quantities of vegetables of all kinds were shown, including single dishes. The collection which best pleased the Judges was staged by Mr. M. Burnfield, Bath, Mr. A. Miller being placed second for decidedly the best lot.

JUNIPERUS SABINA.

DWARF-GROWING Conifers are not numerous, and particularly those of low spreading habit, hence the value of the Savin for clothing rocky slopes, in which the larger members of the family could not make headway. It does not do well in all soils; indeed, I have not seen it thrive in soils other than gravelly, doing remarkably well in the gravel soil of the oolitic formation. As I am interested (and who is not?) in the growth of plants, I desire to ask for particulars of specimens of this useful Conifer, with a view to arriving at a record of the largest in the British Isles. I may state that we have an isolated specimen here (Paxton Park, St. Neot's) 6 feet 6 inches high in the centre, 18 feet across, and 54 feet in circumference. It forms a beautiful symmetrical bush, and is very healthy, of a deep green colour. Judging from the growth made this season it will evidently attain to very much larger dimensions.—G. ABBEY.

THE LEAVES OF PLANTS.

MR. G. THOMPSON asks for "full particulars of the leaves of plants and their functions." This subject is too large and important to be discussed, and the question too comprehensive to be answered in the ordinary form through our correspondence columns; in fact, we cannot answer it fully here, but the following article by a very able writer may perhaps be worth attentive perusal:—

The leaves are highly vascular organs, in which are performed some of the most important functions of a plant. They are very general, but not absolutely necessary organs, since the branches sometimes perform their offices; such plants, however, as naturally possess them are destroyed or greatly injured by being deprived of them. The duration of a leaf is, in general, but for a year, though in some plants they survive for twice or thrice that period. These organs are generally of a green colour. Light seems to have a powerful influence in causing this, since, if kept in the dark, they become of a pale yellow, or even white hue, unless uncombined hydrogen is present, in which case they retain their verdure though light be absent, hence their blanching would seem to arise from their being unable to obtain this gas, under ordinary circumstances, except when light is present. Now, the only source from which they can obtain hydrogen is by decomposing water; and how light assists in the decomposition may perhaps be explained by the disoxygenising power with which it is gifted. The violet rays of the spectrum have this power in the greatest degree; and Sennebie

has ascertained by experiment that those rays have the greatest influence in producing the green colour of plants.

Sennebie has observed that, when plants are made to vegetate in the dark, their blanching is much diminished by mixing a little hydrogen gas with the air that surrounds them. Ingenhousz had already remarked that when a little hydrogen gas is added to the air in which plants vegetate, even in the light, it renders their verdure deeper; and he seems to think, also, that he has proved by experiments that plants absorb hydrogen gas when so circumstanced. M. Humboldt has observed that the *Poa annua* and *compressa*, *Plantago lanceolata*, *Trifolium arvense*, *Cheiranthus cheiri*, *Lichen verticillatus*, and several other plants which grow in the galleries of mines, retain their green colour even in the dark, and that in these cases the air around them contains a quantity of hydrogen gas. This philosopher concludes, from his observations, that the white colour of blanched plants is occasioned by their retaining an unusual proportion of oxygen, and that this is prevented by surrounding them with hydrogen gas. This may, perhaps, be true in certain cases; but the experiments of Mr. Gough are sufficient to prove that the retention of oxygen is not the only difference between green and blanched plants.

The green colouring matter of plants has been shown by Rouelle to be of a resinous nature. From this, and from the circumstance of its being formed only in the light, Berthollet has inferred that the leaves of plants have the property of decomposing water as well as carbonic acid when exposed to the light of the sun. The oxygen emitted, according to him, is derived partly from the decomposed carbonic acid and partly from the water, while the carbon and hydrogen enter into the composition of the inflammable parts of the plant. This ingenious theory, though sufficiently probable, is not susceptible of direct proof. From the experiments of Saussure we learn that when plants are made to vegetate in pure water, in atmospheres destitute of carbonic acid gas, the quantity of their fixed matter does not increase; but when their atmospheres contain this acid gas the increase of weight which they receive is considerably greater than can be accounted for by the carbon and oxygen derived from the carbonic acid absorbed, hence it is clear that a portion of the water must enter into their composition. It is more likely that the elements of this portion arrange themselves in a different way than that they still continue in a state of water. These facts certainly strengthen the hypothesis of Berthollet; indeed, if we consider the great quantity of hydrogen contained in plants, it is difficult to conceive how they should obtain it, provided the water which they absorb does not contribute to furnish it.—(*Thomson's Vegetable Chemistry*.)

When the leaves are of any other hue than green they are said to be coloured. This variegation is often considered to be a symptom either of tenderness or debility; and it is certain, when the leaves of a plant become generally white, that that individual is seldom long-lived. Mr. Knight, however, has demonstrated that variegation is not a certain indication of a deficiency of hardihood.

All organs exhibiting or assuming a green colour are found to be capable of decomposing the carbonic acid of the sap or of the air when exposed to the action of solar light. In this operation the oxygen of the acid is exhaled into the atmosphere, and its carbon fixed in the vegetable tissue, whence it seems to follow that the green colour of the leaves is owing to the fixation of carbon, for where the decomposition of carbonic acid is not going on the organ remains colourless. The brightness of the green seems to depend upon the degree of light to which the organ is exposed, and yet solar light is not indispensable. De Candolle gave the green colour to some plants of *Lepidium sativum* merely by the light of a few Argand lamps, but they did not give out oxygen when placed in water.

Still the deposition of carbon caused by the action of solar light does not affect the membranous tissue, still this tissue retains its original colour and transparency, so that it is only the chromule which assumes the green colour. But how does carbon, which is black, yield a colour which is green? Sennebie solved the problem as follows:—Carbon is, in strict propriety of speech, not a black, but a very deep blue; and vegetable tissue is not absolutely a pure white, but rather a pale yellow, hence the green is formed by a mixture of a yellow and blue. This explication, *quoique un peu meccanique*, De Candolle regards as likely to be the true one, yet we cannot help entertaining some doubts with regard to its validity. Surely the membranous tissue of many plants assuming a green colour has nothing in it of a yellow; but wherever we turn to look for an explication there is doubt, and the solution of the problem may be said to be a chemical puzzle. One attributes it to the presence of an oxide of iron, another to the predominance of an alkali, and neither solution is satisfactory. Yet plants placed in the dark do not lose their green colour if the atmosphere in which they grow contains a certain quantity of hydrogen or of azote. Humboldt found the leaves of *Poa annua* and *Plantago lanceolata* still green though growing in the galleries of the mines of Freyberg. It should be recollected, however, that they must have been occasionally exposed to the light of the miners' lamps. Leaves, bracts, calyces, ovaries, are the organs that are most generally green, though you may find exceptions to the rule, both in organs which it includes and in organs which it excludes. The bracts of *Bartsia coccinea* are scarlet, and the embryo of the Mistletoe is green.—(*Keith's Lexicon*.)

The functions of the leaves appear to be a combination of those of the lungs and stomach of animals; they not only modify the food brought to them from the roots, so as to fit it for increasing the size of the parent plant, but they also absorb nourishment from the atmosphere.

The sap, after elaboration in these organs, differs in every plant, though, as far as experiments have been tried, it appears to be nearly the same in all vegetables when it first arrives to them. The power of a leaf to generate sap is in proportion to its area of surface, exposure to the light, and congenial situation.

Leaves throw off a very considerable quantity of water. Dr. Hales found that a Cabbage emitted daily nearly half its weight of moisture; a Sunflower, 3 feet high, perspired 1 lb. 14 ozs.; and Spearmint exhales $1\frac{1}{4}$ times its weight in the same period. But of all the plants, the diurnal perspiration of which has been ascertained, the Cornelian Cherry (*Cornus mascula*) transpires the most, the exhalation amounting to nearly twice the weight of the plant in twenty-four hours. This aqueous expiration takes place chiefly during the day, is much promoted by heat, and checked by rain or a reduction of temperature. On the free performance of this function of plants their health is dependent in a very high degree, and we believe that half the epidemics to which they are subject arise from its derangement.

Evergreens transpire less moisture than deciduous plants, which would lead to the expectation that they are more capable of living in dry situations, which in general is really the case.

The matter transpired by a healthy plant is nearly pure water, 5000 grains of it never containing more than one grain of solid matter, and this is constituted of resinous and gummy matter, with carbonate and sulphate of lime. It appears to be nearly the same in all plants. The quantity, however, varies in every species, probably in every individual—and is greatly influenced by the quantity of water applied to the roots. Under precisely similar circumstances Senneber obtained the following results:—

	Gr.	Gr.
A Peach branch, imbibing	100	35
" "	210	90
" "	220	120
" "	710	295

We have found the branch of a Pelargonium, that, whilst growing on the parent stem, exhaled only twenty grains in twenty-four hours, more than trebled that quantity in the same time when cut from the stem and placed with the divided end in water. This increased transpiration is attended by a proportionate reduction of temperature; for a collection of Pelargoniums, in the midst of which Fahrenheit's thermometer stood at 55° fell to 48° within two hours after a plentiful watering to their roots only, though the water was of the same temperature as the greenhouse.

For the purpose of ascertaining the composition of the liquid transpired by plants, M. Senneber collected 13,030 grains of it from a Vine during the months of May and June. When evaporated 2 grains of residuum were left, composed of nearly $\frac{1}{2}$ grain of carbonate of lime (chalk), $1\frac{1}{2}$ th grain of sulphate of lime (gypsum), $\frac{1}{2}$ grain of matter apparently gum, and $\frac{1}{2}$ grain apparently resinous. He analysed 60,768 grains of a similar liquid collected from the Vine during July and August. The residuum after evaporation weighed $2\frac{1}{8}$ grains, composed of $\frac{3}{4}$ grain of carbonate of lime, $\frac{1}{4}$ grain of sulphate of lime, $\frac{1}{2}$ grain of gum, and $\frac{1}{2}$ grain of resin. The liquid transpired by *Aster Novæ-Angliæ* afforded precisely the same ingredients.—(*Encyc. Meth. Phys. Veget.*, 287.)

As the season of growth advances the transpiring power of leaves decreases. Under similar circumstances Senneber found the transpiration much greater in May than in September.

The transpiration of plants decreases with that of the temperature to which they are exposed as well as with the period of their growth. This explains why the gardener finds that his plants do not require so much water in cold weather, nor during the time that elapses between the fall of their blossom and the ripening of their seed. During this period they do not transpire more than one-half so much as during the period preceding and attending upon their blooming.

The transpiration takes place from the upper surfaces of the leaves, and if these surfaces are coated with varnish the leaves gradually decay and fall, and the growth of the plant ceases until fresh leaves are produced; hence arises the benefit which plants derive in rooms, greenhouses, and other confined enclosures from keeping those surfaces cleansed with the sponge and syringe. The advantage derived by plants from having their leaves cleansed was exemplified by the following experiment:—

Two Orange trees, weighing respectively 18 ozs. and 20 ozs., were allowed to vegetate without their leaves being cleansed for a whole twelvemonth; and two others, weighing 19 ozs. and $20\frac{1}{2}$ ozs. each, had their leaves sponged with tepid water once a week. The two first increased in weight less than half an ounce each, whilst of the two latter one had increased 2 and the other nearly 3 ozs. In all other respects they had been treated similarly.

It must be remembered, however, in using the sponge and the syringe that the under side of the leaves is an absorbing surface, benefited by being kept clean and by the application of moisture. The Kidney Bean, Sunflower, Cabbage, and Spinach absorb moisture equally by their under and upper surfaces; the Cockscomb, purple-leaved Amaranth, Heliotrope, Lilac, and Balm absorb most freely by their upper surfaces; and the Vine, Pear, Cherry, Apricot, Walnut, Mulberry, and Rose absorb most by their under surfaces.—J.

MADRAS AND ITS VEGETATION.

THE gentleman who was deputed from India to report on the forests of Ceylon thus gives his impressions of Madras in the *Indian Forester*:—
There can be no doubt that Madras is in process of becoming one of the handsomest towns in India. Were it not for its great area and want

of local municipal funds it would long ago have been undoubtedly one of the finest as it is one of the healthiest of them. A great feature in Madras is the number of large buildings, mostly public, built in the oriental style of architecture. Most prominent of all these is the Chempauk Palace, an old palace of the Nawabs of the Carnatic, largely added to and now used by the Board of Revenue. Here I found the Forest office, with a fine verandah looking out to sea over a pretty grass lawn adorned with fountains and young Poon trees. Near it is the grand new University Senate house, which seems to the uninitiated to be a mixture of Gothic and Saracenic architecture. Behind these and other neighbouring large buildings are the grounds of Government House, in process of transformation into a botanic garden, and a very pretty garden it will be when completed, for besides the sea frontage and the broad mouth of the Coom river, there are large tanks and the Buckingham Canal, pretty bridges and groups of trees of various kinds. The summer avenue trees of Madras are the Nim, the Casuarina, and the Odina Wodier, the latter most remarkable, as Dr. Brandis has pointed out, for retaining its leaves the whole year round, while only a few miles into the country it may be found in its usual cold-weather leafless state. Hedges, principally of *Inga dulcis*, surround the large compounds of the houses, while in places groves of Cocoa-nut Palms remind us of the first impressions of India we gained on landing in Ceylon. A special feature in Madras, and most of all in the more aristocratic quarters of Nangumbaukum, Chetputu, Egmore, and Adyar, is the immense size of the house compounds. Some of them would make a not inconsiderable park for an English squire, and the houses are generally large, airy, and comfortable. The gardens seem to keep themselves. Ferns, and especially *Adianta*, thrive most luxuriantly in the shade, while the magnificent growth of *Crotons*, which in Calcutta one is chiefly accustomed to see carefully tended in small pots, is in Madras a most striking feature, and makes gay the lawns and shrubberies with every shade of red and yellow and orange and purple. Here they are not small plants in small pots, but, either in the ground direct or in huge pots, they show tall masses of column often 10 to 15 feet high and proportionately broad. The great number of Nim trees is very noticeable, while the yellow pods of *Albizia Lebbek* keep up their ceaseless rattle at every puff of sea breeze which shakes the roadside trees. The public gardens, besides the new one which is being made near Government House, are the Peoples' Park and the Agri-Horticultural. The former, near the handsome Madras Railway station, is not very well kept, and possesses very few trees of any size, but the latter has, though of small area, a particularly fine collection of trees and interesting plants. The curious *Kigelia pinnata* with spreading branches and huge Pumpkin-like fruits hanging at the end of long strings from the branches attracts attention at once, and there is a Baobab which gives a very good idea of what a strange object it must be in a Central African landscape. The Mahogany seems to thrive, and so do numerous species of *Diospyros*, while among the specimens of Palms are some which I do not remember even to have seen in the Palm house or the palmetum at Calcutta. A rather longer excursion may be made to Guindy Park, which lies away to the west behind the model farm of Sydapet. Guindy Park is the hot-weather residence of the Governor, and the shrubberies present specimens trees of almost everything curious that can be thought of. But to the forester there is nothing so interesting as the Casuarina, and indeed I expect that the Madras Presidency can in its coast plantations of Casuarina rival the work done on the dunes of Gascony with the Maritime Pine.



KITCHEN GARDEN.

Globe Artichokes.—Under ordinary cultivation the heads are mostly too old for use now, and some of them that were not required may have been left on the plants. These are no good for any purpose, but rather injurious, and should all be cut off at once. Most of the stems, too, may be cut away close to the soil, and all decayed leaves removed at the same time. When this has been done if the soil is very dry the plants should receive a thorough watering, afterwards mulching with some short manure, and then fine healthy crowns will be matured for fruiting next year.

Herbs.—A good quantity of the most useful of these should be cut and dried before the season advances further. Mint, Sage, and Thyme are amongst the principal, and may be cut to within 3 inches or so from the base. The best place to dry the tops is an open shed. Sometimes they are spread out on the tables and floors, but we often tie them up in loose bundles and hang them up to dry. The main thing is to dry them so as to retain their colour, and this may be done if they are not frizzled in the sun. About this time every season we are in the habit of sending a quantity of herbs to the cook to be dried for the winter, and for some purposes her plan of drying is the best. They are spread out in front of a large fire, and after being there for an hour or two they become so dry as to be easily powdered. In this state they are placed in bottles and firmly corked. There they are kept quite dry, and they retain their flavour for a great length of time. Parsley and Celery leaves

may also be similarly dried, and it is an excellent way to preserve them for winter use.

Winter Spinach.—Continue to make successional sowings of this useful winter vegetable, and as the plants from the previous sowings become large enough to handle, thin them out to 6 inches apart. When not thinned out it comes in a great mass, but it is only by timely thinning that those large succulent leaves so much valued by cooks can be secured.

Early Carrots.—The surplus Horn Carrots which were left in the border after the others were drawn in spring are now full grown, and should be taken up and stored for future use. Lately we have lifted a large quantity. The tops should be cut off, and the roots will keep well for a long time in any cool shed.

Salad Plants.—Lettuce and Endive sown a few weeks ago are now ready for transplanting. This should be done when the ground is moist and the atmosphere humid, as they grow freely then, receiving little or no check. Through lifting Potatoes, taking up Carrots, and clearing away old Cauliflower plants there is plenty of empty quarters for winter salads.

Seed-saving.—Birds are very fond of emptying Pea pods, and as a rule it is not safe to allow any of them to remain hanging after they are ripe. We gather our seed pods every other day, and spread them on a table in an airy shed, dampness or a large heap of pods together being very unfavourable to proper harvesting.

Celery.—Much of this is now ready for earthing, and we would remind cultivators to give it timely attention, as such an important winter crop as this should be regarded as one of the very foremost to be dealt with at this season. Earthing instructions given some time ago apply to the present time and onwards.

Hoeing and Cleaning.—The summer has been one of the most favourable we can remember for the growth of weeds, and some little time ago when it was raining daily they had a fine time of it; but the weather is now against them, and every effort should be made to destroy them before they seed. If the garden is well cleaned now it will prevent many weeds from appearing next spring, and as none of the winter crops can have too much sun now to mature them, time now spent in cleaning cannot be regarded as being wasted.

FRUIT-FORCING.

VINES.—*Houses of Late Grapes.*—Whether the Grapes are intended for keeping through the winter on the Vines or in the Grape room, the houses will require very liberal ventilation; and as the days decrease in length gradually reduce strong laterals, keeping the foliage in a clean healthy condition by damping paths and walls sufficiently early in the day to admit of the atmosphere becoming dry before night. Assist Grapes which have not much colour by a little fire heat and ventilating early. Allow the temperature in the day to range from 80° to 90° or 95°, falling to 70° at night.

Ripe Muscats.—The Grapes hanging on Vines having their roots in outside borders will keep a considerable time if protected from the heavy rains that may be expected soon. A covering of dry fern or bracken disposed so as to throw off the wet, shutters, or, better than anything, glass lights placed in a slanting direction, answer for throwing off the wet and allow the sun heat to pass into the border. Where the foliage is insufficient for the protection of the tender skins of the berries a light shading on bright days will be found very beneficial, nothing answering better than hexagon netting, and it is equally useful in excluding wasps.

Lifting Vines.—If this be found necessary with early and midseason Vines, lifting and relaying the roots should be preceded with without further delay. See that the drainage is satisfactory, and protect this with large turves grass side downwards. Use fresh turf liberally intermixed with brick and lime rubbish, charcoal, and crushed bones. Let the roots be kept near the surface. Plenty of roots in a comparatively narrow border are preferable to a large mass of soil, as they can be fed when necessary, and the Grapes always set, swell, and colour well. Dry weather should be chosen for making the borders. Cover the border when the operation is finished with good stable litter, keeping the house close and moist until the foliage shows signs that fresh root-action has set in, when the house must be freely ventilated. Vines in most cases should be planted inside and have the run of both internal and external borders, as the roots can then be lifted in either border without in the least injuring the following year's crop.

Vines in Pots for Early Fruiting.—These should at once be removed to a dry airy house, giving only sufficient water to keep the soil moderately moist for the preservation of the roots in a healthy state, and if the pots are covered with dry fern or litter the necessity for its application will be almost nil.

Strawberries in Pots.—The earliest potted plants have made good progress, the crowns beginning to become plump and prominent, so that the fruiting plants can be detected; those that will evidently not be productive should be cleared away at once. The pots should be at such distance as to allow the crown to have full exposure to the sun. The plants should not be allowed to suffer from insufficient supplies of water.

PEACHES AND NECTARINES.—*Early and Midseason Houses.*—These should always have moveable lights, the removal of which exposes the trees to the cleansing and invigorating influences of dew and the late summer and autumnal rains, and the inside borders are thereby evenly and thoroughly moistened, so that there is no danger of the buds falling.

Lifting and Root-pruning Early Trees.—Where the trees in early houses grow too luxuriantly and do not set freely or stone well, they may be lifted with advantage; the time to do this is when the leaves give

indications of falling, or a little before. The best way to operate is to take out a trench around the stem at a distance from it of one-third the extent the trees cover of trellis, and down to the drainage. Then remove the surface soil, and pick the soil carefully from amongst the roots, and without disturbing the small fibres near the collar. The roots should be laid in fresh compost, and nearer the surface, working it in with the hand as firmly as possible; a good watering should then be given, and the surface mulched. This should be practised both on the inside and outside borders. Where root-pruning is only contemplated, baring the roots, removing some of the strongest according to the vigour of the trees, will be left to the discrimination of the operator. A good turfy loam, strong and calcareous, with a free admixture of burnt earth and old mortar rubbish, forms a suitable compost. Where it is intended to plant fresh trees the borders should be prepared without further delay; 24 inches depth of border is ample, of which 9 inches should be drainage, beneath which should be tile drains, having proper fall and outlet. A 6-foot width of border is ample to commence with, planting inside, and keeping the roots there for two or three years, when they may be allowed a similar run of outside border.

Late Houses.—As the trees become cleared of fruit remove the fruit-bearing wood of the current year, in order that the young wood for next year may have the ripening influence of sun and air, and if at all crowded thin the shoots well. Admit abundance of air, and when the wood is thoroughly ripened the roof lights may be removed for a few weeks.

Trees in Pots for Early Forcing.—These should be seen to at once, the drainage rectified if it has become defective by removing it, and replacing with clean crocks and crushed bones, top-dressing, and placing in the open air on a bottom impervious to worms. Place some dry fern or litter around the pots to protect the roots from the drying influences of the atmosphere, watering as needed to keep the soil moist. Alexander, Prince Alfred, Royal George, and Large Early Mignonne are good for fruiting early in pots; and of Nectarines Hunt's Tawny, Lord Napier, and Stanwick Elruge.

PLANT HOUSES.

Azaleas.—Where these plants are kept under glass instead of standing them outside, shading must be discontinued and abundance of ventilation given night and day. In no stage should they be unduly shaded, especially during the completion of their growth, or their wood will remain in an unripened condition, and the plants when required to do so will not flower satisfactorily. When the flower buds are formed early and allowed to develop naturally under the influence of light and air they will expand when required much more readily than when a more careless system of preparation is accorded them. The plants to flower late next season should now be pushed forward as rapidly as possible, and every encouragement given them to complete their growth and form their buds before the days become short and sunless; they can, after the flower buds are once formed, be retarded to suit the convenience of the cultivator. Any of these plants that have their pots full of roots will be much benefited by the application of a little Standen's manure. Azaleas require some stimulating agent even after their growth is completed and their buds formed, and a few applications of liquid manure assist them wonderfully when root-bound to retain their foliage during the autumn and winter months.

Where these plants require tying and training no time should be lost in completing this operation with all the early batches, so that the foliage will have time to turn again the right side before they are wanted for forcing.

Camellias.—Where shading these plants is practised it should now be discontinued, for if employed after this date it will prove detrimental. Ventilate freely day and night. Where the buds have set, apply water liberally and syringe freely; in fact, stimulants should be given more abundantly to these plants during the time their flower buds are swelling than at any other period of growth. Care must be taken that they never suffer by the want of water at their roots, or their flower buds may fall prematurely instead of expanding properly. If the plants are densely crowded with flower buds, disbudding should be resorted to at once before they exhaust the plants. Cleaning or tying should be pushed on rapidly, and if scale or other insects infest the plants syringe them with petroleum and water at the rate of 6 ozs. of the oil to 4 gallons of water. After this operation the plants must be shaded for a few days from bright sun, and then no injury will follow.

Abutilons.—Plants that have become too tall should be cut down without delay, and the tops inserted in the centre of 2 and 3-inch pots. These, if plunged in a close frame with a little heat, will soon form roots and make useful dwarf specimens for decoration during the winter. As soon as they are rooted they should have an intermediate temperature, and by the time they are ready for other pots 2 and 3 inches larger they should be placed under greenhouse treatment until the temperature is likely to fall below 45° at night. Few plants are more beautiful during the winter either in the stove or intermediate house than these when well grown in small pots. This is readily accomplished if good tops are selected and frequently rooted at frequent intervals.

Hybrid Perpetual Roses.—Those used for forcing in pots and plunged outside should be turned out of their pots, and the old soil carefully picked from amongst their roots until the ball is reduced to about half its size. This done, they should be again potted. Place a little moss or the roughest of the compost over the drainage, and then press the new soil moderately firm round their roots. When repotted at this season of the year while the foliage is fresh, they become established in the new soil before autumn, and are ready for early forcing when the time

arrives. After potting, syringe frequently in order to keep their foliage fresh, and water carefully until their roots are growing freely. Use for a compost good fibry loam; if light, add a little clay that has been pounded into dust, a seventh of decayed manure, a 6-inch potful of bone dust, and the same quantity of soot or wood ashes to each barrowful of soil; a little coarse sand may also be employed with advantage.

THE BEE-KEEPER.

STIMULATIVE FEEDING.

MR. JOSEPH COOK, the great Boston lecturer, says that nursing children can be done scientifically. A great deal in the apiary can be done scientifically, and when it is so done it is done with advantage. But much feeding is done unscientifically, without thought or advantage. Many hives in many places require feeding up for the winter at the present time. Hives not taken to the moors have not laid up much stores—they have not winter food enough, and require feeding. How can they be fed with advantage? No point in apiculture is more important than that of having hives—I mean stock hives—well filled with young bees in autumn, for these outlive the winter and see hatches of spring brood come to life and activity. Hives made strong in autumn by additional young bees from honey hives, or by hatches of brood, are strong in winter and spring, and can be depended on for great results. Sound practice or true science in feeding bees aims at the production of brood. Early feeding is resorted to when pollen is abundant. Syrup continuously given when pollen is plentiful stimulates bees to breed, and if some large cakes of brood are produced and hatched in August or September, our bees will be pretty secure against weakness in early spring. As soon as it is evident that some autumn feeding will be necessary it should be commenced, for it is more easy to keep queens laying that have not stopped than it is to make those that have stopped recommence laying. All autumn feeding should be finished not later than September. When breeding is aimed at it should be done as early as possible, and continuously. Feeding for storing purposes merely in autumn should be done as rapidly as possible, for continuous feeding keeps bees in motion and causes them to consume more food. The more rapidly winter food is given to bees the quieter they sit, the less they consume; but while warmth is in the atmosphere and pollen is in the flower, stimulative feeding is most likely to be successful in the production of brood.

True science in full play seeks large hives and strong ones. By increasing the strength of hives in autumn we add to the value of them and the comfort of the population.

Some bee-keepers, or rather one class or school of them, try to improve the condition of their hives by contracting their space during the autumn and winter—that is to say, by shutting off and outside the line of the bees' action so many bars of comb. The hives are thus contracted and made less so many months of the year, autumn and spring at any rate. Whatever end this practice may serve it does not strengthen the population of hives; it does not increase their number of bees in autumn, and that is a point of prime importance. Far better fill a good-sized house with bees than break it up or break it down by contraction for the comfort of a smaller number. I have never been able to see anything scientific in the practice of cutting up and contracting hives in autumn. Advanced apiarians who follow the swarming system of management strengthen their stocks in autumn by adding to them the populations of other hives. In good seasons the honey hives make the others strong, and in poor seasons the bees of the weak hives make the strong ones stronger. By ever adding to the strength of our hives, we thus keep within the lines of safe and successful practice.—A. PETTIGREW.

SADDLER'S TABLET CANDY—FLOUR CANDY.

As I am a sugar-boiler by trade I hope I may be able to make it plain to every bee-keeper how to make this excellent bee-food. To 7 lbs. of sugar—Dutch crushed is the best—add 6 gills cold water and a teaspoonful cream of tartar; put it in a brass or copper pan, and stir it occasionally to melt the sugar; do not stir any after it comes to the boil, but see that the sugar is properly melted. Boil it until when taking a little out with a spoon and putting it among cold water it will form a soft ball between your fingers; set it to cool till it is lukewarm, and get ready as many broth-plates as you will require to hold it;

put a sheet of paper into each plate, grease the paper if you want it to come off. Then take a stick and stir your sugar, work it on the side of the pan until it turns white or "greasy," as confectioners term it, then empty it into your plates and allow it to cool. To make flour candy add half a pound of peas-meal before you commence to stir it. But it will not need to be quite so high boiled if you are to add the flour; do not add the flour before you boil it unless you want it to boil on the fire; and before you take a second boiling be careful to wash all the flour out of your pan. Mr. Hewitt advises the use of salt, but salt will not kill the grain of the sugar so well as cream of tartar, and unless the grain is properly killed bees carry a lot of the large grains of sugar out and it is lost. In using these cakes all you have to do is to lift the quilt and place one on the top of the bars, or with skeps set them on top with a hole cut to let the bees get at it. I sell a large quantity of it to bee-keepers here, and have used little else for the past four years. Last September I took all the honey from a stock covering twenty-eight Woodbury bars, and gave it 27 lbs. of tablet at three times, two cakes 4½ lbs. each time, and in spring it was very strong and only needed 2 lbs. of cake.

I am convinced that if the above tablet is made as I have directed, it is only to be tried to bring it into general use. Putting it on the top of bars in autumn serves two purposes—viz., for food, and as a passage for the bees from one comb to another, and that in the warmest part of the hive.—JAS. SADDLER, 31, East High Street, Forfar.

P.S.—No honey here this year yet, top swarms starving.—(*British Bee Journal*.)

TRADE CATALOGUES RECEIVED.

W. Cutbush & Son, Highgate, London, and Barnet, Herts.—*Catalogue of Bulbs*.

Harrison & Sons, Leicester.—*List of Bulbs*.

Louis de Smet, Ledeburg-lez-Gand, Belgium.—*Supplement to the General Catalogue*.

B. S. Williams, Upper Holloway, London.—*Bulb Catalogue*.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Bulbs (illustrated)*.

W. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Bulbs (illustrated)*.

Joseph Schwartz, Route de Vienne, Lyon, France.—*Catalogue of Roses*.



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

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

Books (*F. F., Euston Road*).—There is no work published on the subject you mention. (*T. D.*)—Our "Garden Manual," price 1s. 6d., post free 1s. 9d., we think answers to your description of being "cheap, comprehensive, concise, and practical." (*Windsor*).—A new edition of the "Fruit Manual" is in preparation, and will be published as soon as possible. (*La France*).—As a "large and complete" work on the subject, "Vines and Vine Culture" by Mr. Barron surpasses all others, and can be had from this office, price 10s., 10s. 6d. post free.

American Blackberries (*Rosarian*).—The Parsley-leaved Bramble that has been mentioned approvingly in the Journal is one of the best we have seen. This is not the time for procuring plants, and those who have them for sale will act wisely by advertising them during the planting season. We never recommend dealers.

"Jeregabseybacki" (*A. H.*).—We do not know a plant bearing the above name, but it resembles some of the native names of the Japanese Maples, of which numbers have been imported of recent years, and one firm sends them out under the native titles.

Leaves for Skeletonising (*Elgie*).—One or two of the specimens you require would not be readily obtained in the manner you suggest. We will first see what we can do in the matter, and you shall hear from us in the course of a week or two.

Parnassia palustris (*W. M. B.*).—This plant is a native of Great Britain and Europe, being found in bogs and damp positions, and is often cultivated in gardens for its simple beauty and its structural interest. There are five stamens, and alternate with them are five nectaries, flattened and fan-like in form, fringed with small filaments having globular heads. Its structure has puzzled botanists, some having assigned it a position in Droseraceæ, others in Violaceæ, and still others in Saxifragaceæ. It is popularly termed Grass of Parnassus, and is fabled to have originated on Mount Parnassus.

Asters (*J. S.*).—The flowers you have sent are very handsome on account of the clear and rich colours. In this respect they are highly satisfactory and a credit to your seedsman. The plant in the pot is admirably grown. The cut blooms are quite up to the average as usually grown in gardens, but they lack the size and fulness requisite for staging successfully at good exhibitions. For producing magnificent blooms Asters should be planted, like Celery, in well-manured trenches, and be similarly treated as regards watering and supporting with liquid manure.

Myrtle Rust and Fungus on Sycamore Leaves (*C., Malvern*).—The Sycamore leaves are affected with a fungus that is very common, and is known as *Rhytisma acerinum*. It invariably forms large black spots on the upper surface of the leaf like ink blots, and these are regularly and numerous distributed on the leaves. The Myrtle rust is also a fungus (*Capnodium Footii*), which often grows on matter excreted by insects, but sometimes on the leaves themselves.

Productive Pea (*C. B.*).—There is such a bewildering variety of Peas that it is utterly impossible for anyone to name a sample such as you have sent. The only means of determining the name of a variety is by examining it in a growing state in comparison with others. We will endeavour to ripen some of the seed and grow the Pea with the object of ascertaining its name next year. It is evidently a very useful variety, and we have not often seen finer examples grown in light soil.

Tacsonia Van-Volxemi (*C. D.*).—Your plant appears to have made good progress, and flowers could not be expected this year under the circumstances. You may take off the points of the shoots if they have extended as far as you desire, and then, the growths being trained thinly—that is, fully exposed to the sun, will mature and probably produce flowering sprays next year. This plant is a rampant grower, and not suitable for a very small greenhouse. It soon covers a roof densely, and when flowering freely a very handsome effect is produced.

Azaleas (*Idem*).—In a light well-ventilated greenhouse the plants mature and set their buds freely. They also ripen and set them in the open air; but in very hot weather, such as prevails at present, a light shade, such as a screen of hexagon netting, is advantageous. It is also of great importance that the pots be shaded, or the sun will burn the hair-like roots. The soil must always be moist, great care being taken that worms do not enter the pots, and the plants should be freely syringed every afternoon when the sun is declining. The night dews will be very refreshing to the plants. When the buds are set they may be felt by pressing the tips of the growths with the finger and thumb.

Dahlia Leaves Eaten (*Lancashire*).—The leaves you have sent denote that your plants are being attacked with earwigs, which often, when not molested, commit great damage amongst Dahlias, occasionally ruining the plants. The insects feed chiefly at night, and lurk in obscure haunts during the day. If you provide them with hiding places you will probably be able to reduce the number considerably. We know of no better plan than placing a little hay or moss in small flower pots, and inverting the pots on the stakes that support the plants, and laying them near the stems. We have caught thousands of earwigs in a day on examining the traps so provided every morning, and if the insects are shaken into boiling water they are killed instantaneously and painlessly. Hollow Bean stakes are also employed for entrapping the pests.

Vines not Thriving (*M. T.*).—We have carefully examined the roots you have sent and find no trace of the phylloxera, nor do we think the stubborn condition of the Vines is the cause of any insects on the roots. The soil does not appear to be of the best character for Vines, at least that adhering to the roots is of a light, soft, and effete nature, and the manure that has been intermixed has excited a little fungoid growth, but not by any means to a serious extent. Recently planted Vines occasionally assume a "rusty" appearance, and growth ceases. It does not appear easy to account for this, and the cause can only be determined by a close examination of all the circumstances that influence the condition of the Vines. We have known Vines thus affected when partially cut down produce fresh and healthy lateral growths, and eventually form good canes.

Slow-combustion Boiler (*A. J. S.*).—Were we to publish your letter you would be more bewildered than instructed by the conflicting replies it would be certain to evoke—that is, if we published the whole of them, and we know from past experience we should be unable to do so. You do not mention the particular apparatus to which you allude. All furnaces consume fuel slowly when the draught is excluded from the fire, and are then slow-combustion furnaces. The manufacturers of all boilers of repute will send lists of testimonials to applicants, who are thus placed in a position to write to the individuals who have had experience with the boilers in question for any particulars that may be required.

Inarching Vines (*A. J.*).—You say the Muscat Vines are not satisfactory and you desire to retain them as stocks on which to graft or inarch other varieties. You can do this in the spring provided the stocks are healthy and make free and good growth. The Muscat, and especially in an inside border, is a good stock; in outside borders in localities where the rainfall is great it is not so reliable. The condition of the Vines must be your sole guide in deciding on grafting or removal. If they are satisfactory in this respect we should retain them as stocks, otherwise we should plant young Vines.

Inside and Outside Vine Borders (*Idem*).—We receive no questions that are more difficult to answer satisfactorily than such as the one before us on this subject. You have neither stated the age of your Vines, the length of the rods and roof, nor the depth and character of the inside border, all of which are important elements in the case; but even with this knowledge our difficulties would not vanish, as so much depends on the skill of the

cultivator. Some persons can grow Grapes admirably with the roots of the Vines wholly inside the house, others fail to do so. Amateurs, as a rule, do not succeed so well as when the roots have access to an outside border. Such persons do not always judge accurately when to apply water and how much to give; in fact, their engagements do not always enable them to attend to the Vines in the right manner and at the right time. When this is the case it is the safest to make provision for the roots outside the house as well as in. If there is soil outside they will generally find their way into it whether it is suitable or not, even if they force their way through the seams of the brickwork, as we have known them do in many instances; with the wall on arches they are sure to pass through, if there is even a gravel walk for them to take possession of. Perhaps some of the roots of your Vines are outside now. If this is so, and the soil is not suitable, you will not err in improving it, as you will have evidence that they are not altogether satisfied with the border inside the house. If you require further information, and will supply us with such data as we have indicated, we will endeavour to aid you.

Datura Stramonium (*J. Smith*).—The plant is occasionally found wild in Britain, having escaped from the gardens, and its habitat is generally among rubbish and on dunghills. It is easily known by its large oval seed-vessels, thickly covered with stout sharp spines. The whole plant has a disagreeable, nauseous, and heavy odour, particularly when bruised, and an acrid bitter taste. It loses much of its odour by drying, but retains its properties. When taken internally in moderate doses it causes numbness, vertigo, dimness of vision, dilation of the pupils, produces a slight delirium, intoxication, and forgetfulness, and these effects pass off in five or six hours; but if the quantity taken be large, then all the symptoms of poisoning are presented, as heartburn, intense thirst, a feeling of strangulation, delirium, madness, convulsive movements, and paralysis; congestion of the brain ensues, symptoms of inflammation are manifested, and death follows in twelve or fifteen hours. M. Orfila states that Stramonium acts with more force on the brain than Belladonna, and produces more furious delirium. Stramonium smoked like tobacco is a popular remedy for the cure of asthma. Its use in this way has been derived from the East Indies, where other species are used for this purpose. It is the root and lower parts of the stem which are so employed, and the smoke excites a sense of heat in the chest, followed by copious expectoration, and sometimes attended with temporary vertigo and drowsiness. The seeds have the same nauseous bitter taste as the leaves, and in them Brandes discovered an alkaline principle, called Daturia, combined with an excess of malic acid. It is in the form of colourless crystals, inodorous, and when first applied to the tongue is bitterish, but afterwards of the taste of tobacco; its action is poisonous.

Woodlice in Mushroom Bed (*W. B. B.*).—Your only safe plan is to entrap the pests. There are various ways of destroying them, the most wholesale plan being to place some pieces of boiled potatoes near to the places they infest and cover with a little hay, and in the morning pour boiling water over the hay, so that the baits must be laid where no injury will accrue to the Mushrooms by the scalding water. Another plan is to wrap a boiled potato in a little hay very lightly, and place in a flower pot laid on its side near to where the woodlice congregate or commit their depredations, and the following morning shake the pests from the hay, in which they will be secreted about the bait, into a bucket of boiling water. Repeat for a time, and the pests will be reduced so as to do very little injury. Parsnips boiled nearly soft, cut into slices, and dressed with arsenic form deadly baits. These, if placed where the insects abound, will reduce their numbers considerably. It is, of course, necessary to so place the poisonous baits that no accident can possibly arise by their misuse.

Second Growths of Fruit Trees (*G. J. E.*).—When trees are pinched early they always, if vigorous, produce second growths, just in the same manner as Vines produce sub-laterals. At once remove the growths by breaking or cutting them off at the first leaf—that is, leaving one leaf at the base of each second growth. They are best removed when a few inches long, as they then snap off with ease, and a good-sized tree can be dressed in a few minutes. When they have attained a considerable length and become hard, as very probably is the case with yours, the knife or pruning shears must be employed in their removal. Where trees are unusually vigorous some good cultivators, instead of cutting off the shoots, give each a violent twist, or partly break them, so that the ends hang down and appropriate a share of the sap, which otherwise would be directed to the base buds, and might induce some of them to start that it is desirable should remain dormant. This is a safe method of procedure, as, so far as we know, it never does harm, but is often decidedly beneficial.

Mushroom Bed not Heating (*P. P.*).—If the manure is of the kind recommended in the treatise, and has been prepared as there described, its non-heating now can only be attributed to its having been made up in too dry a state. This frequently happens during hot weather, such as has been general in most districts. In such a case the remedy is to turn over the bed, well sprinkle the materials, and when fermentation commences make them up again. It is never safe to spawn a bed when the requisite temperature is indicated and the heat is yet rising. The bed should first be allowed to attain its maximum heat, and when this has declined to the proper temperature the spawn should be inserted, and that temperature should be maintained as long as possible by coverings of straw if needed. A strip of border 18 inches wide on the north side of a wall is too narrow for a Mushroom bed, as, except in summer, the material would not be kept warm enough; while in hot weather it would be very likely to become too dry if not in charge of an experienced cultivator.

Analysis of Soil (*W. K.*).—We have examined the soil and considered your letter, and this is our reply. It is not by subjecting soils to chemical analysis that advanced agricultural chemists now-a-days ascertain what manures are necessary. They read the lessons the plants themselves teach—a certain and sure method, which the older plan is not. In testing the value of a manure chemical analysis is of great service; in the case of soils it is different. But it has been ascertained without any doubt that Turnips will not grow without phosphates being present in an easily available form, and that the application of these alone, even in inferior soil, will produce good crops. Your soil without manure grew Turnips, and "immense" ones too; also "large Cabbages." "Immense" Cabbages and Turnips are not

possible in the absence of nitrogen. Without manure good crops of Peas and Beans were produced. Now, without sulphur, lime, and potash being plentiful that would not have occurred. The fact that the Potatoes were poor may prove the soil over-rich, and if the shaws were strong—a circumstance that often occurs accompanied with a poor crop of tubers—you may consider that was the fault of a soil rich enough to grow "large Cabbages." Too much food, even in good Potato land, often has that effect, and heavy clay is not good Potato land. So much for the lessons read us by the crops. Let us now turn to the soil. It is a rather heavy yellow loam on the "rag-stone" formation, and was formerly a Hop garden; red clay is mixed with the rest of the subsoil. Some of the richest soil occurs on the formation you name, and the sample you have sent is good. It is heavy, but a good fruit soil. Such always retain the phosphates and potash applied, besides being rich in such of themselves. The clay that is apparent in the subsoil, and which is also present in the upper soil, perforas this office. The fact of its being yellow indicates that humus is deficient. Whether such land needs manure now depends on the present state of the vegetation. You do not say when the trials of Turnips, Cabbages, &c., without manure were made, nor whether your trees and bushes are vigorous and fruitful or not. If they are not it is probable that nitrogen alone is needed in your case; but the time for applying such, at least when in the form of nitrate of soda or sulphate of ammonia, is in early summer during showery weather. At any other season it will be lost. Peruvian guano is also good, but should be lightly forked-in in spring. These only for trees that are fruitful but not vigorous. If vigorous, but not fruitful, then bones or ground coprolite (and possibly kainit) forked-in in spring will be suitable. But, considering that your soil is yellow loam, ordinary stable manure, which will furnish all these, and humus (the black mould of soils), will probably be best if it can be had really good for from 7s. 6d. to 10s. per ton, according to quality and distance. This should be well made and very lightly forked-in in spring. Without more data we cannot give you a more precise answer, but we know that with such soil as the sample you have sent us there ought to be no difficulty in growing healthy fruit trees and good crops of fruit when the seasons are favourable.

Names of Fruit (E. F. B.).—The red Apple is the Red Astrachan; the green unripe specimen is not known. (G. E.).—1, Cellini; 2, Lord Suffield; 3, Ecklinville Seedling; 4, Tower of Glamis; 5, Beauty of Kent; 6, Kerry Pippin. (Colville Broune).—1, Red Astrachan; 2, Irish Peach; 3, not recognisable. By having been placed loosely in a basket without any packing material the fruits were bruised almost beyond identification. The Apple sent subsequently to the above is Gravenstein. No post-office order has been received from you, and you have not sent your address.

Names of Plants (H. Mayer, Bavaria).—The plant is Parnassia palustris, a member of the natural order Saxifragaceæ. See reply above. (R. O.).—Cattleya crispa. (Agent).—Centaurea ragusina. (J. Smith).—1, Malope trifida; 2, Datura Stramonium; see reply above. The Potatoes we cannot undertake to name, as the varieties have now become so numerous that it is impossible to determine them without comparison with a large collection. (Dr. Mackenzie).—It is a fine form of Phlox Drummondii Leopoldina, very richly coloured.

Brood in Hives—Uniting Stocks (G. C.).—Your hives will not be free of brood so long as the bees find a good supply of honey, which will be till the end of the Heather season or the Ivy has done blooming where it is plentiful. Your best plan will be to drive at once or as soon as you bring them from the Heather. Select the youngest and best-shaped queens (the old queens always go with first swarms of the season, and young ones in after swarms) to place at the head of the colonies, and unite at once. Cut out the portions of brood in old combs and arrange them carefully in supers, so that the bees can get amongst them, and place them over the crown holes of your hives until the brood is hatched out, when they can be removed and your hives fed up for winter if needed. We cannot recommend dealers.

[Some other letters in hand will be answered next week.]

COVENT GARDEN MARKET.—AUGUST 29TH.

BUSINESS remains quiet, the supply of soft fruits being almost over, a good supply of foreign Pears arriving realising high prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 0	to 2 6	Grapes lb.	1 0	to 3 0
" per barrel	0 0	0 0	Lemons ease	10 0	20 0
Apricots box	2 0	2 6	Melons each	2 0	3 0
Cherries ½ sieve	0 0	0 0	Nectarines dozen	2 0	6 0
Chestnuts bushel	0 0	0 0	Oranges 100	6 0	10 0
Currants, Black .. ½ sieve	3 6	0 0	Peaches dozen	2 0	6 0
" .. Red .. ½ sieve	4 0	0 0	Pears, kitchen .. dozen	0 0	0 0
Figs dozen	2 0	0 0	" .. dessert .. dozen	2 6	3 6
Filberts lb.	1 0	0 0	Pine Apples, English .. lb.	2 0	3 0
Cobs 100 lb.	0 0	0 0	Raspberries lb.	0 2	0 3
Gooseberries ½ sieve	2 6	3 0	Strawberries lb.	0 3	0 6

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Asparagus, English bundle	0 0	0 0	Mustard and Cress punnet	0 2	0 3
Asparagus, French bundle	0 0	0 0	Onions bunch	0 0	0 4
Beans, Kidney lb	0 3	0 4	Parsley dozen bunches	3 0	4 0
Beet, Red dozen	1 0	2 0	Parsnips dozen	1 0	2 0
Broccoli bundle	0 9	1 0	Peas quart	0 9	0 0
Cabbage dozen	0 6	1 0	Potatoes ewt.	4 0	5 0
Capsicums 100	1 6	2 0	" .. Kidney ewt.	4 0	5 0
Carrots bunch	0 4	0 0	Radishes dozen bunches	1 0	0 0
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 0
Coleworts doz. bunches	2 0	4 0	Scorzoneria bundle	1 6	0 0
Cucumbers each	0 4	0 6	Seakale basket	0 0	0 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Fennel bunch	0 3	0 0	Spinach bushel	2 6	3 0
Herbs bunch	0 2	0 0	Tomatoes lb.	0 6	0 0
Leeks bunch	0 3	0 4	Turnips bunch	0 0	0 4
Lettuce score	1 0	1 6			



MOUNTAIN BREEDS OF SHEEP.

(Continued from page 174.)

THE Cheviot sheep to which we have referred are now being used for crossing with other types of mountain sheep, not only in Scotland, but in the northern counties of England. Mr. Dixon, in his prize essay of the Journal of the Royal Agricultural Society of England upon the subject of mountain breeds of sheep, says:—"It is to the Robsons of Belford, who were flourishing when the century began, that the earliest improvement of the Cheviots is generally allowed to be due. Their tups were all bred on the Cheviot ranges, and seventy or eighty of them would sell and let for about £700 when they were marshalled each year in the great barn. It was said that there was a cross from Dishley in the flock, but it was, at all events, with sheep of this blood that the late Mr. Reed left Reed Water on the south side of the Cheviots, to push his fortunes in Sutherlandshire, and drive the Blackface out of the county. We hear of him, as years went on, with 18,000 sheep upon a farm of eighteen miles by eight along the banks of the Helmsdale and Brora, and handing over 2006 three-year-old wethers, and 1500 cast ewes, one September, to a Hawick salesman. In the north of Scotland it is all Heather, and in the south all grass, but the lower range at which Cotton Grass grows on the hills of Sutherlandshire enables the sheep to tide it better over the winter without the aid of mountain hay. The southern Cheviots are thus brought up more artificially, and it seems a question whether tups are quite so hardy and so active in following the ewes; but still all the present prizetakers came out of their ranks, and the northern breeders do not care to meet them in the Highland Society's ring. The most improved type of Cheviots, like Mr. Brydon's—for whose tups between 100 and 200 guineas have been given recently at his biennial Beattock sale—have good Roman-nosed heads, flat crowns covered with hard white hair, and that 'cock of the lug and glint of the eye,' which tell of mettle that will make them hunt the hill for food, and not hang listlessly round the hay hecks after a storm. They have also a fine 'park ranging neck,' rather Leicester-like girth and width between the fore legs, light and elefthy bone, and plenty of wool under the belly as well as on the arms and thighs. A good fore arm, or 'butcher's grip,' is as great a point as white legs and a black nose."

This quotation is from an essay written in 1866, since which time this breed has greatly extended itself throughout the mountains of Scotland—some of which reach to 2658 feet above the level of the sea—and in many instances has supplanted the Blackfaced sheep; but the change has only been partially advantageous, the latter being somewhat hardier and more capable of subsisting on heathy pasturage. Still they are a hardy race, well suited for their native pastures, bearing with comparative impunity the storms of winter, and thriving well on poor keep. Though less hardy than the Blackfaced Heath sheep of Scotland, yet they are more profitable as regards their feeding, making more flesh on an equal portion of food, and making it quicker. They have white faces and legs, open countenances, lively eyes, and hornless. The ears are large and somewhat singular, and there is much space between the eyes and ears; the carcass is long, the back straight, the shoulders rather light, the ribs circular, and the quarters good. The legs are small in the bone and covered with wool as well as all the body, with the exception of the face. The Cheviot wether is fit for the butcher at three years old, and averages from 12 to 18 lbs. per quarter. In the hands of some of the best breeders and feeders they make sufficient weight for the trade in six or eight months, but earlier after having been artificially fed; the mutton is, however, of good quality, though inferior to the Southdown, and of less flavour than the Blackfaced.

The "Blackfaced Heath sheep," is a very peculiar breed, inhabiting the lofty but barren and heathy hills which extend from Derbyshire on the south to the confines of Scotland, through the counties of Cumberland, Lancashire, Westmoreland, and Yorkshire. This range of highlands is a tract much exposed to the winds on either side, and this, with the poverty of the soil, permits only a hardy race of animals to live and thrive. Though this is its native locality, the breed has for many years consider-

ably extended itself through the Highlands and mountains of Scotland, penetrating also to the Orkney and Zetland Islands, where it has to a great extent displaced the original and more inferior breeds. "This breed of sheep," observes Professor Low, "possesses characters which distinguish it from any other in the British Islands. It is of the smaller races of sheep with respect to the weight at which it arrives, but is larger and more robust than the Zetland, the Welsh, and the ancient soft-woolled sheep which it displaced. The male and female have horns, very large and spirally twisted in the male, but sometimes disappearing in the female. The limbs are lengthy and muscular, but the shoulders are not so low as in the Welsh breed, nor are the posterior limbs so long. The face and legs are black, and there is a tendency to this colour in the fleece; but there is no tendency to the brown or russet colour which distinguishes the older fine-woolled races. The fur is shaggy and the wool coarse, in which respect it differs from that of all the other mountain breeds of the country. It is of medium length, and weighs about 3 lbs. the fleece when washed. The sheep are very hardy, and capable of subsisting on the coarsest Heaths." They do not, however, like the sheep of Wales, prefer the summits of the mountains, but feed wherever pasturage can be obtained; nor are they so nice in the choice of herbage as the South Downs, Merinos, and other races peculiar to countries yielding the finer grasses. But although wild and singular in their habits they are not so restless as the mountain sheep of Wales and other districts, but can be induced to remain in enclosures when sufficient food is supplied to them. We have brought them from Perthshire into more southern latitudes and milder climates. They remained quiet under ordinary shepherding within the hurdles. They have also made good weights for age and size; but with respect to the quality of their mutton, they have certainly lost their venison flavour, so predominant when taken from their native districts.

The ordinary weight of the wethers, when killed at the age of about four years, is 15 lbs. per quarter, but they will frequently exceed this when fed and fattened with artificials in the same manner as the long-woolled sheep are fed in some of the enclosed arable lands, and getting also a full quantity of roots and hay in addition, but especially when they have been fed in this way from an early age, they have, in such cases, been known to reach very much heavier weights. Although the mutton is not so delicate as that of the Welsh breed or the South Downs of England, yet it is more juicy, has more of the venison taste, and is preferred to every other kind by those who have become accustomed to it. It is this mutton which is principally consumed in all the larger towns of Scotland. An important property of this breed is adaptation to a country of Heaths, in which respect it excels all others. It is this property, as much as its hardiness, that has rendered it so suitable to the heathy mountains, where it is acclimatised, and where it finds subsistence beyond the ordinary range of other sheep. The animals feed on the loftiest mountains, up to the very verge where the Heaths give place to other plants of the higher latitudes. Feeding much on the shoots of Heaths, they also find subsistence in the times of frost and snow better than any other breed to be found in the kingdom. The mothers are hardy nurses, and are able to bring up their lambs even when they themselves have been exposed to severe privations. Sometimes lambs of this breed are born with short fine wool. It may, therefore, be possible to establish a short and fine-woolled type in place of the present coarse-woolled variety.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are now principally engaged in carting the crops to stack and barn; the former is now, however, the most prevalent practice, because if the stack or stacks are made in the field where grown, or near to it, the labour saved at the important and busy period of harvest is great. In the early districts the crops of Oats, Barley, and Wheat have been stacked in good condition, and the best practice is now considered to be, both as regards the stacking and threshing, to build the stack round and in pairs, so that both may be threshed without a removal of the threshing machine. It is also an advantage to build the stacks of a size which can be built and topped up in half a day in anticipation of adverse weather, for in the building of large stacks, if rain occurs when the rick is only half built, more or less injury is sure to be done to both straw and grain. A favourable time has lately occurred for cutting and making into hay the second growth of Clover and Grasses. We have made some good hay of the second growth of Clover and Italian Rye Grass, and have also ploughed under for manure in preparation for Wheat another portion of the mixed grasses, and it will be important to ascertain the result whether that ploughed in proves equally or more valuable than the hay crop if sold with all its attendant expenses and risks. The ploughing-in of Clover of the second growth is by no means a new idea, for in certain districts it has been in use for many years for some lands, especially

those situated at a considerable distance from the homestead and the manure made therein; it has, however, fallen into disuse, especially on farms where a large number of sheep are kept, and has been revived particularly by those farmers who hold the opinion that sheep do not pay when compared with the growth of a large acreage of sale crops, grown under a system of artificial manuring, accompanied by the ploughing-in of green or root crops as manure.

Hand Labour.—On many and various large farms in the eastern and north-eastern corn-growing districts of the kingdom hand labour has undergone a considerable change and revolution; for instead of paying the men by the acre by a money payment with other allowances for beer or cider, it has now become more customary to pay the men, especially where all the improvements in a reaping and self-binding machine are available, but particularly on the largest farms and occupations, by letting everything connected with the harvest work at fixed prices per acre—such as so much for cutting, tying, stacking, raking, in fact every kind of work including thatching the ricks, and allowing the men free use of the farmer's horses, waggons, reaping machines, horse rakes, and other implements as part of the contract. The advantages to both farmer and the labourers are considerable, and will be found in a great degree by expeditious transfer of the crops to barns or stacks, for loading the grain on to waggons, carting it, and building into ricks, can be performed in nearly half the time usually required when the men are on day pay, more particularly when we consider that the men are not so tractable under orders or such willing workers on day work as formerly, nor will they do so good a day's work for a day's pay. It is, therefore, almost compulsory to have an arrangement with the harvest labourers in which their own interest guides them in their undertaking. Hoeing the root crops must not be neglected, and to save some of them from becoming stunted in growth they may be dragged across the drills, or, what is better, use the horse hoe across the drills, setting the shares at such a distance as may leave plenty of plants, so that they can be easily singled as hand labour by women or lads, and thus secure their continuous growth.

Live Stock.—Cattle are still dear, also sheep, and we know various persons who from their experience find that at such figures as now prevail sheep do not pay sufficient profit for feeding, and they are now asking themselves a very proper question—If they do not pay why should we keep them? can we not dispose of our roots for the dairy cows, fattening bullocks, &c., and plough in the residue for manuring the land? At the same time the fact of sheep-breeders keeping sheep to manure the land chiefly ought to induce them to consider whether manure cannot be obtained or purchased cheaper than sheep can furnish it under a system which, if it does not lead to profit, must be commercially wrong from every point of view. All the cold meadow lands under the influence of the late hot weather will yield grass most abundantly for the dairy cows and store cattle. Swine now will be required on many farms to run in the stubbles, Bean and Pea eddishes, where they will get a fair living for a short time, especially if on their return to the farmyard for their night lodging they get some nourishing liquid or ripe roots, such as Cabbage and Carrots, but the all-important point to be considered is, Have we got for the purpose the best and largest breed of pigs as the stock of the farm? Many farmers are satisfied with the small white, the Sussex, or other small breeds, but our own practice tells us that the large white Yorkshire in cross-breeding with the Berkshire are much the most profitable, as yielding the greatest weight for age.

OUR LETTER BOX.

Seeds for Foreign Birds (A. Henly).—Dry white millet in the husk; also the different varieties of foreign millet, such as Indian, Algerian, and Senegal, are suitable for the smallest ornamental Finches. The larger varieties should be given Canary seed as well as millet. Much information as to birds is to be found in *Poultry*, published weekly at this office, price 1d

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.											
August.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday	19	30.294	61.4	58.6	N.	62.6	73.4	55.3	90.9	48.5	—
Monday	20	30.177	59.8	57.7	E.	61.7	80.6	46.9	117.5	37.2	—
Tuesday	21	30.194	67.3	62.0	N.E.	62.7	82.7	58.3	119.5	54.3	—
Wednesday ..	22	30.183	70.6	66.0	E.	63.5	76.6	59.3	110.4	54.2	0.023
Thursday	23	30.299	62.7	56.0	N.W.	63.0	75.3	52.0	113.2	47.5	—
Friday	24	30.297	64.3	58.0	N.	62.9	76.6	48.6	117.8	43.2	—
Saturday	25	30.217	63.0	59.3	N.E.	63.0	76.2	51.1	112.3	44.6	—
		29.237	64.2	59.8		62.8	77.3	53.1	111.7	47.1	0.023

REMARKS.

19th.—Fine generally, misty at times.

20th.—Morning fine and bright, afternoon dull and oppressive.

21st.—Warm and close.

22nd.—Hazy in early morning, fine with slight shower in afternoon.

23rd.—Clear, warm, and fine.

24th.—Very fine and warm.

25th.—Fine and warm.

The general clearness of the sky and almost entire absence of rain have led to a very unusually large range of temperature. The difference between the highest and lowest on each day has averaged 24.2°, and on the 20th reached the very large amount of 33.7°. The maxima have averaged 77.3°, which is higher than in any other week of this or last year.—G. J. SYMONS.



COMING EVENTS

6	TH	Bath and Brighton Shows
7	F	
8	S	
9	SUN	16TH SUNDAY AFTER TRINITY.
10	M	
11	TU	Royal Horticultural Society; Fruit and Floral Committees at 11 A.M.
12	W	Royal Caledonian Society's Show, Edinburgh.

FIRM SOIL FOR VINES AND FRUIT TREES.

A SENTENCE in the letter of "J. W. R." on page 181 last week relative to the roots of Vines penetrating the carriage-drive-like floor of a large vinery at Clapham is not without significance. It will be in the recollection of not a few readers of this Journal that there was a time when it was considered little short of a crime to set a foot on a Vine border. If a spout needed cleaning out boards must be laid down for walking on even if a mile had to be traversed for obtaining them. During a rainy day, when the surface of the carefully dug border was "podgy," the precaution was wise; but the prohibition against stepping on the soil was not confined to wet weather; it was a rule that was applicable to all circumstances—a rigid, inflexible, almost sacred rule, and to ignore or forget it was to court opprobrium if not dismissal on the part of the unfortunate transgressor. Ranking now as an old practitioner rather than as a young student in the art of gardening, it is not to be expected that I am enamoured of every "new fangled" notion. Many of the old fashions and methods of culture are as good as the new, and some of them better; but the time-honoured practice of systematically digging Vine and fruit tree borders cannot be defended on either philosophical or practical grounds, and yet the custom in question is by no means obsolete.

Some time ago a gentleman came to me with the Journal in his hand to express his astonishment that the Editor should permit such an exaggerated statement to appear as was contained in a sentence having reference to the Vine borders at Clovenfords, in which it was intimated that they could not be firmer if a regiment of soldiers had been exercising in the house. That was putting the case strongly no doubt, yet it was not stronger than the example first alluded to in these notes, and there is no reason to question the substantial accuracy of either of the descriptions. Many persons must have visited the Tweed Vineyards since last September, and it would be easy for some of them to have corrected any inaccurate expression relative to the character of the borders; yet no one, neither visitor nor employé, so far as I have seen, has attempted to controvert the "exaggerated statement" that the Editor "permitted to appear." It will be similarly easy for any of the many gardeners near London who are non-believers in the virtues of firm soil for Vines to judge for themselves as to the correctness of the comparison of the interior of the vinery of Mr. Wallis with a carriage drive. It is sometimes well to adduce bold, even extreme, examples as proof of the soundness of a principle that it is sought to enforce, as mere commonplace statements often fail to arrest attention.

Firm soil for Vine borders and fruit trees is sound in principle. If it were not so, what becomes of the practice which all competent writers advocate, and all good gardeners pursue, of potting Vines for fruiting, Peach trees, Fig trees, and Strawberries, firmly if not hard? It may be urged that this is incumbent because of the limited quantity of soil, and

that it is imperative to press as much as possible in the circumscribed space at disposal. Granted, yet Vines, trees, and Strawberries thrive under the treatment, and thus show that the firmness of the compost is the reverse of injurious. This may be regarded as negative evidence, and hence not conclusive. Then try the positive. Pot a Vine firmly in a 10-inch pot and another lightly in a 15-inch; afford a Peach or Fig tree a bushel of soil pressed firmly, and give a corresponding tree a bushel used lightly; place a Strawberry plant in a 6-inch pot and make the soil round its roots nearly as hard as a board, and another plant in a 9-inch pot with the soil as loose as if potting a Balsam; and in all these cases note the result of the experiments. In every instance the advantages will be seen of firm potting. But something besides firm soil and pure water may have contributed to the results. Certainly it may, and if the cultivator did not afford the aid he perceived was needed, he would not be worthy of his calling; but—and here is the point—give whatever he might to the lightly potted examples, they would not be similarly good.

The very fact of firm soil lessening the necessity of using so much compost is in itself advantageous, because economical, and if this is so in pot culture it is equally so in border-formation. As a rule Vine and fruit tree borders are made needlessly large, because unreasonably light. They involve both an undue expenditure of labour and waste of material. What is the use of food if it is not consumed? It is quite certain that a vast quantity of food in large loose Vine and fruit tree borders is never appropriated. "What then becomes of it. Surely the roots of the Vines and trees will find it some time!" is a question that may possibly, if not probably, be asked. The roots never will find it. First, because much of it is certainly washed away; and, secondly, because loose soil is never permeated with fibrous roots that are essentially health-giving and fruit-producing in character.

For the multiplication of fibrous roots there must be a resisting medium. An examination of the roots of the Vines, trees, and Strawberries above alluded to will show this. Examine those in light soil, and a limited number will be very apparent radiating from the centre straight to the pot; the great bulk of the soil in the interior will be for a long-time unoccupied with fibres, and in the meantime the virtues of the soil are being washed away. It is not until the roots reach the hard sides of the pot that they materially increase in number—that is, produce fibres for absorbing nutriment from the soil for the support of the plants. In time several of these small foraging roots will no doubt find their way into the centre of the soil, but they always appear to leave the pot reluctantly. This is chiefly because in the interior there is not the necessary resisting medium for inducing their multiplication, but partly because much of the food they are seeking has passed through the drainage, the natural result of the frequent applications of water that are necessary for keeping loose soil moist. In firm soil the roots are very different in character. By the obstruction they meet they are divided and subdivided at every point of extension, and the entire bulk of soil becomes netted with fibres that with their million mouths gather the food that is distributed through the soil, and the Vine, tree, or plant is proportionately benefited. They have, in fact, appropriated the virtues of the soil instead of their having been washed away, firm soil not requiring half the quantity of water that a loose mass does, and consequently the latter escapes the rinsing process to which the former is perforce subjected.

Thirty years ago I was taught that the reason of there being so many more shoots near the sides of the pot than in the interior of the soil was because they fed on the air that reached them through the pores of the earthenware, and that consequently the pots should be soft and clean. That they should be clean I admit, but that the material should be soft (that is, rough and very porous) I deny. I have, in fact, outlived the air notion entirely. The whole theory is exploded by the simple fact that the roots of trees and plants in glazed

pots and in zinc vessels are precisely the same as in ordinary pots as regards their increase and multiplication when they reach the resisting medium of the barrier which surrounds them.

The aim of the cultivator should be the production of the greatest possible number of fibres. They should be induced to form an interlacing network and penetrate every portion of the soil. This desideratum cannot be attained without firmness and moisture. In a loose medium, no matter how rich in plant food it may be, strong fleshy roots will extend in a straight line through it, leaving the bulk of the food behind and between them. Having met with no resistance they practically make no fibres, and the growth corresponds with the roots, being "fat," long-jointed, pithy, sappy, and fruitless in character. The effect of a resisting medium in the soil may be illustrated by driving a jet of water through a syringe not having a perforated nozzle. Fill the cylinder, apply the pressure, and the water escapes in a straight smooth line, and is not divided until it strikes an object of greater resisting power than itself; but impede the outflow of water by the obstruction of the finger, and the stream is divided into a thousand points and an infinitely greater surface is covered in a moment. Every young gardener knows this, and he may also do well to remember that by a proper resisting medium in the soil fibrous roots are similarly increased, and not much food will be left behind and between them.

But in making firm borders it is of the greatest possible importance that the soil be in the right condition of moisture when used. To pack wet soil closely together would be fatal; for, just in proportion to its wetness will be the absence of air, and without air, moist air, in the soil, there can be no free root-extension nor satisfactory growth. Similarly, to trample on a loose border when the surface is wet with the object of making it firm would be a serious error, for what air the soil contained would be driven out of it by compression. It is only when soil is sufficiently dry that it will not adhere to the feet that it can be firmed with advantage, and then the benefit resulting is often very great indeed. If it were not so the system of rolling even strong land would not be adopted by intelligent and successful farmers in preparation for their crops. The condition of the soil for border-making should, as regards moisture, be exactly the same as that which a skilful cultivator would use in potting either Vines, fruit trees, Roses, Chrysanthemums, Pelargoniums, or any plants of a free-growing yet more or less woody nature, and he would pot them firmly. He would then secure the maximum number of fibres, and, by giving food as needed, would attain success, whereas if he potted lightly and loosely he would fail. Pots as small as possible, firm soil, and attentive care in applying support when it is needed, are the chief elements of success in plant culture; and smaller, firmer, and better managed borders for Vines and fruit trees would result in a saving of labour and material, and hence of money, while the returns would be better than under the greater outlay misapplied in making large, deep, loose borders, and keeping them loose by digging them systematically.

A more precise guide relative to the requisite degree of firmness of the soil may perhaps be required by some reader. Any old pasture will afford the information. Dig up a portion the size of the spade and 3 inches deep, examine its texture, and in ninety-nine cases out of a hundred it will be found not too firm for trees and Vines. Yet how many borders are as firm as this? They are few, yet where they exist in conjunction with otherwise good management fruitful trees, healthy Vines, and excellent Grapes are almost invariably found.

One of the most important points in the good management alluded to consists in keeping the borders uniformly moist. Surface roots, which are the best roots, cannot be insured if the soil is not firm, also moist, where the roots are required. It is absolutely futile and utterly unreasonable to expect roots to form near the surface of a frequently dug

border that is exposed to the sun during hot dry weather; and it is impossible that the surface of such a border can be kept moist without mulching. That is a truth that is not yet sufficiently impressed on the minds of half the persons in this country who are endeavouring to grow Grapes in a satisfactory manner. Let them consider well this subject, comprehend fully the conditions of and influences surrounding each case, and by intelligent action they may yet succeed where they have hitherto failed in the attainment of their object.

A word may be necessary in explanation of what is meant by "small" borders. With soil medium to strong in texture and reasonably compressed a border 3 feet wide and 2 feet deep is quite sufficient for newly planted Vines the first year, while a less bulk of soil—that is, a border 6 inches less in depth—will be ample for one or two-year-trained Peach trees. But these narrow borders must be mulched in summer so that the surface and edge do not become dry. Regular and uniform moisture being secured—and nothing can be easier than to secure it—these small firm borders will lay a better foundation for good Vines and trees than a rich loose feeding ground of four times the size can do that is dug and dried in the orthodox manner by many amateurs and not a few gardeners; yet not the best of them, as these proceed in a more rational manner such as I have endeavoured to describe.—A NORTHERN GARDENER.

A NEW GARDEN.

THE KITCHEN GARDEN.

MAKING a new garden is one of the apparently easy things "which anybody can do," for at the first glance what can appear more simple? Can the laying-out of a plot of ground for the cultivation of vegetables possibly require much thought or skill? Look at the market gardens of London or of any large town. What are they? Just so many fields in a high state of cultivation—nothing more, and yet what abundant crops of excellent vegetables do they yield! Such reasoning, however, is by no means applicable to private gardens, for they have literally to be made in the fullest sense of the word—frequently upon land altogether unsuitable for the purpose both in soil and situation; and when space is so limited as to admit of no choice there is, of course, nothing to be done but to make the best of things and adapt our plans to circumstances as well as may be. Such an unsatisfactory state of affairs often occurs when a new house is built in a position selected only with an eye to the picturesque. The site is commanding, the scenery lovely, the air pure. What more can be required?

It has fallen to the writer's lot to be engaged for many years in the laying-out of new gardens and in the alteration and extension of old ones, and it is purposed in this and subsequent papers to turn the experience so gained to account for the benefit of readers of the *Journal*, by setting forth in clear detail the general features of the work, the difficulties which occur, and how they may be overcome or avoided. It is by no means intended to imply that new gardens are only required for new houses; but as the building of a country house invariably involves the making of a garden, and in order that these papers may be as comprehensive and useful as possible, it will be well to turn our attention first of all to the selection of

The Site.—In low-lying flat districts turf, timber, and water are the chief features of such scenery as can be commanded by the windows of a house, consequently the position of the garden is easily decided; but in a hilly country, such for example as we find in Sussex, Derbyshire, and Cornwall, abounding in rich scenery spreading far and wide, overlooked by many a sunny slope and breezy hilltop, much caution and sound judgment must be exercised in the selection of a site if we would avoid the subsequent annoyance and vexatious expense so often experienced when due care has not been taken beforehand. The natural advantages, therefore, which we would endeavour to secure in addition to an elevated position commanding fine scenery, or shelter from dangerous cross winds (the cruel cold north-eastern blasts so fatal in spring to tender blossom and foliage, and the tempestuous south-western gales to which no tree laden with fruit nor tender growth can be exposed with impunity), an abundant supply of pure water, and a fertile soil. Not simply from timber would we try to obtain shelter, but rather from hills clothed with timber, precisely such as so frequently occur at the head of a valley. Under such favourable conditions we would have house and garden both on a sunny southern slope sufficiently low down for shelter from behind, and also from the valley slopes on either hand, and yet high enough

to enjoy air and scenery fully. To dwellers in the lowlands a position so snug and so highly favoured in natural advantages may appear merely an ideal one, but it is not so. Living amidst the Sussex hills I could point to similar nooks that are well known by the dozen, and which, strange to say, have been overlooked by builders of many pretentious villas which are perched in elevated positions exposed to every wind that blows, simply for the scenery, without a thought of aught else. Nor are the villa builders only at fault, for two large houses of recent construction within a couple of miles of each other might also be pointed to as equally faulty in situation, and the mistake appears all the more glaring from the fact of really good positions being available close by.

Water.—This is generally abundant where hills and valleys abound, but it is not always so. Here on the Hastings Sand formation we have a spring of excellent water high up on the hill full 60 feet above the highest part of the garden, and in one of the

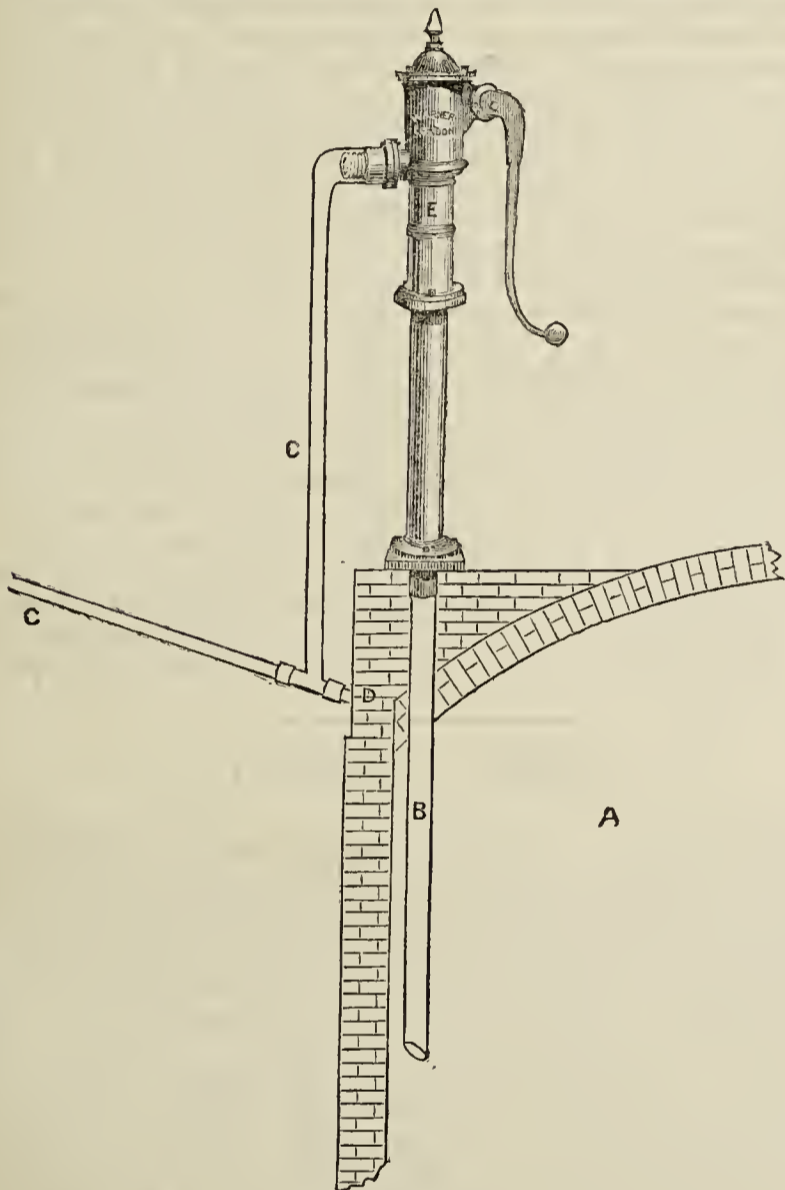


Fig. 35.

- A.—Part section of cesspool.
 B.—Suction pipe, 11 feet long from bottom of pump, but which may be 28 feet long.
 C.—Delivery pipe, 350 feet long and $1\frac{1}{2}$ inch internal diameter.
 D.—There is a stopcock here on the branch pipe which passes through the wall into the cesspool to empty the delivery pipe when not in use.
 E.—Cock for filling waterpots at pump.

valleys there are actually fifteen springs, each with its tributary rill running into the main stream. In less favoured places water can almost always be obtained from the valley by means of an hydraulic ram, and it cannot therefore be said to so seriously affect the selection of a site as shelter and fertility of soil do. Due provision should, however, be made for an ample supply of water, and when storage has to be resorted to enough water may generally be obtained by putting gutters and pipes to catch the rain water on every part of the houses and outbuildings and convey it to open tanks or ponds—preferably to the latter; for a pond is easily made, and the water may be distributed from it with as much expedition and economy as is possible under the circumstances by a moderate judicious outlay for its conveyance about the garden in the first instance. The primitive method of taking it from the pond in waterpots can only be done economically for crops growing near it. For the entire garden a somewhat expensive, but undoubtedly the best, plan is to fix a force pump by the side of the pond to throw the water into a cistern sufficiently elevated for it to flow thence through a pipe to one or more cocks or hydrants fixed at the most convenient points

of the garden; and if leather hose with the requisite unions and jet is provided for watering, the apparatus will be complete.

A much less expensive arrangement of a force pump and pipe, which has been in use here for several years for throwing up house sewage from a cesspool to the kitchen garden, is shown in fig. 35, and is, of course, equally applicable to a pond of water, for the suction pipe below the pump may be bent so as to rest upon the pond bottom and be continued to the deepest water. Particular attention must be given to the position of the pump, which should always be at the side of the cesspool or pond, so as to lessen as much as possible the labour of lifting the water through the pump and suction pipe. The pump in use here lifts the sewage vertically 14 feet, and forces it through a $1\frac{1}{2}$ -inch pipe 350 feet long to a height of 16 feet above D, fig. 35, where it falls into an open cistern. One man can do this so easily as to leave no doubt that the sewage might, if necessary, be forced to a longer distance and much greater height if necessary. Sewage being wanted occasionally for plants growing close by the pump, a hole was drilled at E, and an ordinary stopcock screwed into it answered the purpose admirably.

A, fig. 36, part of a transverse section of a pond with a raised bank, is given to show how by turning to account the excavated soil for raising the sides of the pond above the common level of the surrounding surface, the work of excavation and consequently the cost of the pond may be materially lessened. Due care must, however, be taken to make the puddle well, and to take it down well below the ground line, E, which usually proves the weak point of raised ponds. If the pond rests upon a loose substratum of shattered rock, gravel, sand, or chalk, the puddled clay must be continued as shown at D, so as to form an artificial bottom so thoroughly worked and kneaded together as to be absolutely impervious to water.—EDWARD LUCKHURST.

(To be continued.)

SEASONABLE NOTES ON CHRYSANTHEMUMS.

Most of the buds will now be taken to secure large flowers. Those taken the first week in the present month will be about as large as small peas; these plants will require a top-dressing as I have before directed in this Journal. I use an admixture of rather heavy loam and half-decayed fowl manure. About a third of an inch of this is spread on the surface of the soil in each pot. The roots very soon take possession of this dressing, and in a week they appear quite through it, especially in dull or showery weather. In watering the top-dressed plants a rose should be used for the first two or three applications to settle the soil firmly on the surface. Where fowl manure is not obtainable sheep manure is a good substitute. Some use cow manure, which I think is too cold; it also has an untidy appearance when plastered over and about the tops of the pots; this is often done, nevertheless, in the south. Amies' manure has a marked effect when used as a top-dressing, as also has Clay's Fertiliser; these are obtainable when the others sometimes are out of reach.

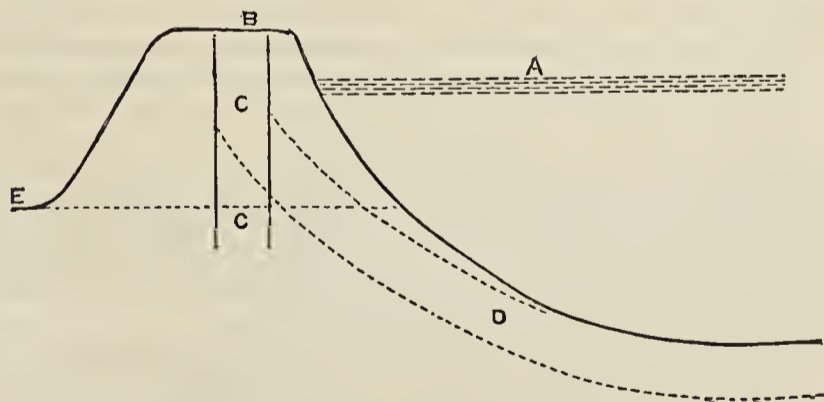


Fig. 36.

- A.—Surface of pond.
 B.—Pond bank raised above the common level, E.
 C.—Puddled clay.
 D.—Additional puddled clay at the bottom of the pond when it is on gravel, sand, or chalk.
 E.—Surface of land surrounding pond bank.

Some growers prefer guano, but in my opinion it should not be used until the end of October or first week in November. Another good fertiliser is clear soot water. Where flowers are wanted to be forwarded, if this is used twice or three times a week moderately strong with the dressing I advised above, the buds will swell with marvellous rapidity. The dressing should be repeated at the latter end of September.

For trained specimens I find Clay's Fertiliser invaluable. These plants are difficult to dress with anything more than can

be administered by the thumb and finger or the watering can. A small dressing of Clay's may be given once a week until the buds are a good size. I then add a small portion of guano at each dressing, which answers admirably for foliage and flower. A change of Standen's manure is very good about the middle of October. This improves the colour and development of the flowers.

Large-flowering plants should be raised on inverted flower pots or anything that is available, so that the pots can be made secure after being placed there, as the wind has great power upon plants raised in this way. Why I recommend this practice is in order that the plants can have all the air possible. This is a good preventive of mildew, which always shows itself on the foliage nearest the soil. When it appears means must be promptly adopted to stop its progress. Sulphur or soot (which I prefer) are both good, but the latter disfigures the plants.

Insects will now be troublesome, especially earwigs. I know of no preventive. The only way to keep these pests down is to examine the plants very carefully early in the morning and kill all the insects that can be found. Aphides will not be so numerous now as they were a month or six weeks earlier. Tobacco powder or snuff are good remedies, also cigar or tobacco ashes.—
GROWER AND EXHIBITOR.

CULTIVATION OF RASPBERRIES.

WHEN well grown it is questionable if any small fruits are more remunerative than Raspberries, and none can be produced with less labour providing the ground is suitable. A heavy crop of fine fruit is certain to be obtained from well-grown canes, as they come into flower late in the season and are consequently safe from spring frosts. Nevertheless, in spite of the freedom with which the Raspberry fruits under the negligent systems of cultivation, it is in most cases worse treated than other small fruits, as may be seen by the poor appearance of plantations in many gardens.

The Raspberry thrives best in what may be termed an intermediate soil—neither too light nor too heavy; yet on light as well as on heavy soil the canes, by good management, attain a height of 10 feet and fruit abundantly. To achieve success the first consideration of importance is to make light soil heavier and heavy soil lighter. This can be done by adding a moderate percentage of clay to the former, and coal ashes, coarse sand, or other gritty material to the latter. The best system of incorporating clay with light soil is to reduce it to powder, which can only be accomplished by drying it either in the sun or by artificial means, and then store the powdered clay until the ground is ready for trenching. It can then be worked into the ground as evenly as possible as the work of trenching proceeds, and then the whole turned back again, thus finishing where the first trench was opened. This entails nearly double the labour, but the mixing is thoroughly done and the foundation for success laid. During the second turning a liberal quantity of manure should also be worked into the ground. Heavy ground can be worked in a similar manner with the materials advised.

Planting should be done early in autumn where practicable, after the young canes have turned brown and before the foliage falls, and then secured to the wires or stakes to be employed for training them to. When planting is deferred until after the foliage has fallen, the young canes should be pruned back to within 8 inches of the ground, which will prevent them producing fruit the first season, and moderately strong growths will be the result, which the second year will bear an average crop of fruit. It is a great mistake to allow canes to carry fruit the first season they are planted, which they naturally will do if left their full length, the result being puny growths and a small crop of inferior fruit the second year.

After planting, a good layer of clay should be scattered on the soil between the rows to become pulverised by the action of the weather, and when dry in spring it will crumble to pieces, and should then be forked into the surface soil at the first opportunity. I prefer planting in rows about 1 foot from root to root, and the rows about 8 feet apart. This is a greater distance than generally given, but if they grow strongly they would be better 2 feet further apart. I am convinced nothing is gained by planting too closely, and thus have double the quantity of rows on the same space. On the contrary, one good row fully exposed to light and air will produce equally as much fruit as two rows planted closely. The row exposed to light and air will fruit abundantly down to the base, but crowded canes will not do so.

I prefer, for the purpose of training the canes, to have three moderately strong wires running lengthways of the rows, and supported at each end with angle irons secured into stone and supported with an iron stay. Upright iron bearers can be used along the rows at intervals to support the wires and keep them straight. The angle irons should stand at the least 5 feet 6 inches out of the ground.

The top wire of the three should be as near the top as possible, the lowest 18 inches from the ground, and the middle one at even distance between the two. The canes, when secured to this trellis, have a neat appearance, and when substantially erected it gives no further trouble for some years.

Attention is needed during the early summer months, and especially at the present time or immediately the fruit has been gathered. Early in the season, after the young growths have fairly started, some of the weakest should be thinned out instead of being allowed to crowd the row until late summer. These should not be thinned too severely, but a third more canes than are required to be retained at pruning time may be left, and then cut down close to the ground, and from these the following season strong canes will be produced. At this season of the year all the old fruiting canes should be removed, and those for next season's fruiting secured to the wires, so that every opportunity will be given for ripening the wood thoroughly. Shorten the canes to the desired height as soon as all fear of the lower buds bursting is past. I do this while the foliage is quite green; in fact, the necessary pruning is accomplished when in this stage, except the few canes to be removed, and this is done directly the foliage commences falling. By carrying out a system of early pruning the buds are plumped from the base to the top, and the canes in consequence fruit freely near the ground. This feature is most prominent especially with those that have ample room from row to row. I may add the canes are left 1 foot above the top wire, making them 6 feet 6 inches high.

Pruning and tying are completed early before the weather is severe or cold, and then at the first opportunity the annual dressing of manure is wheeled on and spread between the rows, in which condition we prefer to leave it. Digging amongst Raspberries cannot be too strongly condemned, as it injures numbers of roots, which are always near the surface. Often for the sake of appearance this has to be done, and in cases of this description the manure employed should be short and pricked in as lightly as possible with forks.

The Raspberries here grow on light land, and were very unsatisfactory when I took charge of them; but by giving them the treatment detailed they have attained great size and bear heavy crops of large fruits. I may add I have found an occasional application of lime very beneficial. The variety grown is Prince of Wales.—
WM. BARDNEY.

GARDEN CHEMISTRY.

SULPHUR.

SULPHUR is one of the essential elements. Without its presence in the soil plants could not grow, nor albuminoid be formed. It is always present in plants as sulphuric trioxide, and in their ash as sulphuric anhydride. For long it has been applied in Germany and in America in the form of gypsum, generally with benefit; but the accounts of most of the experiments, especially the American ones, are very conflicting. In this country the use of gypsum has not produced results equal to what it is reported to have done in the countries named, and when it has succeeded abroad it is not always because of the sulphur afforded, but the lime. In France, Ville makes gypsum take an important place in what he calls normal manure, but not with the idea of furnishing sulphur: it is to furnish lime. Gypsum (calcic sulphate) is readily soluble, calcic carbonate not so, hence M. Ville rejects the carbonate for the sulphate. It is to be regretted that he did not try them pitched against each other, and then the value of the sulphur would have been seen, for calcic carbonate is soluble enough in ordinary soils.

Peas, Beans, and Clover generally benefit from applications of calcic sulphate, yet sulphur is not largely present in the ash of Beans or Peas. One hundred parts of the ash of common Beans contain only from 1.3 to 2.4 of sulphuric anhydride (SO₃), and that of French Beans from 1.5 to 3.9. Peas contain from 4 to 5 per cent., Clover from 1 to 2.5. This is very little compared with the phosphoric acid and potash in their ash.

Turnips and Cabbages have at times been largely benefited by the use of calcic sulphate, and Messrs. Lawes and Gilbert have told how much the Clover crop increased by its use, as well as with sulphate of soda, magnesia, and potash. The ash of Swedes yields 10 per cent. of sulphuric, and of common Turnips as much as 20 per cent. In such a case one can understand how sulphates have a favourable effect on the Turnip crop, and can well believe that, sometimes at least, the favourable effect of superphosphate, in which calcic sulphate is largely present, is partly owing to the sulphur at the disposal of the crop as much as to the solubility of the phosphates, especially when we find insoluble phosphates giving equal results to soluble when ammonia sulphate is given along with it—nitrogen in equal quantities being supplied to both. The ash of Cabbages contains from 10 to over 20 per cent. of sulphuric acid, and in most mem-

bers of the Brassica family it is largely present. As members of this family are largely grown in gardens, much more so than in the fields, and as common stable manure as well as most other manures contain sulphuric acid in but trifling quantities, some 0.1 per cent. (at most 3.5 in the ash of), there is reason for believing that the use of sulphates in the garden would be beneficial.

In the form of gypsum (plaster of Paris) and salt-eake, or sodic sulphate, it is to be had cheaply, and also as sulphate of magnesia and Epsom salts; but when sulphate of ammonia is used to supply nitrogen, or superphosphate to furnish phosphoric acid, or gas lime to furnish lime, there will be no need to go into the market for gypsum. On a plot of Cauliflowers and Cabbages, as against an equal quantity of ordinary lime, gas lime, with us, gave much better results even when ordinary manure was liberally supplied. On poor ground to Savoys, Brussels Sprouts, and Swedes its effect was even more marked still, and one could tell at a considerable distance that something extra had been applied across one end of the plot containing our winter Brassicas. In ordinary lime sulphur is present, but generally in quantities too small to be worth noticing. In gas lime the sulphite, sulphide, oxysulphide, and hyposulphide are present to the extent of from 20 to 30 per cent. in addition to from 4 to 5 of sulphur. These all in time become sulphate, but only after some months' exposure. Applied at cropping time, gas lime kills; applied in October or November to land not to be cropped till spring, it feeds. It should always be applied very sparingly—not over half a ton an acre.

Sulphur exists in soil chiefly as calcic sulphate, and occasionally as magnesian sulphate. As calcic sulphate is not retained by soils, but is washed out by rains, heavy dressings are a mistake, and soils are generally deficient in sulphur. Even in calcareous soils little more than traces are to be found, and seldom as much as 0.5 per cent.

Not unfrequently the floras of irrigated meadows will be found largely composed of plants which are favourably influenced by sulphates. This is owing to the presence of calcic, sodic, and magnesian sulphates in the water. The water of the Trent contains not less than 21 grains per gallon of calcic sulphate, the Dunne Canal nearly 4, the South Esk 1, the Severn $\frac{1}{2}$, Loch Katrine 0.64, St. Mary's Loch 0.81, Ben Rhydding nearly 3, the Critchmere (Surrey) 1.07, and the Punchbowl (Surrey) 0.590. At London Bridge at high tide $4\frac{1}{2}$ grains per gallon have been detected. When such waters are used for irrigation purposes in the field or in the garden, more sulphur is supplied than is needed. In what are known as mineral waters sulphur is much more largely present, but we have given examples of what is common everywhere. For instance, 191 grains of sulphuric acid are in every gallon of the saline water of Purdon, N. Wilts. This is an extreme case, but most spring waters contain a good deal. From the clay slate 2 to 4, and the Muschel chalk 1 to 2 per cent. is present. Calcic sulphate is present in the waters of Bath, Buxton, and Bristol, and also sodic sulphate to a lesser extent. In a pound of Kilburn water 18 grains of sodic sulphate and 13 of calcic are present; 7 per cent. of magnesian sulphate is present in the chalybeate waters of Melrose. Sulphates are present in sea water. Strangely enough there are only traces in the intensely saline waters of the Dead Sea.

IRON.

In the majority of garden plants iron does not exist in large quantities. Ferric oxide is seldom present in their ashes in larger amounts than 1 or 2 per cent. An exception is found in Cabbage leaves; when in the ash it exists to the extent of 8 per cent., but possibly not always. It is generally present in greatest quantities in fruits. In the ash of Strawberries 11.12 per cent. of the phosphate has been found, and in that of the Orleans Plum 7.45. In Spinach 8.37 per cent., in Onion stalks 10.61, and in Kidney Beans 5.24 is present, at least sometimes, but these are quite exceptional cases.

Iron is regarded as an essential element of plant food. It is always found in them, and when absent in the soil the resulting plants are sickly. Under such conditions very weak solutions of copperas (ferric sulphate) have produced good effects according to Professor Johnson. We have heard of Roses being benefited by applications of iron salts, but no scientific experiments that we know of have been conducted to prove its value when artificially applied. Iron salts turn Hydrangeas blue, and white Hyacinths red.

Iron is present in sufficient quantities in ordinary manure, and is being continually added to the soil by the waste of tools. Naturally it exists in plenty in very nearly all soils, with the exception of pure quartz sands, which are sterile at any rate. In not a few it is too plentiful, and appears as red oxide in

ordinary soils, and as black in black bands. In cultivated soils phosphate of iron is present. Wherever phosphates are applied, even in the ordinary form or as bones and stableyard manure, iron phosphates form sooner or later. The soluble phosphate in superphosphate speedily takes this form in soils where iron oxide abounds. This salt is very insoluble, but some plants have the power of appropriating it. Potatoes and the Leguminosæ do so. Turnips and the Brassica tribe generally do not.

In addition to furnishing plants with food, ferric oxide has the property of "fixing" phosphoric acid, potash, ammonia, a property possessed by alumina, and humus.

CHLORINE.

Chlorine is found in all plants, but whether it is essential or not is disputed. It is used in the form of sodic and potassic chlorides. The first of these is always present in greater quantity than is wanted in ordinary manure, but as it is very soluble, and is not retained by soils, rains wash it out. It thus happens in inland situations that it is often deficient. Near the sea, however, chlorides are always present in the rain. At Cirencester it is calculated that the amount gained by the soil from the rain amounts to 53 lbs. per annum, at Rothamstead 22, and at Penicuik near Edinburgh no less than 640 lbs. per acre.

SODA.

This is not regarded as essential by the more forward of modern agricultural chemists. As to its supply, what we have said in regard to chlorine applies to soda, for in common salt the two are joined. Essential or not, common salt often has a beneficial effect on many crops. In inland situations on poor soils we have never seen it fail to tell on Cabbages, and for Asparagus its good effects are well known. It certainly furnishes food to plants, for although it is true that plants may be grown in soils containing no soda, though plants will not grow in soil containing no potash; yet, as a matter of fact, the very much cheaper soda will at least partially replace potash. For instance, *Salsola tragus*, according to M. De Gasparin in the "Cours d'Agriculture," in the valley of the Rhone contains no soda, potash alone being present. The same plant between Frontignan and Aignes Mort is used as a source of soda. In ordinary soils the common Ice Plant, *Mesembryanthemum crystallinum*, is covered with glands filled with oxalate of potash. In Teneriffe and near the sea in France this oxalate disappears, and sodic oxalate takes its place.

With the exception of the Mangold, which contains quite a large amount of soda in its composition, and is decidedly benefited by applications of common salt, garden crops use much more soda than field crops. While cereal crops remove no more than from 3 to 5 lbs. per acre in the crops, Cabbages and others of the same order take up fully ten times as much. Salt is a very cheap manure, and a few experiments will soon show whether a crop is the better for it. When its application is beneficial it will have the same effect as an extra amount of ordinary manure. Along with other salts common salt has the property of rendering otherwise insoluble matters soluble. Whether this is a benefit, as it is usually regarded, may be doubted. It may contribute to the loss from the soil of valuable phosphates.

SILICA.

This is held to be a non-essential by most scientists, although M. Georges Ville maintains the opposite, plants grown in calcined sand by him failing when supplied with it in a soluble form. Sachs grew Maize—decidedly a silica plant—without silica, yet it perfected its growth. Oats and Buckwheat have also been grown in perfect health without its aid, and Pierre has shown that the weakness in the straw, attributed to the want of silica, is due to other causes.

Silica is mostly found in endogenous plants, such as the cereals and grasses. In them it is found on the outside of the plant, covering the straw or the husks of seeds. In these positions it certainly looks as if it were an excretion when we consider the peculiar anatomy of endogens. In the *Equisetæ* it occurs in the same way as in the grains. In the "Pottery Tree" of Para—actually used for making pottery—as much as 77 per cent. occurs in the bark of old branches. It is absent from the grass which grows in peat bogs. In exogens it is chiefly found as a deposit inside the older cells of stems. They are present rather as incrustations than as part of the cells proper, and so may, even in such positions, be regarded as excretions. In trees it is most abundant in the bark and the older leaves.

Silica is most probably taken up in the form of silicates of potash. Evidently the cereals and grasses are endowed with a special capacity of attacking these silicates. When they are

present it is not necessary to give potash. Few garden crops possess this power—hence little silica is found, either as a part of them or as an excretion in or on them. For this reason an application of potassic chloride or sulphate may tell effectively when applied to many garden soils, and yet have little effect on cereals in the same soil.

Silica is abundantly present in all soils and in all ordinary manures. It is not, therefore, necessary to trouble about its application.

MANGANESE, &c.

Very little is known about the part taken by this metal in vegetation. In most plants mere traces are found, although in one instance as much as 11 per cent. was found in Beech ashes. Professor Johnson mentions that "gardeners mix it with the soil to improve Roses;" but in what way they are improved we cannot say.

Aluminium has been found in Lycopods by Professor Church, but is seldom present in ordinary plants.

Fluorine is found in the teeth of animals which derive their nutriment from plants. Iodine is extracted from certain seaweeds, and is occasionally detected in garden plants, but only in the merest traces.

Bromine, copper, lead, lithium, cesium, and rubidium are also occasionally to be found in plants, but it is supposed that their presence is an accident. Among the matters which plants must get in the soil nitrogen ranks first, phosphorus next, then potash, lime, and magnesia. In what order we rank chlorine, soda, silica, manganese, &c., does not greatly matter. Possibly they are here placed in their proper order.—SINGLE-HANDED.

SOWING ANNUALS.

THE present is a good time to sow a few seeds of some of the better class of annuals, such as the Cornflower, *Schizanthus pinnatus*, Sweet Scabious, &c., for conservatory use in the spring. The seed pots should be placed in a cold frame, and as soon as the plants are up they should be pricked off singly into small 60-pots and kept close for a few days; afterwards gradually expose them to full sun and air. When 2 or 3 inches high pinch out the points to make the plants bushy. When the small pots are filled with roots give the plants a shift into 4 or 5-inch pots. Winter in a dry airy pit free from frost, or, better still, in a cool greenhouse. Annuals treated in this way amply repay the labour bestowed upon them. A few plants of *Chrysanthemum coronarium* grown in the same way will also be found very useful.—E. B.

COLOURING OF GRAPES.

AT page 91 of your present volume "Dunedin," who is evidently a careful observer, mentions a fact, "that one grower, the intense colour of whose black Grapes is the admiration of all who see them, puts himself to much trouble to keep the air of his vineries moist while the Grapes are finishing. . . . but it is only the black Grapes which are thus brought to perfection. White Grapes are never of the golden tint we wish to see."

He goes on to say that "not far off in the same locality is another grower, by no means even a fair one, whose black Grapes are never more than rusty, but (and this point is worth noticing) his inferior Muscats . . . inferior—that is, as a crop, and in bunch and berry are generally beautifully golden. He practises extreme dryness. Now, we personally have always had the finest-coloured black Grapes in wet almost sunless seasons, and the worst whites. When dryness and bright sunshine prevailed the whites were better and the blacks worse," and he concludes from this that sunshine and dryness spoil black Grapes, and that shade and moisture spoil white ones.

Now, although your correspondent's observations and conclusions are highly creditable as confined to the small area to which they extend, and we are indebted to him for bringing to the front a subject which has no doubt puzzled others as well as himself, yet if he takes a wider range he will, I think, soon find that his conclusions are not entirely sound. For instance, it is possible to point out certain places where both blacks and whites are finished perfectly and simultaneously under exactly the same treatment, and where the management is such that, although a fine season is preferred and highly appreciated, yet a bad season does not prevent the production of first class fruit of both colours.

"Dunedin" rightly says that "the dry air and dry borders aimed at in finishing black Grapes is a mistake." Most assuredly it is, and I thought such a practice was now obsolete. I will add that it is an equal mistake to have any dry air and dry borders for the finishing of Muscats, and will try to show that your correspondent has put the saddle on the wrong horse.

First, let me say that the effects of damping down a house when it is open and when it is shut are entirely different. Pour a quantity of water down with the ventilators wide open on a bright sunny day,

and you will lower the temperature somewhat and soften the atmosphere considerably. This treatment with Hamburgs, Alicante, Mrs. Pinee, Madresfield Court, and some others which do not require a high temperature during their second swelling will have a beneficial effect whenever the temperature is likely to rise much above 85°.

On the other hand, Muscat of Alexandria, Lady Downe's, and some others which require a high temperature during their second swelling as much as at any time, are not benefited to the same extent by the damping-down unless there is provision made for keeping up the mean temperature somewhat in excess of that required for the first-named class of Grapes.

But it is not the state of the air as to humidity at all which makes the difference observed by "Dunedin." It is the amount of light received by the leaves and fruits. Muscats cannot be coloured in a sunless season except in the lightest and best managed houses. Black Grapes can be coloured in any season, but of course we vary our treatment somewhat to meet the different conditions.

There is not one garden in twenty where Muscats are allowed sufficient room, and consequently they do not get sufficient light. In a hot dry season the light of course penetrates the thicket to some extent, and better coloured fruit is the result, while in a dull season it may often fairly be said that the fruit does not ripen at all. All this, however, is entirely under the control of the cultivator if he has a good house and knows how to use it.

Black Grapes will colour under the densest foliage even in a dull season, but they will not keep as well as those which have been only moderately shaded and have had the wood pretty well ripened.

With regard to the case mentioned by "Dunedin" of the inferior Muscats becoming a beautiful golden colour, he is probably again in error in attributing the colouring to the dryness of the atmosphere. Undersized fruit, provided the foliage is kept healthy, is much easier to colour than large fruit; and undersized fruit generally, too, means undersized leaves, so that the light has a better chance of acting on them.—WM. TAYLOR.

CYANIDE OF POTASSIUM FOR WASP NESTS.

YOUR correspondent "T. W. S.," in mentioning cyanide of potassium as the best thing for taking wasp nests, has certainly spotted the right remedy; but it is by the remarks given made far less convenient than it really is. I have used it for many years, and always with the greatest satisfaction; indeed, only yesterday I submitted it to the severest test I have yet given it, and nothing could be more complete. Indeed, the young lady of the house describing it to a friend said I had sent "hundreds of wasps to rest, the charge of Balaclava being nothing to it," and I daresay many of those noble fellows would have preferred that death ride to my little experience of yesterday.

What I wish to impress on your correspondent, and on all who try the cyanide, is, that it is quite unnecessary to take hours over it—generally half an hour is ample. My plan is to make a strong solution of the cyanide, which your correspondent rightly remarks is most poisonous and needs care in using. I then repair to the nest armed with my bottle and a piece of moistened lint, generally two thicknesses, and the water squeezed out as dry as possible. I treat the wasps as I do the bees—I am as gentle in all my manipulations as possible. Firstly, if necessary, I enlarge the hole with a knife, and then wetting my lint with the solution I take it on a piece of stick, so as not to handle it more than necessary. I place the lint on the lower margin of the entrance hole, so as to form a poisoned alighting board for the wasps. The effect is speedy, each wasp alighting on it either quickly falls on one side or enters the nest never to come out again, for the vapour goes into the hive, and soon the passage is choked. While the wasps are returning home one may notice that none come out, and soon in ordinary cases at the end of fifteen minutes there is absence either of those coming out or going in. When this condition has arrived you may begin to dig out. All the wasps will be found motionless, though here and there some may be sluggishly moving. The nest being dug out it may be put in a pail of water or otherwise broken up.

The nest taken out yesterday was without exception the very largest I have seen—about 15 to 18 inches in length, 12 in breadth, and 9 in depth. It was situated under the tiles of the roof of a bow window. The house being an old one, the cement between the tiles was lacking almost everywhere, and the wasps being particularly numerous I found they used half a dozen apertures. Some of these were stopped up with difficulty, and pieces of lint steeped in the solution were placed at some of the openings; but the points of ingress and egress were so numerous that the progress was very slow, so many of them escaping the lint. It was more than an hour before I found matters sufficiently quiet to allow me to remove one or two of the tiles. The huge nest then showed up beautifully; it occupied the whole space between two of the rafters, and extending under the inner was continued in the space beyond. It was, however, built over the wood supporting the rafters, and, after sawing through three or four of the laths supporting the tiles, I was able to glide a spade along under the nest and lift out the greater portion, which was deposited in a large washing tub. The nest was, however, so large that great numbers of the wasps were alive on the lower portion, the spade having divided the nest. A little more solution dropped on the nest enabled me to get the remainder out and place it in another tub. Float-

ing on the water afterwards there must have been at least a thousand wasps, whilst the sealed brood must have been many thousands.

This nest had been attacked by a mason, who soon beat a precipitate retreat; then a young gentleman in the neighbourhood was going to burn it out, and the rafter was charred in one place, but he too retreated, using forcible language, for which he afterwards apologised; tobacco, sulphur, &c., had been tried, but the looseness of the tiles rendered them useless, but the cyanide was a great success.—Y. B. A. Z.

I HAVE during the whole of this season and also the latter part of last been using powdered cyanide of potassium for this purpose. I find one teaspoonful quite sufficient for effectually killing all the winged members of the strongest nest when placed carefully just inside the passage to the same.

I find all times of the day equally effective, as after having been placed in the mouth about one minute no wasp ever comes out, and all coming in from work after once passing over the powder are quite unable to take wing again.

I consider this the best and cleanest remedy I know at present, although where difficult to apply as described I have used paraffin with equal success.—ROBT. GRINDROD, *Whitfield*.

THE LONDON PARKS.

CROSSING the "silent highway" from the Chelsea Gardens, one of the most popular and beautiful of public London gardens is reached—namely,

BATTERSEA PARK.

The great charms of this establishment are its diversity of aspect and constant freshness. In none of the other metropolitan parks are these features so strongly marked, and in none do we obtain more beautiful landscape effects, though these are entirely artificial and quite unaided by natural characters. It was, indeed, an admirable work to convert a swamp into a picturesque, varied, and lovely park that has yielded pleasure to millions of the great city's toilers, and it is doubly satisfactory to see its attractions maintained in all their power, and even annually increased where opportunities offer. Improvements have been repeatedly effected in recent years; diversified, well-wooded, and considerably elevated mounds have been formed with winding and undulating paths that in several cases, especially at the east side of the park near the Chelsea Bridge Road, command extensive and pleasing views. Close attention, too, has been given to what might be termed the more minute details. Flower beds or borders in previously uninteresting positions in many cases supply agreeable surprises, while the shrubberies have been thinned where necessary to bring some fine specimen into prominence, or planting done where a denser screen was needed, and in hundreds of other ways the observant visitor who is well acquainted with the park may constantly notice a steady advance. The freshness which has been already referred to as one of the charms of this park has been severely tried this season. Turf, trees, and bedding plants have all suffered from the prolonged drought, but the two former especially, as by the liberal use of the hose the beds in the subtropical garden and elsewhere have been kept in good condition. Earlier in the season it appeared at one time as if the bedding would never reach its usual condition, but within the past month there has been a vast improvement. The beds are well filled, the combinations and designs proving in the majority of cases eminently satisfactory.

Entering the park from the west side near the Albert Bridge the visitor can readily inspect the principal features without travelling over the same ground twice, and can either take his leave from the York Road gate, the Chelsea Bridge gate, or the pier. A short distance from the entrance first mentioned will be noticed on the right a series of oblong beds with rounded ends, radiating from a circle in the centre. There are seven ways, and each pair of opposite beds are planted alike, mostly in the mixed style now becoming so popular. *Alyssum variegatum*, *Verbenas*, and *Pelargoniums* form one combination, *Tropæolums*, *Ageratums*, and *Tagetes* another, and *Phlox Drummondii* and *Centaureas* a third, margined respectively with *Pyrethrum Golden Feather*, *Alternanthera versicolor*, and *Iresine Lindeni*, outermost edge in each case being a neatly kept band of *Euonymus radicans*. The borders near the shrubs around this, and extending by the road for some distance, are filled with *Anemone japonica alba* very fine, scarlet *Pentstemons*, *Chrysanthemum frutescens*, and *Calceolaria amplexicaulis*, which have a beautiful effect.

A short distance beyond the above is a refreshment lodge, and around this are several pretty beds, chiefly carpet designs, that well merit attention. One, a chain of three circles, is tastefully planted, a central star of *Alternanthera versicolor* being lined with *Leucophyton Browni*; the angles filled with *Mesembryanthemum cordifolium variegatum*, margined with *Echeverias* and *Sedum acre elegans*. An elliptical mixed bed of *Calceolarias*, *Pelargoniums*, *Abutilons*, and *Heliotropes*, edged with *Lobelias* and *Golden Treasure Fuchsias* pegged down, with *Mesembryanthemum cordifolium*, has a distinct appearance, perhaps the only fault being that rather too many kinds of plants are employed. In mixed beds the most pleasing are those occupied with several varieties of one species, or a few very distinct varieties of different species; when so many are employed a bed has a heterogeneous appearance that is rather objectionable. A carpet circle of simple but striking design is also notable near the above; it consists of a ground of *Golden Feather*, in the centre of which is a design of brightly coloured *Alternanthera amoena*, a series of bands curving outwards and downwards from a main axis; the

bed is margined with *Mentha Pulegium gibraltarica* and *Lobelias*, and is undeniably effective.

A few minutes' walk from this portion of the park brings the visitor to the great feature, the subtropical garden, which has been so well managed for such a number of years that it has gained considerable fame. The position is suited for work of this kind, being sheltered and low, so that the plants are not exposed to the full effects of the sun or wind, either of which prove injurious to tropical or tender plants out of doors in England. Palms, Ferns, *Ficus*, *Grevilleas*, *Solanums* of various kinds, the silvery-leaved *Eucalyptus globulus*, the majestic *Polymnia grandis*, *Wigandia caracasana*, with elegant *Beaucarneas* and *Dracenas*, all assist in imparting a most distinctive aspect to the garden, whether singly or in large beds. The fine clumps of *Polygonum cuspidatum* also have a grand effect, and there is one specimen of a plant or small tree that is rarely seen, but which is eminently fitted for such positions—namely, *Griselinia macrophylla*. This has broad, rounded, thick leaves, resembling some of the *Ficus*, or more nearly the *Clusias*, and as they have a shining dark-green surface it is very telling. In several cases where single specimen Palms are placed out in the turf they are surrounded by small circular borders of miscellaneous or carpet-bedding plants. One of the best of these is a good specimen of *Phoenix reclinata*, around which is a band of the distinct *Begonia ricinifolia*, next to that a band of *Centaureas*, and a margin of *Pyrethrum selaginoides*. The last-named is in better condition there than we have seen it elsewhere: the leaves large, flat, neatly and regularly divided, quite frond-like in appearance, and of a good clear yellow colour. When it does as well as this it is a most desirable plant for the margins of beds. Where large masses of the *Polymnia*, *Wigandia*, or *Eucalyptus* are employed the spaces between the plants are filled chiefly with *Chrysanthemum frutescens*, *Heliotropes*, *Lobelias*, *Pelargoniums*, *Petunias*, and in some instances a few examples of *Agapanthus umbellatus* are introduced. Some fine clumps of single *Dahlias* attract much attention, the colours of the graceful flowers being so brilliant and varied. The silver-variegated *Acer Negundo* is employed as usual with good effect, and a long border next the shrubs of the variegated *Willow Herb*, margined with *Pelargoniums*, has an excellent effect in contrast with the dark-leaved shrubs.

The majority of the carpet beds are in the subtropical garden, and though none is distinguished by any extraordinary novelty of design they are all tasteful, and some are extremely so. A few of the best may be noted to give an idea of the plants employed and combinations most approved. One circle has a ground of *Gibraltar Mint*, with small circles and a central square of *Alternanthera magnifica*, edged with *Leucophyton* and *Stellaria graminea aurea*, the outermost general margin consisting of *Alternanthera aurea* and *Cerastium tomentosum*. Another, also a circle with a ground of the same *Mint*, has a scroll of *Mesembryanthemum cordifolium*, a centre of *Alternanthera versicolor grandis*, a marginal chain of *Alternanthera aurea*, and an edge of *Echeveria pumila* and *Sedum acre elegans*. A trio of beds (a centre circle and two oblongs) near the lake are invariably planted in good taste, and this season they are exceptionally good. The ground is of the *Gibraltar Mint*, on which is a neat but somewhat intricate design in *Alternanthera aurea* with isolated circles of *A. versicolor grandis* and *A. amoena*, with a margin of *Sedum acre elegans*. Several beds are of a composite character—that is, partly carpet and partly subtropical. One of the best of these has a ground of *Lamium maculatum aureum* brightly coloured, with heart-shaped clumps of *Iresine Lindeni* and *Mint*, with Palms, *Agaves*, *Pelargoniums*, and *Centaureas*. An oblong bed of similar character has four circles, the two outer of *Stellaria graminea aurea* and *Dracena marginata*, the two inner of *Sedum acre elegans* and *Beaucarnea recurva*; the centre is *Pandanus Veitchi* on a ground of *Sedum glaucum*, these circles being lined with *Sedum Lydium*, white *Lobelias*, *Spergula pilifera aurea*, *Alternanthera amoena*, *Echeverias*, and *Sedum glaucum*. The Ferr nook is as usual filled with healthy specimens of the most suitable kinds for the purpose, and the long beds a short distance beyond generally planted in the carpet style, are this season of an exceedingly mixed character, but possess the attractions of novelty and diversity.

Many other pleasant walks may be taken, especially that round the east side of the park, where there are some charming Fern dells and good examples of mixed bedding, while nearer the boat-landing stage at the lake are some extremely bright borders of *Calceolarias*, *Zonal Pelargoniums*, *Lobelias*, &c., *Chrysanthemum frutescens* and *C. coronarium* being largely and well employed. Throughout abundant evidence is afforded of Mr. Rogers' careful and efficient system of management, and a horticulturist can never regret a few hours spent in Battersea Park.—L. C.

THE CRYSTAL PALACE FRUIT SHOW.

THIS is the only great Exhibition of fruit that has, as yet, been provided this year in the neighbourhood of London, and there is little doubt it was the finest show of its kind held in this country during the present season. In every respect it far surpassed the Show of last year, which was disappointing; yet in some respects the present display was faulty. Several examples of Grapes, for instance, were not ripe, while others were very inferior and quite unworthy of a place at any show. But such were in a minority, the majority being very good indeed, and not a few excellent. The collections of fruit were admirable, the winning stands superior, and the whole most creditable to the exhibitors. Peaches were extremely fine, and Nectarines good. Plums were sparsely represented, and Pines and Melons were of good average quality. Altogether the Exhibition was one of the best that has been seen at the Palace during recent years, and Mr. Head managed—and this is no small feat—to have all ready in good

time for the Judges, and consequently the public had early admission to criticise and admire what was evidently as great an attraction as the magnificent display of Dahlias in the other transept.

COLLECTIONS.

Liberal provision was made in the schedule for collections of fruit, three classes being devoted to them, in which the prizes ranged from £15 to £2 in value, yet the competition was not so keen as might have been expected, comparatively few exhibitors beyond those named as securing prizes entering the lists. To balance this, however, the quality of most of the fruit in these collections was above the average, and in several cases examples of great excellence were staged. This was particularly noticeable in the case of the Grapes, some bunches of which were in general finish superior to any in the classes devoted to Grapes alone. Peaches and Nectarines, too, were well shown throughout, of good size, and finely coloured. The leading class, and that in which chief interest centred, was for a collection of fruits not less than twenty-four dishes, to contain four dishes of Grapes, three bunches each, two white and two black varieties; three Pines, two Melons, two dishes of Peaches, two of Nectarines, and two of Plums, the remaining dishes to be distinct varieties. Three prizes were offered—namely, £15 as the first, £10 as the second, and £5 as the third; but only two competitors appeared—namely, Mr. W. Coleman, gardener to Earl Somers, Eastnor Castle, Ledbury, and Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, who were respectively awarded first and second honours. Mr. Coleman's collection comprised Foster's Seedling and Muscat of Alexandria as the white Grapes, both good, especially the latter, Alicante and Black Hamburg as black Grapes, the last-named being very handsome in size of berry and bunch and in colour; Bellegarde and Violette Hâtive Peaches, large and ripe; Lord Napier and Stanwick Elruge Nectarines, fine; Victory of Bath and Eastnor Castle Melons; well ripened examples of Moorpark Apricots, Magnum Bonum and Kirke's Plums; excellent Williams' Bon Chrétien Pears, Quarrenden Apples, Negro Largo Figs, Morello Cherries, three fine Pines, Strawberries, Gooseberries, Filberts, and Oranges. Mr. Goodacre's fruit was similarly good, but he lost a few points in some of the dishes. Very notable was a grand example of Charlotte Rothschild Pine, large, of fine shape and colour; Smooth Cayenne and Queen Pines were also good. The Muscat Hamburg Grapes were in admirable condition, the colour and bloom perfection; Madresfield Court Grapes were similarly excellent, and Buckland Sweetwater was well ripened. The other principal dishes were Royal George and Barrington Peaches, handsome Violette Hâtive and Pitmaston Orange Nectarines, Williams' Bon Chrétien and Jargonelle Pears, Morello Cherries, Read's Scarlet-flesh and Lockinge Hero Melons, Brown Turkey Figs, Red Astrachan Apples, Moorpark Apricots, Pond's Seedling and Goliath Plums, and Filberts. Both collections were very praiseworthy, and were greatly admired by numerous visitors and horticulturists.

The next important class was for a collection of twelve dishes, to comprise two dishes of Grapes, one Pine, two Melons, but only one dish of the other varieties needed to constitute the requisite number, the prizes being £8, £6, and £4. Of the three competitors, Mr. J. Coomber, gardener to J. H. Rolls, Esq., M.P., The Hendre, Monmouth, deservedly won first honours with a most satisfactory collection of well-ripened fruits; but the leading feature was his three grand bunches of Alnwick Seedling Grapes, which for size of berry, evenness of bunch, colour, and general finish were unsurpassed in the whole Exhibition. The Muscat of Alexandria were not quite so ripe. One bunch was, however, in fine condition. Royal George Peaches and Humboldt Nectarines were of good size and colour, Hemskerk Apricots fine, Jargonelle Pears, Hendre Seedling Melon large and regularly netted, Kirke's Plums, Vicomtesse Héricart de Thury Strawberries, and Smooth Cayenne Pines well ripened. Mr. Goodacre was adjudged the second position, his best dishes being the Madresfield Court Grapes, handsome bunches, and excellent in colour. The Muscats were well ripened, Bellegarde Peaches, Pitmaston Orange Nectarines, Goliath Plums, Williams' Bon Chrétien Pears, and Smooth Cayenne Pine being similarly praiseworthy. Mr. J. Roberts, gardener to the Baroness Rothschild, Gunnersbury Park, Acton, followed closely, having three fine bunches of Madresfield Court Grapes, the berries of great size and bearing good bloom, Belle de Doué Peaches, Red Astrachan Apples, and Williams' Bon Chrétien Pears being other noteworthy dishes.

The third class in this section was provided for a collection of eight dishes, and in this Mr. G. F. Miles, gardener to Lord Carrington, Wycombe Abbey, gained the chief position with beautiful examples of Gros Maroc Grapes of moderate size but well finished, Foster's Seedling Grapes, Elruge Nectarines, Morello Cherries, Victory of Bath Melon, Crawford's Early Peach very handsome in colour and size, and a good Queen Pine. Mr. Elphinstone, gardener to E. M. Munday, Esq., Shipley Hall, Derby, was a close second, his Muscat Hamburg Grapes, Pine Apple Nectarines, and Goliath Plums being the best dishes. Mr. Nash, The Gardens, Badminton, Chippenham, took the third position, perhaps his finest dish being good bunches of Alicante Grapes. The three classes above noted occupied considerable space, and formed a most satisfactory feature of the Exhibition.

GRAPES.

Altogether there was a great display of these. Some of the finest bunches, however, were in the collections of fruit. Mr. Goodacre staged Madresfield Court splendidly, but the most notable examples in the Show were grand bunches of Alnwick Seedling from Mr. Coomber. Mr. Coleman and others above noticed exhibited well.

The principal class was that for ten varieties, six black and four white, two bunches of each. Mr. Roberts of Gunnersbury was the champion, gaining leading honours with a fine collection, comprising the following:—Muscat Hamburg, good colour; Buckland Sweetwater, well ripened; Gros Maroc, large but not quite ripe; White Tokay, fine berries but a trifle green; Madresfield Court, bunch and berries large, colour good; Alicante, fine in bunch but not fully ripe; Muscat of Alexandria; Alnwick Seedling, large bunches; Black Hamburg, fine; and Golden Champion, good. Mr. A. Barker, gardener to Sir H. Allsop, Bart., Hindlip Hall, Worcester, was second with fairly finished examples of Mrs. Pince, Madresfield Court, Alnwick Seedling, Foster's Seedling, Trebbiano, Alicante, Muscat of Alexandria, Gros Colman, and Black Hamburg.

For a collection of five varieties, two white, two bunches of each, the competition was much keener, seven lots being entered. Mr. G. F. Miles was the most successful, being first with Black Hamburg, fine in bunch, berry, and colour; Foster's Seedling, Gros Maroc, Muscat of Alexandria well ripened, and Lady Downe's, good colour. Mr. G. Tucker, gardener to J. L. Lovibond, Esq., Start's Hill, Farnborough, was second, the best Grapes in his collection being Alicante and Madresfield Court. Mr. Woodbridge, The Gardens, Syon House, Brentford, followed; Alnwick Seedling, Alicante, and Muscat of Alexandria being the finest.

Coming to the classes of three bunches Black Hamburgs as usual headed the list, but they were scarcely worthy of the honour on this occasion. Mr. Coleman well won the first position with well-filled 2-lb. bunches and medium-sized and well-finished berries, Mr. Roberts, Gunnersbury Park Gardens, following with smaller bunches, but better berries; third honours going to the veteran cultivator, Mr. Bailey of Shardloes, for small bunches, but berries of good size and quality, cut from a Vine which has produced a crop of 250 similar examples this year. Ten stands of Muscats were staged, but several of the bunches were scarcely finished, and in some the berries were small. Mr. Middleton, gardener to R. Pilkington, Esq., Ranford Hall, St. Helens, secured the first position with good, full, well-shaped bunches and very fine berries, Mr. Woodbridge, Syon House, being an extremely close second with larger bunches and perhaps better finished yet smaller berries, Mr. Coleman being third with excellent produce. There was not great competition in the Gros Colman class, but the examples staged were very good indeed. Mr. Coleman secured the first position with large, full, and fine bunches of admirably coloured and good berries. Mr. Elphinstone, Shipley Hall Gardens, Derby, closely followed with smaller bunches, the berries being of the first size and quality, third honours going to Mr. Tucker for creditable examples.

Thirty bunches of Madresfield Court were placed in competition, but many of them were not ripe, while a few were very small. The first-prize bunches, however, from Mr. Goodacre were splendid in size, shape, and finish; as also were, in size of berry especially, the second-prize examples of Mr. Roberts; Mr. Coleman, who was third, staging smaller but admirably finished produce.

A similar number of Alicantes was staged, and the class was a good one. The first-prize bunches from Mr. Nash were very fine indeed in every respect, and fully merited their position. Mr. Elphinstone followed with smaller examples, but splendidly finished; Mr. Howe, gardener to H. Tait, Esq., Park Hill, Streatham Common, securing the remaining prize with large bunches and good berries, but not equal in finish to the preceding. Mr. Folkes, gardener to J. F. Halsey, Esq., M.P., Great Gaddesden Place, Hemel Hempstead, staged very fine examples, but they had been unfortunately much disfigured in transit; but for this mishap they would presumably have had a place in the prize list.

In the class for white Grapes the result would please Mr. Thomson of Clovenfords, if it pleased no one else; the first and second prizes going to the Duke of Buccleuch and Golden Champion respectively, the third to Buckland Sweetwater. Foster's Seedling and Golden Queen were the remaining varieties in the class. The bunches of "the Duke," staged by Mr. Tucker, were not large, but the berries were very fine, ripe, and clear. They merited the position. Golden Champion, exhibited by Mr. Roberts, was fine both in bunch and berry, but not perfectly ripe. Buckland Sweetwater, staged by Mr. Adams, gardener to H. Trigg, Esq., The Brokes, Reigate Hill, being very good, and if anything overripe. The bunches of Golden Queen, exhibited by Mr. Coomber, were very fine, full, and regular, but we understand were defective in quality, otherwise they would have found a place in the prize list. They were not quite ripe.

PEACHES AND NECTARINES.

As previously remarked the Peaches and Nectarines in the general collection were remarkably fine, and again in the classes specially devoted to them similar excellence was notable, though there were a few dishes of unripe fruits. The principal class for a collection of not less than six dishes of Peaches and the same number of Nectarines, four fruits each, and though prizes of £4, £2, and £1 were offered, only one collection was staged—namely, from Mr. Coleman, who secured the first prize with beautiful fruits of the following Peaches—Prince of Wales, Violette Hâtive, Vanguard, Bellegarde, Galande, Royal George, Exquisite, and Noblesse. The Nectarines were Elruge, Violette Hâtive, Albert Victor, Pine Apple, Lord Napier, and Pitmaston Orange, all of good size and mostly of good colour. Five lots of four dishes of Peaches were staged, Mr. Coleman again securing first honours with Violette Hâtive, Bellegarde, Royal George, and Alexandra Noblesse, very handsome. Mr. Roberts followed, having Belle Beauce in fine condition, and Mr. Coomber was third. A dish of Thames Bank, a fine golden yellow variety, was very notable. Fourteen single dishes of Peaches were contributed. Mr. Blair, gardener to Sir G. M. Middleton, Bart., Shrubland Park, Ipswich, was first with large handsomely coloured fruits of Barrington; Mr. Coleman was second with Bellegarde, equally as fine; and Mr. Nash was third with fine examples of Barrington.

Two classes were appropriated to Nectarines, one for four dishes and the other for single dishes. In the former Mr. Coleman continued his successful career, and gained the first position with Stanwick Elruge, Lord Napier, Albert Victor, and Pitmaston Orange, all beautiful fruits. Mr. Goodacre was a close second, his examples of Violette Hâtive, Elruge, and Pine Apple being very noteworthy. Mr. Hanagan, gardener to R. C. Naylor, Esq., Hooton Hall, Chester, was third, Pitmaston Orange being well shown. Nine competitors entered with single dishes, Mr. Coleman leading with Stanwick Elruge of moderate size but superbly coloured. Mr. Elphinstone took the second place with Elruge; and Mr. Ridout, gardener to T. B. Hayward, Esq., Woodhatch Lodge, Reigate, third with Lord Napier.

PINE APPLES.

These were not largely shown, but the fruits were of fair size and well ripened. The best pair of Queens were from Mr. Bailey, The Gardens, Shardloes, Amersham—fine even fruits. Mr. Goodacre was second with slightly smaller examples. There was no entry in the class for a pair of Smooth Cayenne Pines, but in the Any other variety class Mr. Miles was first with two handsome unnamed fruits somewhat like Black Jamaica.

Mr. Barker second with Charlotte Rothschild, and Mr. Goodacre third with Black Jamaica small but well ripened.

MELONS.

The competition was remarkably keen in the two classes for these, the green-flesh varieties being represented by thirteen fruits, Mr. Goodacre being first with Hero of Lockinge, small, but neat, and excellently ripened. Mr. T. Bailey was placed second with a finely flavoured fruit of Bailey's Green-flesh, which is a very old but excellent variety, and still one of the best in its class. We understand that Mr. Bailey was awarded a Banksian medal by the Royal Horticultural Society for this variety as early as 1827. Mr. Coomber followed with William Tillery. Nine fruits of scarlet-flesh varieties were entered, Mr. Barker leading with Blenheim Orange evenly netted; Mr. Miles was second with Scarlet Hybrid, and Mr. Coomber third with the same variety as the first.

PLUMS.

Only one collection of four red varieties was staged—namely, by Mr. J. Bolton of Sevenoaks, who was awarded the premier prize for good fruits of Cox's Emperor, Victoria, Pond's Seedling, and Prince of Wales. For four yellow and green varieties Messrs. Goodacre; W. Johnstone, gardener to the Marchioness of Camden, Bayham Abbey; and J. Bolton were the prize-takers, the best shown being Magnum Bonum and Washington. Mr. Goodacre had the best four purple varieties—Prince Englebert, Kirke's, Diamond, and Emperor; Mr. Bolton followed with similar varieties.

MISCELLANEOUS.

Prominent amongst the exhibits not in competition were the large collections of Apples from Messrs. Veitch & Sons, Chelsea; Messrs. Paul & Son, Cheshunt; and Messrs. J. Cheal & Son, Crawley, which included a great number of varieties, a total of about four hundred dishes being staged by the three firms. Extra prizes were awarded for each collection, also for the following:—Group of Chrysanthemums from Mr. Davis, Camberwell; Tuberous Begonias, tastefully arranged with Ferns, from Messrs. J. Laing and Co., Forest Hill; collection of Asters and Godetias from Messrs. J. Carter & Co., Forest Hill; a number of spikes of Gladioli from Messrs. Kelway & Son, Langport; Peas, Gooseberries, Currants, and very handsome Frilled Asters from Mr. J. Walker, Thame; Balsams from Messrs. F. & T. Smith, Dulwich; and a fine collection of fruit from Mr. J. Neighbour, Bickley.



AS this year is universally allowed to have produced the best crop of Apples which we have had in this country for many years past, it has occurred to some who are materially interested in fruit culture to take advantage of this opportunity for examining and comparing the numerous varieties that are grown throughout the country. The importance of such a course is apparent to everyone who has watched the progressive development of fruit culture during the last few years, and who are, at the same time, painfully conscious of how little even growers of fruit know of the varieties they possess. Every week, and indeed every day, for months to come, we shall have evidence of this in the numerous packages of fruit that are received at this office to be named and to have some information obtained respecting them. The only way to arrive at a satisfactory solution of the subject is to bring together as many varieties of Apples from all parts as can be obtained, and to have them exhibited in one place, where they can be studied and examined as to their identification and comparative merits. Some progress has already been made in this movement. We hear that Mr. Killick of Langley, an enthusiastic Kentish orchardist; Mr. Bunyard of Maidstone; Mr. John E. Lane of Berkhamsted, and others who have long been engaged in fruit culture, are silently working to promote the desired object, and we sincerely trust that they will find a large accession to their numbers and strength in carrying it out. What is contemplated is to have this great gathering at the Chiswick Garden of the Royal Horticultural Society, and to apply to the Council for the use of the spacious conservatory for the purpose. We feel sure that the Council will afford every facility for carrying out a work of such great importance to the commercial industry of the nation, and no more suitable place could be found for the purpose. Let all who take any interest in fruit culture—and who does not?—give their support to carry out this good work. It may be years before another opportunity occurs, and if we do not seize it when we can many may live to regret the loss of it. All who are willing to unite in carrying out this great pomological project are invited to communicate with Mr. L. Killick, Langley, near Maidstone.

— THE brilliant period of summer-like weather that has prevailed

in the south during the past month was succeeded by a STORM OF GREAT VIOLENCE on Saturday and Sunday last. Many gardens were wrecked. In the district of Sittingbourne and Faversham the damage is very serious indeed. Hundreds of poles of Hops are lying upon the ground, and in the gardens in which the string system is adopted immense numbers of strings have been broken. The Hops, especially in exposed plantations, are terribly "cut up," bruised, and battered, and discolouration is setting in to an alarming extent, the cones turning brown and black. It is, of course, impossible in the case of many gardens to say exactly what the permanent damage will be for two or three days, because the Hops are not yet fully grown out, but those which are "whipped," as it is technically called, or bruised, will become "flyers," unfit for picking. The damage must amount to hundreds of pounds. The fruit orchards present a desolate appearance, the trees having been completely stripped by the wind, and the ground strewn with hundreds of bushels of Apples and Pears. Great injury has been done by the storm to the fruit crops in the market gardens near Twickenham and Isleworth, the ground being strewn with Apples, Pears, and Plums; and from Bridport and Canterbury we learn that thousands of bushels of Apples have been blown down. In some orchards three-fourths of the fruit is spoiled.

— THE total number of bunches of Grapes on the great VINE AT HAMPTON COURT this year is about 1,300, or 130 in excess of last year. In previous years 2,200 bunches have been borne at one time.

— RELATIVE TO DESTROYING THE PHYLLOXERA a Belgian correspondent writes:—"I saw in your last number that at Ashton Court the phylloxera having attacked the Vines these were destroyed, no remedy being known against these dreadful parasites. As you seem to endorse that opinion, allow me to inform your readers that the use of sulpho-carbonate of potash effectually destroys the phylloxera without injuring the Vines. The cost of the ingredient forbids its use on a large scale, but in vineries it can be afforded." [We have not asserted that phylloxera cannot be destroyed; but with Vines so seriously attacked as those in question there was no other proper course to adopt. Some less seriously infested in the same garden were not destroyed, and there is a prospect of their recovering. The sulpho-carbonate of potash remedy was published in our columns a fortnight ago on page 155. We may add that the phylloxera did not reach Ashton Court in any mysterious manner, but we have no authority for stating how it was obtained.]

— MR. JOHN FORBES, Buccleuch Nurseries, Hawick, N.B., sends us a number of flowers of BORDER CARNATIONS, which include several very pretty and useful varieties. They differ considerably in colour, the streaked, flaked, and bizarre varieties comprising some with salmon ground streaked with crimson and rose, others are pink and white, maroon and white, salmon-rose and buff, crimson and yellow, and pink and yellow. The selfs are pink, white, purple, and crimson of many shades; one Picotee-like variety has a heavy rich crimson edge, and is very attractive. The blooms of all are full, but neat and useful for cutting.

— MR. E. BUTTS describes ERIGERON SPECIOSUM as "a first-class plant for the mixed border. It has been in flower with us for nearly three months, and the late flowers are still fresh. It is well worthy the attention of all lovers of hardy plants. In a well-prepared border it grows about 2½ feet high. The flowers are a beautiful mauve colour, and resemble the perennial Aster, but are better in form and much larger. In addition to its good qualities as a border plant it is invaluable for supplying cut flowers, as these will keep fresh for at least a fortnight if occasionally supplied with fresh water."

— MR. W. GIBSON, Superintendent of the Ranelagh Gardens, Chelsea, sends the following particulars in reference to the PENSIONERS' ALLOTMENT GARDENS noted last week in this Journal, page 181:—"There are 144 plots, each 15 feet square, and any of the pensioners who desire to have a plot apply to the Sergeant-Major, and if there is one to spare he has it, or if not he has to wait his turn. A corporal superintends these gardens, and if any man neglects his plot he reports it, and it is taken from him. They are allowed to sell the produce to the public."

— "AT Carbrook, the seat of J. C. Bolton, Esq., M.P. for Stirlingshire, Larbert, N.B.," writes a correspondent, "may be seen some good examples of LEEK AND ONION CULTIVATION. Mr. Glass, the gardener, is well known as one of the first vegetable exhibitors in Scotland, his

Lecks and Onions being always extraordinary. This year he has surpassed himself, if one may judge from appearances, and though he has shown none yet they will likely be heard of ere long. In the same gardens the Grape and Peach houses are very badly situated, being placed in a bog, in fact. In the stokehole is a spring of water largely impregnated with iron. Under these circumstances mildew is a constant enemy, and has constantly to be fought. Dusting with sulphur Mr. Glass finds quite useless for this purpose; but a preparation made by boiling lime and sulphur in water, afterwards decanting the brandy-looking liquid into bottles, using a little in the water with which the trees are syringed, he finds effectual."

— A WILTSHIRE correspondent writes:—"We have recently cut an AUTUMN GIANT CAULIFLOWER 4 feet in circumference. This may possibly be interesting to some of your readers. Such a production however, is quite unfit for a gentleman's table, and at best should be regarded only as a monstrosity."

— THE nineteenth annual Exhibition of the RICKMANSWORTH COTTAGERS' HORTICULTURAL SOCIETY was recently held in the Old Pleasure Grounds, Moor Park, the seat of Lord Ebury, by permission of his lordship, who is President of the Society. The vegetables and fruit shown were of excellent quality and more largely shown than usual, especially Potatoes and Apples, which this year exceed the average.

— RELATIVE to examining THE SUBSOIL OF GARDENS, "F. J." asks "If there is an instrument made something like a carpenter's gouge that could be worked into the soil and take up a sample from 3 or 4 feet deep, for the purpose of seeing whether it is moist enough? It would be much more expeditious than digging a hole."

— THE statistical bulletin of the German Empire reports that the number of persons who cultivated the TOBACCO PLANT IN GERMANY was 215,249, and that the area under cultivation was about 55,000 acres, showing a decrease of 30,000 planters and 13,000 acres on the year 1881. The largest area of land under Tobacco cultivation last year was in the Grand Duchy of Baden (17,000 acres), and then came Prussia (8,200 acres), Bavaria (8,000 acres), Alsace-Lorraine (7,500 acres), and Hesse-Darmstadt (2,400 acres). The total weight of the Tobacco crop when dried was 38,850 tons, as compared with 61,315 tons in 1881, and of this quantity 11,670 tons came from the Grand Duchy of Baden, 9,884 from Prussia, 8,383 from Bavaria, 6,674 from Alsace-Lorraine, and 1,129 from Hesse.

— THE finest specimens of DARLINGTONIA CALIFORNICA to be found in any private collection, or, we almost incline to add, public collection either, is one in the gardens at Mount Merrion, Co. Dublin. In height, size, and breadth of dome its pitchers exceed even those of the famous specimen in the Glasnevin Gardens, and nothing can exceed the health, cleanliness, and vigour of the plant, which numbers, large and small, some score of its marvellous leaf-developments, some of them fully 3 feet high, their tessellated and semi-transparent domes being fully a span or more across. Whatever Mr. Duncan Welsh, the deservedly esteemed and very capable gardener at Mount Merrion, takes in hand he is sure to make it a success, and he is to be congratulated on having been pre-eminently so in his treatment of this, one of the most singular productions of the vegetable kingdom.—(*Irish Farmers' Gazette.*)

— THE result of planting operations in the Government CINCHONA PLANTATIONS IN BENGAL during 1882-83 shows a total of 50,000 trees less than in the returns of 1881-82, which is attributed to the uprooting of a large number of hybrid varieties, and about 160,000 Red Bark trees. The total number of Cinchona trees of all sorts at the close of the year was 4,711,168, and the crop was the largest yet harvested, amounting to 396,980 lbs. of dry bark. The whole of the produce was made over to the factory, except about 41,800 lbs. of bark, which, at the request of the Secretary of State, was sent to London to be there converted into various forms of febrifuge, and returned to this country for trial by the Medical Department.

— THE *Tropical Agriculturist* gives the following respecting BURMESE FRUITS. Every steamer from Moulmein and the south now brings large consignments of Durions to Rangoon. The fruit, the rind of which has a most overpowering and peculiar smell, is in high favour with the Burmese and with many Europeans, and is borne by Durio zibethinus, a member of the family Sterculiaceæ. Another fruit or seed with a still more noxious odour than the Durion finds great favour with

the Burmese, who eat it with their nappi and curries. It is called Tanienthee, and, like the Durion, is just coming into season. I never heard of its having any bad effect on the Burmese, who consider it an excellent tonic, digestive, and appetiser. I have met with some old stagers among Europeans who can stand this fruit too, but their numbers are insignificant compared to the European lovers of Durion. The Mangosteen, too, is brought here in large quantities from Moulmein and the Straits. I never heard of anyone who did not appreciate this cooling and delicious fruit. We have a few trees in some of the gardens here, but they do not thrive well. In Moulmein the Chinese gardeners grow large quantities, and the fruit is very plentiful here at times. In the Burmese times no subject was allowed to own a Durion tree, which was as strict a Government monopoly as the Teak tree is in our own time. Possibly to this fact may be attributed the small number of fruit-bearing Durion trees there are in Rangoon. In the southern districts, which have been under British rule so much longer, they are plentiful enough.

— THE DURION, or CIVET DURION, specially referred to in the above note, is considered one of the most delicious fruits of the Indian Archipelago. At first it is regarded with great repugnance, the foetid odour which it yields being, it is said, almost intolerable; even the rind emits such an offensive smell that in Amboyna it is prohibited by law from being thrown near the public highways. The smell has been compared by some to decaying animal matter, and by others to rotten Onions; but all who have experienced these agree in stating that, when once overcome, the fruit of the Durion is most enticing and delicious. The fruit is as large as a very large Melon, and covered on the outside with soft spines, like the pod of a Chestnut. The eatable part of it is that aril-like substance which contains the kernels, and which most resembles cream or blancmange. It is called duryovon by the natives, who, when they have eaten too much, chew the betel to promote digestion. This fruit is said to be used as a bait to entrap the civet cat, which is very fond of it, and hence its name.

— MR. J. MALLENDER, The Gardens, Hodsock Priory, Worksop, Notts, sends the following record of the WEATHER IN AUGUST—"Amount of sunshine 162.7 hours, being 36 per cent. of possible duration; only one sunless day. Total rainfall, 0.99 inch; rain fell on thirteen days—less rain than in any of the previous eight Augusts. Mean temperature of month, 58.7, being the lowest for several years except 1881. The hottest day was the 26th, 76.0°; coldest day, 24th, 41.2°. Maximum in the sun, 133.3°; minimum on grass, 39.2°. Mean temperature of air at 9 A.M., 60.7°; mean temperature of soil 1 foot deep, 59.5°. Highest reading of barometer on the 23rd, 30.311°; lowest on the 10th, 29.411°. The harvest began generally about the 20th ult. Wasps very numerous, I have destroyed thirty-six nests during the last fortnight within half a mile of these gardens, and still the wasps come."

ROYAL HORTICULTURAL SOCIETY.

CHISWICK, AUGUST 30TH, 1883.

At a meeting of the Fruit and Vegetable Committee, held at Chiswick on the above date, Charles Silverlock, Esq., in the chair, the collections of Tomatoes, Potatoes, and Onions growing in the garden were severally examined, first-class certificates being awarded to the following:—

Tomato Improved Large Orange (Henderson).—Fruits large, round, smooth; deep orange-yellow in colour. Very handsome.

Tomato Chiswick Red.—A selection from General Garfield. Fruits medium-sized, obovate, smooth; deep red. Very productive.

Onion White Globe (Vilmorin).—Bulbs medium size, of a true globular shape, remarkably firm and solid, with a very white silvery skin. Very handsome and distinct.

Potato Welford Park Kidney (Ross).—White kidney, fine handsome shape, clear skin. Excellent cropper.

Potato Beauty of Eydou (Hughes).—Large, oblong, fine clear skin. Very heavy cropper. Fine quality.

Potato Midsummer Kidney (Dean).—Large, long, clear skin. As early as the Ashleaf and with larger tubers. Fine quality.

Potato Snowdrop (Perkins).—Somewhat resembling Snowflake, but of firmer texture, and better colour and quality. An extraordinary cropper.

Potato Clarke's Maincrop (Clarke).—Type of Magnum Bonum. Early. Great cropper and fine quality.

Potato Desideratum (W. Smith).—Long kidney, skin of a dull fawn colour. Moderate cropper. Extra fine quality.

GAILLARDIAS.

THE genus Gaillardia, though small, includes some of our most useful hardy flowers, and it is surprising in how few collections these beautiful plants are cultivated.

G. pulchella, the subject of the accompanying woodcut, is a perennial

of great beauty, and compares favourably with many plants we see used in the flower garden at the present day. It grows from a foot to 18 inches high, with alternate lanceolate leaves; flowers purple and orange yellow, between 2 and 3 inches in diameter, with a dark purplish disk, making an agreeable contrast with the ray florets. *G. pulchella* has a trailing habit, which adds greatly to its usefulness either for the flower garden, herbaceous border, or rockery, and well deserves a place in every collection. A sunny position, where the soil is light and rather dry than otherwise, suits this plant admirably. It is easily raised from seed, and also by root-cuttings. It was cultivated in the Royal Gardens,

seeds. It flowers July and August, and grows about 2 feet high. The flowers are not so large as *G. pulchella*, bright yellow; rays deeply toothed; leaves lanceolate, hairy; stem branched.

G. bicolor is a handsome herbaceous plant with large yellow fragrant flowers, although very variable both in size and colour; flowers May to August; should have a place in every garden.

G. bicolor var. *Drummondii* (*G. Drummondii*, *Hort.*) is a pretty *Gaillardia*, supposed to have been raised in the Botanic Garden, Glasgow, from seed collected by Mr. Drummond at Rio Briazos in Texas in 1833. The leaves are entire or more or less toothed, and differing from all the



Fig. 37.—GAILLARDIA PULCHELLA.

Paris, as long ago as 1784 from seeds brought from Louisiana by Comte d'Effales, flowers from July until October, and is one of the parents of the many hybrids which we sometimes see from continental gardens.

G. aristata, the Awned *Gaillardia*, a native of North America, is a showy herbaceous perennial of comparative easy culture, and very desirable for the herbaceous border. It increases moderately, and a sufficient stock may be obtained by division of the roots in spring, and also by

others in colour of the flower, which are entirely of a reddish purple or sanguineous, unless the tips, which are yellow; ray florets sometimes having a bilabiate corolla; good rockwork plant. *G. bicolor* var. *Drummondii integerrima*, is synonymous with *G. picta* of "Sweet Fl. Gard.," and differs in no respect from the above, except in having quite entire leaves and larger yellow edge to ray florets. Found in Texas, and introduced by Mr. Drummond, 1835. Very pretty.

G. amblyodon, although annual, is very pretty, having large deep red florets deeply cut, and when sown in patches is very effective in the border. The leaves are alternate, lanceolate, serrated.

G. grandiflora, supposed to be hybrid between *G. bicolor* var. *Drummondii* and *G. aristata*, but I am inclined to think *G. pulchella* has had something to do with the parentage. The flowers exceed 4 inches in diameter, and are of the same colour as *G. pulchella*. The leaves are entire.—D.

JUDGING GARDENS AND THEIR PRODUCE.

PERHAPS there is no more difficult question to find a satisfactory reply for than those propounded by "Reader" on p. 111; and as criticism is solicited, or rather suggestions invited, I may be allowed briefly to make some remarks upon the subject that may help exhibitors of gardens to a solution of the frequently perplexing awards. The point to aim at is this—arriving at a satisfactory adjudication which will not only be clear to the adjudicators but carry with it the weight of public opinion. Judges are not infallible, and unless their awards are such as to meet the views of exhibitors, many of whom are as cognisant of the points that ought to guide them in arriving at a decision satisfactory alike to the unsuccessful as to the successful competitors as the judges themselves. It is well to bear this in mind, for many are of opinion that no one knows anything of the law of judging except those within its pale. It must be conceded, however, that there are many skilled cultivators which, though not exhibiting or adjudicating, are, from their extended experience both in growing and seeing produce upon the exhibition table repeatedly, quite capable of forming a sound opinion on the matter. Some persons say that judging is only correct when it meets the approval of the general public. This is hardly accurate, for the general public know little of the merits of plants, flowers, fruits, or vegetables, yet the observant and appreciative visitors at shows somehow seldom fail to see the justice or otherwise of the awards. This is what I think "Reader" desires to make clear—viz., that the awards may convey their meaning—that is, show why such an exhibitor is first and so on, alike to prevent unpleasantness between competitors and to render the awards instructive and contribute to the general good.

Now there are mistakes in judging. The greatest I know is that of the laudable endeavour shown by the committees of local shows to keep down expenses by asking some gardener in the locality to act as judge, who, however competent and impartial, is sure to be charged with partiality if he happen to be at all intimate with any of the competitors. I might go further by stating that none having the patronage of the manse or manor should be selected as censors. The adjudicator ought to be one in no way interested in the result and personally unknown to any of the exhibitors. Perhaps no better judge could be found than one having an insight into the social and domestic life of the cottager, and this would point to a successful exhibitor of a cottage garden in a distant locality being the most likely person to appoint as judge. But as the object of cottage shows is to improve and advance the art of growing plants, fruit, and vegetables, someone that has made a study of the special failings of cottage cultivators, and himself a practical grower of things calculated to contribute to the cottager's benefit and pleasure, would be an admirable adjunct in judging; if, indeed, a better judge could be found. I allude to the country clergymen, most of whom have gardens, and for pecuniary reasons cultivate them so as to contribute in the highest degree to the use and adornment of the household.

The first consideration in judging a cottage garden should be superiority of cultivation, as to excel in this there must be order and thorough cleanliness. Means should be entirely excluded. By this I intend to convey that a cottager with his few shillings a week, and the artisan with his more liberal allowance, should be placed on an equal footing—judge the gardens by their occupants, and not by their size and conveniences for production. The artisan may have a greenhouse and frames for raising plants in spring and wintering them, but the more humble labourer has no such means, and shall he be excluded, because of his means, from having a chance against his more advantageous competitor? By no means. He may show skill in the cultivation of hardy and even common plants to which the other can lay no claim, and to be not more worthy of honour than one who shows but very indifferent skill in the cultivation of tender plants. Another point is this. A garden may be all aglow with *Pelargoniums* and *Calceolarias*, yet very little skill is needed in the cultivation of bedding plants as compared with that of the *Rose*, *Carnation*,

Stocks, *Asters*, and other plants that cost little, and yet are so appropriate for home cheerfulness.

As to "Reader's" query, "Should a flower garden be placed before a kitchen garden, both showing great excellence of cultivation?" is one that meets its answer in the axiom—viz., Use first, then ornament. Still, studying excellence of cultivation, it would rest entirely as to which of the two had the highest marks in point of cultivation. The owner of the flower garden cared nothing for vegetables, and the owner of the vegetable garden set little store by flowers. They may ride their hobbies. If equal in point of merit it ought to go to the vegetable garden, for the simple reason that vegetables are more useful to a cottager than flowers.

In respect of vegetable-judging and the relative value of vegetables, much depends on circumstances and the time of holding the examination. As to circumstances, the cottager may have an allotment, as everyone ought, and he may grow such crops as *Potatoes*, *Beans*, and *Onions* there, so that any comparison of the garden of one who has an allotment and another who has not must be fallacious. It is extremely difficult to do justice in such cases; or, if justice be done, to convince the competitors that it is warranted. *Potatoes* stand first, *Peas* would come next, then *Cauliflowers*, then *Runner Beans*, and following in order, *Onions*, *Carrots*, *Turnips*, *Broad Beans*, and *White Cabbage* ought to rank high from their usefulness, then *Celery* and *Beet*. Those are all in season when judging cottage gardens takes place—viz., in late August and early September. *Red Cabbage* at such time would stand higher than *White* in the estimation of most judges, and *Parsnips* with *Leeks*, as they are winter crops, and not then in season, would bring up the rear. Your correspondent omits mention of either *Ridge Cucumbers* or *Vegetable Marrows*. These ought certainly to follow after *Runner Beans*, and would by many censors be placed next to *Peas*; but I should not be disposed to do so from the great usefulness of the *Cauliflowers* and *Runners* to cottagers. *Dwarf Kidney Beans* from their more delicate flavour stand no chance against *Runners*. To conclude, I may say that a few well-managed fruit trees in a cottage garden ought to carry great weight with a judge, especially if the trees were bush or pyramid of useful kinds of *Plums*, *Pears*, and especially *Apples*.—G. ABBEY.

INTERNATIONAL HORTICULTURAL, FLORICULTURAL, AND FORESTRY EXHIBITION FOR 1884.

I HOPE we are now within measurable distance of this much-desired and long-talked-about Exhibition, judging from the report which appeared a few days ago as to the result of the International Fisheries Exhibition and the proposal made before the Executive Committee by the Chairman, Mr. Birkbeck, that the Commissioners were inclined to try what effect an exhibition of horticulture, floriculture, and forestry would have upon the public of this and other countries who have contributed so much to make the present Exhibition such a gigantic success. In my opinion there cannot be the slightest doubt as to the result if immediate publicity is given first of all that such an Exhibition will take place next year, and that an immediate intimation is given through the press which shall speedily reach all parts of the Continent and the colonies; and, secondly, that the Executive Committee should as early as possible call a meeting of the principal horticulturists in this country, and also invite as many as could attend of our foreign brethren, or in the event of foreign horticulturists not being able to attend, the Commissioners representing the various parts of the world at the Fisheries Exhibition, and who are still in London, might be invited to attend, and through them the idea might be transmitted to their countrymen.

I believe such an Exhibition might be made even more attractive and instructive to the great mass of the people than the Exhibition now being held in the gardens of the Royal Horticultural Society at South Kensington, because it would or could be made to embrace a much greater variety of subjects and an ever-varying change of exhibits from the month of April to November. The whole of the space now occupied by the piscatorial exhibits could be filled by exhibitors with plants, seeds, and all kinds of horticultural implements and appliances, together with the food products of the colonies, &c.

On the 25th of October, 1878, whilst engaged at the great Paris Exhibition, I had the honour of offering to His Royal Highness the Prince of Wales, and Her Majesty's Commissioners for the Exhibition of 1881, some suggestions respecting a proposed Colonial Museum for London (a copy of which I herewith enclose) some of which I respectfully submit might be usefully adopted in connection with the proposed Horticultural Exhibition next year; such, for instance, as an exhibition of grain, seeds, roots, &c., from the colonies and the United Kingdom of Great Britain and Ireland.

I am of opinion that the Exhibition should open about the 15th of April, in order that the Belgian horticulturists should exhibit their marvellous collections of *Azaleas*, &c., whilst splendid collections of *Cyclamens*, *Primulas*, *Auriculas*, &c., would be staged by English growers, and French horticulturists might be induced to exhibit many

of the specialities, both in flowers and vegetables, they cultivate so successfully in the early part of the year. During the month of May grand displays of Roses, Azaleas, Orchids, Pelargoniums, stove, greenhouse, foliage plants, Ferns, Palms, &c., our own countrymen know so well how to cultivate. About this time one of the finest displays ever seen might be made by the market growers, which would be highly attractive to foreign exhibitors as well as the general public. In June the finest display of Rhododendrons could be sent up from Knap Hill, Bagshot, and elsewhere, to be followed in July and August with Pelargoniums, Carnations, and many other well-known favourites. September would furnish a glorious display of Dahlias, Gladiolus, Phlox, Pentstemons, and many other well-known gems so plentiful at that period. October and November, fruits, vegetables, and Chrysanthemums would make an exceedingly attractive display. I have only mentioned a few of the leading objects for exhibition; hundreds of others will naturally occur to the minds of those who may have the compiling of the schedules. I think I have sufficiently indicated what may be done, and have shown in as concise a form as possible how such an Exhibition might be brought to a satisfactory issue by the amalgamation, to some extent, of horticulture, floriculture, and forestry with agriculture.

In order to make the Exhibition still more attractive, and to give greater variety, the aquarium part of the present Exhibition might remain with advantage.

I trust all will join heartily in endeavouring to make this Exhibition worthy of the age we live in, and dispel the opinion too firmly taking root in the minds of continental horticulturists, that Englishmen could not organise and develop a grand international horticultural exhibition, although we have greater means and more facilities than any other nation in the world.

Now that the opportunity is opened to us, with everything pointing to success, we have only to organise our forces and pull together, when success will be assured.—JOHN WILLS.

PROPAGATING BEDDING PLANTS.

As my practice differs slightly in some respects from that recorded by Mr. Ward recently I will briefly refer to the chief points, for the time has now arrived when the propagation of plants for next year's requirements must be taken in hand, at least so far as regards the majority of half-hardy plants. Late-propagated plants, owing to the fact of their not being well established and their growths insufficiently ripened, are generally a source of trouble and disappointment, and are apt to die during the cold, damp, sunless days of midwinter; moreover, they require a certain amount of coddling and more heat than plants which have rooted earlier. It need hardly be said that of some kinds of bedding plants, say a Pelargonium, an early autumn or late summer-propagated plant is worth half a dozen of spring-rooted ones.

Before a cutting is taken the arrangements or plans for next season should as far as possible, and where practicable, be taken into consideration and fully matured. By exercising a little forethought in this respect, and estimating carefully the number of each likely to be required, much space, time, and trouble may be saved. Where work of this kind is done in an unmethodical way there is sure to be confusion.

For many years now Pelargoniums have held the first place amongst plants for the flower garden, and with these I will enter into the more practical part of the subject. Having prepared a good supply of compost, which should consist of three parts finely sifted soil, one part leaf mould, one part sharp sand, and one of dung from an old Mushroom bed, the whole being turned over two or three times, a beginning should be made with the variegated section, taking the tricolors first. These I prefer inserting singly in small pots, giving them a shift into larger ones in the spring. Select cuttings which are fairly well ripened and 3 or 4 inches long, take off the bottom leaves, make a clean cut just below the bottom joint, and press the cutting down in the pot quite firmly. The commoner varieties of bicolors of the silvery and bronzed-leaved sections may be put into 6-inch pots, but for the green-leaved and Zonals I find boxes 18 inches by 14 inches the most convenient to root and winter them in. Stand them outside in the full glare of the sun, and water them overhead occasionally if the weather is very dry and warm when they are first inserted. Each box should be stood on a couple of 3-inch pots to keep them off the ground, which will be a preventive against worms entering the soil, as well as tending to keep the soil in a better condition than would otherwise be the case. In about three weeks or a month they will be rooted and growing, and towards the end of September or the first week in October should be moved to their winter quarters.

Coleuses, Iresines, Verbenas, Ageratums, and Lobelias, with such carpet-bedding plants as Alternantheras and Mesembryanthemums, should be taken in hand next. For these and sundry other tender plants a frame over a half-spent hotbed will be found a convenient place to root them in, and if cold wet nights set in it must not be forgotten to add linings thereto. Much the best plan with these will be to insert them in 6-inch pots, always bearing in mind to use plenty of drainage. Fill the pots with the above-mentioned compost, with a layer of sand on the surface, to within an inch of the top, press it down firmly. Water it, insert the cuttings, and sprinkle them sufficient to settle the sand round them. Until rooted the cuttings must be shaded with mats from bright sunshine, and be daily syringed and ventilated according to the state of the weather. When rooted they must be gradually inured to more air and sun to harden them, thereby better enabling them to pass safely through the winter.

Many other plants used for bedding may be propagated in cold frames; such, for instance, as *Gnaphalium lanatum*, *Leucophyton Brownii*, and *Calceolarias*. The latter should not be inserted before the first week in October. Turf pits or frames 18 inches high at the back and 12 inches in the front are admirable contrivances to root and winter them in; of course they must be covered with ordinary frame lights. Fill the frames nearly half full with partially decayed leaves and litter, tread it down quite firm, and put about 3 inches of soil on the top, finishing off with a layer of sand. In this insert the cuttings 2 inches apart each way, and after having watered them through a fine-rose pot keep the lights close till rooted, when little or no shading will be required. When struck air must be freely admitted on all favourable occasions, at the same time not forgetting to protect with straw or mats in severe weather. *Herniaria glabra*, with most of the Sedums and other hardy plants, should be divided and planted in rows on south borders. Violas are now very popular, and deservedly so, for spring and summer bedding, and may be increased either by cuttings on warm sheltered borders outside or by sowing seed. With some of those mentioned in this paper it is the practice with many gardeners to pot old plants and propagate from them in the spring; and although I have nothing to say in condemnation of this plan, I much prefer propagating again in the spring from autumn-rooted young plants. The latter have certainly in some instances a great advantage over the former, inasmuch as they not unfrequently pass safely through the winter where old plants will not. This is frequently the case with *Alternantheras* and other tender plants.—H. J. H.

NATIONAL DAHLIA SHOW.

THE expectations of the projectors that exhibitors would again come forward to assist in establishing an annual exhibition of Dahlias were fully realised at the Crystal Palace on Saturday last, for the majority of the classes were well filled, the blooms of excellent quality, and the general effect admirable. A pleasing break to the long, necessarily formal, lines of Show and Fancy varieties, was furnished by the stands of Pompon and single blooms, which were most elegantly and gracefully displayed, in many instances being freely grouped with foliage as cut from the plant. The miscellaneous collections of Gladiolus and Dahlias not for competition, with many other plants and flowers, also furnished an important addition to the Show, while the Palms, Ferns, and similar fine-foliage plants arranged in the centre of the table between the lines of stands still further helped to diversify the effect.

NURSERYMEN'S CLASSES.

Show Varieties.—Three classes were devoted to these, for forty-eight twenty-four, and twelve blooms, distinct varieties, the prizes ranging from £7 to 10s. The largest class attracted much attention, all the collections being of great merit. Mr. C. Turner, Slough, secured the first prize with forty-eight even blooms, of great symmetry and very rich in colours. The varieties were as follows—Prince Bismarck, Constance, George Smith, Ethel Britten, W. H. Williams, Cream of the Valley, Muriel, Alexander Cramond, J. Stephen, Drake Lewis, Chas. Lidgard, Michael Saunders, Royal Queen, Cardinal, Clara, Canary, Wm. Rawlings, Hugh Austen, H. Walton, J. Wyatt, Cecilia, Champion Rollo, Herbert Turner, T. Godwin, Lizzie Leicester, Pioneer, J. Green, Rosetta, Lady Gladys Herbert, Bessie, Julia Wyatt, Lord Chelmsford, Flag of Truce, Rev. J. Godday, J. N. Keynes, Prince of Denmark, Lily Ward, Ovid, Lady Antrobus, J. Cocker, Hon. Mrs. P. Wyndham, J. B. Service, Harriet Fetterill, J. Standish, H. W. Ward, G. Barnes, Georgiana, and J. Vick. Messrs. Keynes & Co., Salisbury, followed very closely; indeed, it was only by a most careful comparison of the blooms that their position could be determined. Many of the varieties were similar to those in the first collection, and equally good in colour. Messrs. Harkness & Sons, Belleby Grange Nurseries, Yorkshire, and H. Clarke, Rodley, near Leeds, were respectively third and fourth, each showing fine blooms. The five collections entered in this class occupied considerable space, and constituted the main features of the Show classes.

The stands of twenty-four blooms were similarly good in all the leading characters, but as the varieties were mostly the same as in the forty-eight class they need not be repeated. Messrs. Rawlings Bros., Romford, took the lead with blooms of moderate size, very even and symmetrical, and of good colour. Messrs. Paul & Son, Cheshunt, Saltmarsh & Son, and J. Cheal & Son, Crawley, Sussex, were the other prizetakers, five collections being staged. Eight pretty collections of twelve were entered, but in these there was a great diversity of quality. Mr. J. Walker, Thame, Oxon, won chief honours in this class with beautiful blooms of Prince Bismarck, Hon. Mrs. P. Wyndham, Joseph Green, Emily Edwards, Duke of Connaught, Prince Arthur, James Cocker, Alexander Cramond, Shirley Hibberd, John Standish, Goldfinder, and James Vick. Messrs. J. Gilbert & Son, Ipswich, were second; Mr. W. Burbury Crew Farm, Kennilworth, third; and Mr. J. Humphries, Kingston Langley Chippenham, fourth.

Fancy Varieties.—Only two classes were appropriated to these—namely, for twenty-four and twelve blooms. In the former Messrs. Keynes & Co. won chief honours, staging large but compact, deep, and handsome examples of the following varieties: Rebecca, Sport from Gaiety, Mandarin, Gaiety, Hugh Austen, Professor Fawcett, Hercules, Mrs. N. Hall, Seedling, James O'Brien, George Barnes, Oracle, Mrs. Saunders, Henry Glasscock, John Lamont, Florence Wyatt, Madame Lonbeyne, John Forbes, Fanny Sturt, Charles Wyatt, Annie Pritchard. Mr. C. Turner was second with blooms but few points behind the leading ones. Mr. H. Clarke was third, and Messrs. H. Cannell & Son, Swanley, fourth. The stands of twelve included some fine blooms of the leading varieties. Messrs. Saltmarsh & Sons were placed first with the following:—Egyptian Prince, Gaiety, Mrs. N. Hall, Mrs. Saunders, J. Lamont, Enchantress, Peacock, Flag of Truce, Octoroon, Grand Sultan, Fanny Sturt, and Florence Stark. Messrs. Rawlings Bros. secured the second position, their stand containing good examples of Egyptian Prince, Hercules, Professor Fawcett, Mrs. Saunders, George Barnes, John Forbes, Barnaby Rudge, Galatca, H. Glasscock, and Mrs. N. Hall. Mr. J. Walker followed with a neat collection, some of his best blooms being Mrs. Brown-

ing, Miss Lily Large, Magician, John Salter, Fanny Sturt, Oracle, John Forbes, Flora Wyatt, Maid of Athens, Mrs. Saunders, Parrot, and Lady Paxton.

AMATEURS' CLASSES.

Show Varieties.—As in the preceding section three classes were devoted to these, but for smaller numbers—viz., twenty-four, twelve, and six. The premier collection of twenty-four was that from Mr. H. Glasscock, Rye Street, Bishop's Stortford, even, handsome, highly coloured blooms, of moderate size, but extremely symmetrical. The varieties were Prince Bismarck, Emily Edwards, Black Knight, Joseph Ashby, W. Rawlings, Hon. Mrs. P. Wyndham, Mrs. Spofforth, Earl of Ravensworth, Cardinal, Goldfinder, James Cocker, Modesty, Alexander Cramond, William Laird, Revival, Countess of Ravensworth, Harry, Mrs. Harry, Shirley Hibberd, Harrison Weir, Mary Nisbet, Ethel Britten, Rev. Dr. Moffat, and Georgiana. Mr. J. Nation, Whitmore, Staplegrove, Taunton, was a close second with many fine blooms. Mr. R. Petfield, Diddington, Buckden, Huntingdon, was third, and Mr. W. Butterworth, Green Hill, Kidderminster, was fourth, all with creditable collections, but slightly wanting in refinement, though the weak or rough blooms were by no means numerous. The competition was very keen in the class for twelve blooms, no less than a dozen stands being entered. Mr. J. West, gardener to W. Keith, Esq., Cornwall, Brentwood, took the lead with fresh and brightly coloured blooms, representing a good selection of the leading varieties. Mr. B. Clarke, Shottisham, All Saints, Norfolk, was adjudged secondary honours; and Mr. J. Tranter, Upper Assenden, third, with good blooms, Ethel Britten being especially noteworthy. The winning stands of six blooms were contributed by Mr. G. Boothroyd, Woodville Hill; Mr. F. Masters, Penender Heath, Maidstone; Mr. J. E. Shrimpton, Englefield, Reading; and E. Mawley, Esq., Lucknow House, Addiscombe, Croydon, all of whom had praiseworthy examples.

Fancy Varieties.—The two classes devoted to Fancy varieties were well filled. Premier honours were adjudged to Mr. Glasscock for twelve fine blooms, which comprised the following varieties:—Viceroy, John Forbes, McIntosh, H. Glasscock, Fanny Sturt, Edward Pick, George Barnes, Egyptian Prince, Mrs. Browning, Barnaby Rudge, Mrs. Hall, and Professor Fawcett. Mr. Nation was second with large and effective blooms of good varieties, and Mr. R. Petfield third. Eleven collections of six blooms were staged, the prizes being secured by the following exhibitors in the order named:—First Mr. West, gardener to W. Keith, Esq., Cornwall, Brentwood; second Mr. J. Tunbridge, gardener to W. Bott, Esq., Bloomfield, Chelmsford, Essex; third Mr. Boothroyde, Woodville Hall, Dover; and fourth Mr. J. Wigan, Cromwell House, Mortlake.

OPEN CLASSES.

Two prizes of £1 were offered for the best Show and Fancy blooms selected from the entire Exhibition—a task of considerable difficulty where so many were good. After a long and careful search the Judges decided upon a bloom of Georgiana in Mr. C. Turner's first-prize stand of forty-eight as the premier Show bloom—an honour which its merits well entitled it to, as in freshness, purity of colour, and substance it was all that could be desired. The premier Fancy bloom was found in Messrs. Rawlings Bros' second-prize stand of twelve Fancies, a beautiful bloom of a sport from George Barnes, pale purple ground with crimson streaks, very even, full, and deep.

Pompon Varieties.—The competition in the classes for Pompon Dahlias was excellent, and these beautiful and symmetrical flowers were deservedly admired. Apart from the excellence of the varieties in this section, the compact growth and extremely floriferous nature of the plants render them admirably adapted for garden decoration, and they are yearly growing in public esteem. In the class for twenty-four varieties, shown in bunches of not less than ten trusses, Mr. Turner won premier honours with a grand collection, the bunches of blooms with buds being most effectively staged. The varieties were Wilhelm Nitche, Little Duchess, Titania, Grass au Wien, North Light, Favourite, White Aster, Comtesse Von Sternberg, Adonis, Gem, Cupid, Professor Bergeat, Mabel, Lady Blanche, Prince of Liliputians, Mdle. de Facoret, Garnet, Nympe, Isabel, Fair Helen, The Khedive, Little Arthur, E. F. Jungter, and Hedwig Polwicz. Messrs. Keynes & Son, Salisbury, were second with extremely neat blooms, more thinly, and consequently less effectively, staged than the preceding. Particularly attractive were Rosetta, Isabel, Darkness, Nemesis, Pure Love, Sappho, and a bright yellow seedling. Messrs. Cannell & Sons, Swanley, were a very close third with an imposing stand, but some of the blooms were, perhaps, fully too large, notably the variety Conquest, but the majority were very fine indeed—Coquette, Lydia, Little Nigger, Model, Geoffrey de St. Hilaire, Lady Bird, Venus, Infancy, and Meteor, as differing from those in the other stands, all being eminently worth growing. Five collections were staged.

In the class for twelve varieties six excellent collections were staged. Messrs. Paul & Sons, Cheshunt, secured premier honours with a charming stand of flowers, Butterfly, A. Hubner, Little Mabel, Little Nigger, Pure Love, White Aster, Fanny Weimar, Dr. Webb, Dora, Nemesis, Doré, and Forstmeister Gschwina, were the winning varieties. Messrs. James Gilbert and Sons, St. Margaret's Nurseries, Ipswich, were second with excellent blooms, but the stand had not quite such a smart appearance as the other. Fair Helen, and H. Milesky are noteworthy additions to the previously named varieties. Mr. Henshaw, Harpenden, St. Albans, was an exceedingly close third with a rather crowded stand, but the majority of the blooms were of undeniable merit. Sensation, quilled, sulphur; Princess Sophia, rosy crimson; and Guiding Star, white, were the best, dissimilar from those previously named, in this good stand. The open class for six varieties, distinct, was disappointing. We only observed two stands—namely, from Mr. West, gardener to W. Keith, Esq., Cornwall, Brentwood, and Mr. Tunbridge, gardener to W. Bott, Esq., Bloomfield, Chelmsford, who were awarded the prizes in the order named.

Single Varieties.—The display of single varieties was considerable, and the effect of the stands gorgeous. In Class 2, for twelve bunches, Mr. Turner surpassed all rivals in arranging the finest stand that has ever been exhibited of these flowers, and secured the first prize for grand bunches of Alba, Mauve Queen, Rob Roy, Yellow Gem, Firefly, Beatrice, Paragon, Beauty of Cambridge, Duke of Teck, Purity, and Gracilis elegans. Messrs. Keynes of Salisbury followed closely with splendid bunches, beautiful

amongst which were Picturata, Althea, Red Gauntlet, Acquisition, Evening Star, Bertha, White Queen, Yellow Queen, and Defiance. Messrs. Paul and Son, Cheshunt, secured the third prize; Harlequin, White Queen, May, Broxbourne Beauty, Helen, and Beauty of Cambridge being particularly attractive; Messrs. Cannell & Son following with a crowded stand of massive bunches of very large and brilliant flowers.

Eight stands of six varieties were placed in competition, Mr. G. Humphries, nurseryman, Knighton Langley, Chippenham, securing the first position with remarkably fine bunches of Golden Star, Beautiful, Gracilis Perfecta, Beauty, rose-yellow centre; White Queen, and Pictus, crimson, with a yellow ring. Messrs. Gilbert & Son, Norwich, were second, Mr. Walker, Thame, Oxford, third, and Messrs. Cheal & Sons, Cranley, fourth, all with good stands; but one of the best, if not the very best, stand in this class was disqualified. It was from Messrs. R. Veitch & Sons, Exeter, and contained Daisy, one of the best whites in cultivation, and other superior varieties admirably staged; but one or two of the flowers of the striped variety Pantaloon having made an attempt to produce two rows of florets, was such a pantaloonish freak that the Judges could not overlook. Exhibitors of single Dahlias may take the hint and not allow their flowers to commit such pranks—at least if they do they must be punished by not being allowed to appear on the stage. Still, Pantaloon is a single Dahlia, and the stand was worthy of a better fate.

Certificates were awarded for the following varieties of Dahlias and Gladiolus:—

Dahlia Duchess of Connaught (Turner).—A handsome Fancy variety, the blooms of great size and substance, buff ground streaked with rich crimson.

Dahlia Mrs. Hurst (J. Hurst, Enfield, Middlesex).—An extremely pretty Show variety, the blooms of moderate size, but most symmetrical and of a delicate blush tint.

Dahlia Mrs. Bowman (Saltmarsh).—One of the single varieties, remarkable for the breadth of the rounded florets, the general outline of the flower very even. The colour is a rich shade of crimson-purple, very distinct and pleasing. A charming variety.

Gladiolus Mr. Gladstone (Kelway).—Flowers large rich scarlet, white in the centre; spike massive.

Gladiolus Duke of Buccleuch (Kelway).—Bright salmon, light centre, fine flower and spike. Very handsome.

Gladiolus Duchess of Teck (Kelway).—A charming variety; flowers large, white with crimson streaks at the tips of the petals and in the lower petal.

Gladiolus Sir Stafford Northcote (Kelway).—Flowers brilliant scarlet with a dash of purple in the lower petal.

Gladiolus T. Moore (Kelway).—Very dark scarlet, lower petal crimson. Very distinct and effective.

Of the miscellaneous exhibits, the single and Pompon Dahlias from Mr. T. S. Ware, Tottenham, were the most extensive and beautiful, some hundreds of very distinct and handsome varieties being represented, and well merited the extra prize awarded for them. The Gladiolus, though shown with the Dahlias, came under the cognizance of the Judges of the Fruit Show, and are referred to in that report.

The Committee, Judges, principal exhibitors and friends, were entertained at luncheon in the afternoon, the usual toasts being proposed and responded to by Messrs. T. Moore, Shirley Hibberd, George Paul, R. Glasscock, J. Downie, and W. Dodds. The last-named replied for the Judges, as being the oldest present, stated that he first exhibited Dahlias in 1833, since which time they had been the objects of his constant attention. The opinion was general that the National Dahlia Show would become one of the firmly established horticultural institutions, and would be welcomed by the public with increasing favour every year.

ON FAIRY RINGS.

[A paper read by Mr. Worthington G. Smith before the Essex Field Club.]

EVERY person who has walked in the summer over grassy hills and through fields and woods must have noticed fairy rings. Sometimes they present themselves as circles and curves of bare ground, at other times the barren circle of ground has a rim of luxuriant grass outside; in some instances this circle or curve of dark rank grass has a third circle of Fungi beyond its outer line. In a perfect fairy circle we have, then, starting from the centre, a ring of barren ground, a ring of rank grass, and a ring of Fungi. In some instances a fairy circle of Fungi is only to be seen. Circles, curves, and quadrangles of rank grass of Fungi are sometimes seen that are not fairy rings, and it will, perhaps, be better to mention and dismiss these spurious rings and other geometrical forms at once. For instance, anyone who has walked in open spaces in plantations must have frequently observed a ring of Fungi encircling a tree, at a line on the ground indicated by the spread of the branches above. These growths are especially common in Fir plantations. Something drips from the tree, some resinous or other substance that favours the growth of certain Fungi, and they come up in an irregular ring at the drip of the tree where this substance has fallen. Such a ring is not a true fairy ring, and such a ring can never extend itself beyond the drip of the trees. Similar spurious rings and sometimes quadrangles may at times be seen around old hay and corn stacks, and even barns, at the place where moisture and decayed vegetable material has dripped from the overhanging edge. Such lines of rank grass and Fungi have nothing whatever to do with fairy rings. Sometimes an old horse may wear away the grass and make a circle of barren ground; but such a circle is not a fairy ring. In some places where moles disturb the ground, such disturbed ground is found occasionally to bear a crop of Fungi, but a crop of Fungi on a mole's run, whether curved or no, is not a fairy ring. Fairy rings, then, are not caused by haycocks, tethered animals, the drippings of trees and barns, circular fertilising exhalations from the earth, or electricity. That they are not caused by haycocks is proved by the frequency of true fairy rings on lawns opposite to the drawing-room windows, where haycocks are not allowed to ornament the scene. If one walks on the edge of the cliffs on the south coast numerous true fairy

rings and semicircles will be seen, the centre frequently on the very verge of the cliff, and the semicircle inland. Such semicircles prove that tethered animals do not cause fairy rings, for no owner of an animal would be such a lunatic as to drive a stake into the very edge of the chalk cliff, as at Beachy Head, and there tie his animal to it. Besides, some fairy rings are only 6 inches across, and what quadruped or insect could be tethered to make such a ring? That moles do not cause fairy rings is proved by the presence of the ring where moles are unknown, and on expanses of rock only covered by an inch or two of humus where moles cannot exist, and never have existed. Circular exhalations from the earth where fairy rings abound must, I think, be very rare, for I have seen thousands of fairy rings, but I have never seen a circular terrestrial fertilising exhalation! Electricity is not a speciality of mine, but as I know fairy rings to be invariably caused by something else it follows that they cannot be caused by electricity. As for the rings being caused by the tripping feet of fairies in a circling dance, few people now, unfortunately, believe in fairies. They have gone the way of the giants, dryads, gnomes, and wraiths, since

"In Briton's isle in Arthur's days
The midnight fairies danced the maze."

We could ill spare any of them, but in these times, when even the very youngest men are teaching us about the origin and evolution of all the phenomena of Nature, there is scant room for the fairies. The best known Fungus occupant of fairy rings is the Fairy Ring Agaric or



Fig. 38.—Fairy ring fungus (*Marasmius oreades*, Fr.), slightly reduced. A, Section.

Champignon, *Marasmius oreades*, termed in the older botanical books *Agaricus oreades*. It was termed *Marasmius* from the habit possessed by all the species of drying up and shrivelling in decay, as distinguished from *Agaricus* proper, which all speedily putrefy. It has derived its name of *oreades* from the Oreads, the playful nymphs of the hills and mountains. The Oreads were the companions of Pan or Hylæos, the forest god, and they danced and circled to his piping. The feeling of loneliness belonging to hilly places was attributed to the presence of Pan, and from this old belief has arisen our modern word 'panic,' which means fear without a visible cause. Pan is said to have terrified people by sudden loud shouts, and to have sometimes ill-treated the inoffensive dancing fairy ring Oreads. If the botanist who walks over grassy hills happens to be an archæologist as well as a fungologist, he will possibly light on arrow heads of flint in country places, and especially in Ireland. These flint arrow heads are termed fairy darts or elfin shots, and they are associated with the sports and quarrels of the nymphs and fairies. Fairy rings are common in Ireland, but moles do not occur there; this is a difficult point for the mole theorists. Fairy darts of flint were at one time common in Ireland, but of late they have nearly all been bought up by Irish cow doctors, who lend them to rustics to boil in the same pot with hot mashes prepared for ailing cows and pigs, for these fairy darts are supposed to have a mystic and potent power for curing the diseases peculiar to oxen and hogs.

After this slight digression in reference to the classic name and associations of the Fairy Ring Agaric, we may now notice the Fungus itself. *Marasmius oreades* is generally about 2 or 3 inches high; its colour is slightly more buff than a biscuit. The same colour pervades every part, the top being sometimes a shade darker than the gills and stem. Every part of the Fungus is rather firm, and the stem tough, solid, and smooth. The gills are free from the stem, unusually broad and thick, and unusually distant from each other. The top is smooth and fleshy, and commonly furnished with a central elevation. It grows on grassy hills, sometimes on precipitous hillsides or lawns in exposed wind-swept pastures, and amongst the short grass of roadsides. One of its chief characters is that it grows in and causes fairy rings. The Fungus is edible; indeed it is one of the safest and most delicious of all edible Fungi. It seems just possible, however, that occasional examples are bad eating, and cause stomach-ache and other unpleasant symptoms; but I am inclined to think that these indigestible examples are very rare, and may be classed with such things as stale eggs, tough beef, high venison, and rank butter. In fact, the high gastronomic character of the true Fairy Ring Champignon shines with a more brilliant lustre by contrast with a few alien individuals unfit for the table. However, in case of accidents, errors, or inconvenience, I always advise beginners in fungophagy to be provided with a bottle of sweet oil. If dizziness

delirium, and cramp are found to be coming on, a draught of sweet oil is invaluable, for if enough be taken it causes immediate vomiting, and it tends to heal any damage that may be done to the throat and stomach by fungus-poisoning. The Fairy Ring Agaric is extremely common, and grows from late summer to late autumn, so that it may be well esteemed as one of the greatest boons given to us by good fairies and the great god Pan.

The true explanation of the nature of fairy rings has been so often printed that I am almost ashamed to refer to it before this Society. Several persons have written to me of late to ask what my "theory" and what my "hypothesis" is as to fairy rings. My reply has every time been that I have got no "theory" or "hypothesis" either, for the facts are so perfectly well known that they do away with any necessity for a "theory." Many Fungi have a great tendency to grow in circles. The spawn from which Fungi spring commonly starts from a spot made up of germinating spores. This spot becomes a centre from which the spawn extends outwards in every direction; a crop of Fungi appears on the outer circular line of spawn (see fig. 39). Such ring-like Fungus growths are very common on decaying fruit and leaves. The Fungus of ringworm is another very familiar example. Fairy rings, as formed by Agarics, probably start from a single Fungus which has grown from wind-carried spores. The growth of the spawn of this single Fungus in the ground renders the spot where the individual grew unfit to produce another Fungus of the same class. The spawn then extends itself from the central spot, and grows all through the winter and following summer a circular patch in the earth. One year's growth will give a circle of about 6 inches, and on the outside of this little circle a small fairy ring of Fungi will appear the second year. When this ring of Fungi dies it acts as a rich nitrogenous manure for the grass, so that in the third summer a circle of rank fungus-matured grass is seen. The grassy circle is often in strong contrast with adjoining dead grass killed by the Fungus spawn infesting the roots. If circumstances are favourable the underground spawn will now keep on extending itself for forty years or more, until at last an enormous circle is made that may sometimes be seen on hillsides from a distance of a mile or more. If an obstruction occurs a semicircle may sometimes result; at other times, when numerous rings grow near each other in the same pasture, or on the same hillside, various ogee curves and wavy lines of rank grass, barren ground, and Fungi are originated. The whole phenomenon of ring-growth is comparable with a stone thrown in still water. The stone is like the first few germinating Fungus spores, and the ever-extending rings produced by the impact of the stone on the water are like the ever-extending rings produced by the underground spawn of the Fungus. Sometimes a large fairy ring will appear in a place, as on a lawn, where no Fungi have been seen before, and where no smaller rings have preceded the large one. This phenomenon is caused by the first Fungus being overlooked, and then a series of seasons have followed unsuitable for the production of the Fungi. The spawn, however, has been alive underground, and has

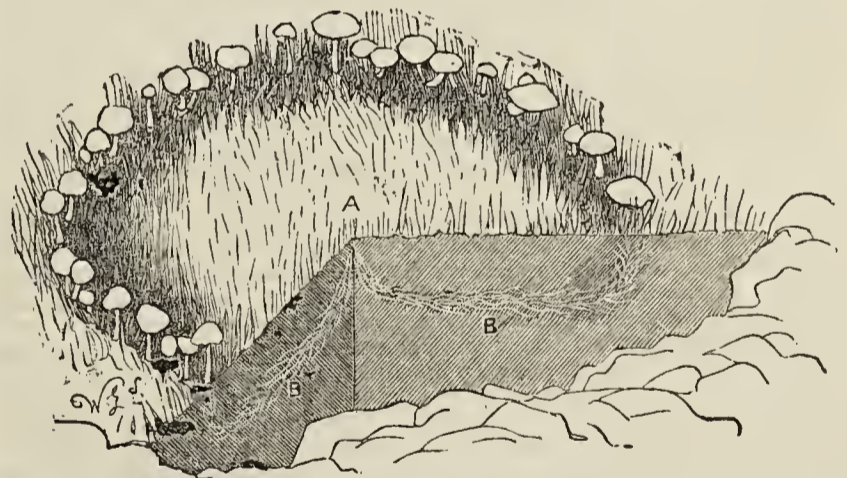


Fig. 39.—Fairy Ring. The ground partly shown in section, A centre, where the original Fungus has decayed, and whence springs the underground spawn, B. B, of the Fungus (*Marasmius oreades*), which gives rise to the fairy ring.

kept on year after year extending itself till at last a suitable season arrives, and a crop of Agarics is the result at the circular margin of the underground spawn.

It must not be supposed that the Fairy Ring Agaric is the only Fungus capable of making a true fairy ring, for many Agarics and other Fungi are capable of doing this. Puff-balls frequently form fairy rings. The St. George's Agaric, *Agaricus gambosus*, which grows in April, makes very strongly marked fairy rings. The spawn of this Fungus chokes the grass in a remarkable manner, leaving the ground almost bare, and the Fungus itself is so fleshy and large that it manures the circle where it grows in a most striking manner. Another very large Fungus named *Agaricus geotropus* causes unusually large and bold fairy rings. The common Mushroom does not make rings, but a close ally, if indeed it is not a mere variety of the same plant—viz, the Horse Mushroom, is said to produce rings. If so, this should be one reason for making the two Fungi distinct species. There is also an extremely small Agaric named *Higrophorus niveus* that I have seen growing in perfect rings only an inch or two across. Some fairy rings are found in woods, and a notable example is found in *Agaricus fastibilis*. This forms grassy rings inside woods quite distinct from the drip of the trees, for the rings often envelope

several trees and many bushes in their circumference. Such rings, I suppose, are the dancing places of the Dryads, nymphs who also danced and frolicked to the pipe of Pan. As far as I know, Fungi which grow in circles have never been catalogued and distinguished from those which grow in an irregular or sporadic manner. Some certainly can grow in a line, for I once noted a number of specimens of *Helvella crispa* which grew in a line for several years. Such a catalogue if made would be very valuable, and if members of this Club will note and measure rings and determine the Fungi growing upon them they will be doing good service and new work. Why some Fungi grow in rings and others in a straight or an irregularly branching line it is difficult to say, but if Fungi have been evolved from other Fungus forms, and Fungi as we now see them have descended from one or more common ancestors, then those ancient precursors may have taken up with different habits which are still retained by their descendants. Fungi growing in rings or branched lines appear to me to be comparable with regular flowers, alternate and opposite leaves, and similar phenomena seen amongst flowering plants. It is known that the flora of the inside of a ring itself will support plants that neither grow outside nor inside the ring. A most useful piece of work would be the making of lists of Grasses and other plants seen outside and inside the ring. During the present summer I noticed a profuse flowering of the Common Rock Rose, *Helianthemum vulgare*, amongst the luxuriant grass of fairy rings. The plant occurred elsewhere, but it only flowered well on the rings. To such an extent was this the case that I could distinctly see the rings as yellow circles from a long distance. The change of the flora is caused by the Fungi exhausting the ground and then remanuring it with highly nitrogenous manure. This manure causes luxuriant vegetable growth for one year, which exhausts the circle to a still greater extent. The soil inside the ring is therefore different from the outside, and supports different plants. Another point that requires investigation is the source of the nitrogen so abundant in fairy ring Fungi. These Fungi only grow in bare pastures and other places where nitrogen is rare, yet they acquire so much nitrogen in themselves that when they perish they deposit so much of this material and potash on the soil that the manured circle resembles rather the grass of the richest meadow than an upland pasture. It has not yet been decided whether Fungi are capable of acquiring their large store of nitrogen direct from the air or from material in the soil.

SANDY HORTICULTURAL SOCIETY.

THE annual Exhibition of this progressing Society was held in the pretty and conveniently located grounds of J. N. Foster, Esq., Sandy Place, on Friday last, the gardens attached to which and those of the Rev. J. Richardson of the Rectory adjoining were both opened to the public; and as each of these gardens is admirably kept and just now at its best, a more attractive and suitable spot for a show could hardly be found, the distance from Sandy station being within a quarter of a mile. This was the fifteenth annual Exhibition the Society has held in the same place; and from a small beginning Sandy, favoured by its pretty situation and convenient railway facilities, has become a popular and important Show, and now that the Society has emerged from its leading strings it would hardly be detrimental to its future prosperity nor a reflection upon the management to suggest the desirability of a few additions to and alterations in the schedule, which has remained with little change for some years, but is nevertheless a liberal one. In the meantime, however, the public taste in horticulture has in some respects altered if not advanced.

The open classes might with advantage be extended and a slight re-arrangement of the others effected without a material increase in the gross amount offered in prizes. For ten stove and greenhouse plants in flower three collections were staged, the first prize being awarded to Mr. E. Tudgey of the Exotic Nurseries, Waltham Cross, for a well-flowered and well-matched lot, his finest plants being *Clerodendron Balfourianum*, *Allamanda nobilis* and *Hendersoni*, *Anthurium Schertzerianum*, *Erica Uhria*, *Bougainvillea glabra*, and *Ixora coccinea*. Mr. Rabbitt, gardener to General Pearson, The Hazells, Sandy, was second with *Vallota purpurea* (very brilliant and densely flowered), *Ixora Fraseri*, *Lasiandra macrantha*, *Allamanda Hendersoni* and *floribunda* amongst his best; Mr. D. Bloodworth of Kingswood Hill, Bristol, running him very close with a very creditable collection. For the collection of six plants in flower, open to all except nurserymen, Mr. G. Redman, gardener to J. H. Goodgames, Esq., Eynsburys, St. Neots, was first with *Bougainvillea glabra*, *Justicia carnea*, *Stephanotis floribunda*, *Statice profusa*, *Clerodendron fallax* and *Balfourianum*, all well-grown specimens in good bloom. For six foliage plants Mr. Rabbitt was first and Mr. White, gardener to Capt. Sidney Stanley of Longstowe Hall, Cambs. (the President of the Society), second, both staging very healthy and well-grown collections. For six *Coleus* Mr. Rabbitt was first and Mr. J. Meyer of Orwell second, but the colours were not intense, although the specimens were well grown. For six stove and greenhouse Ferns Mr. Tillbrook, gardener to Bateman Brown, Esq., Houghton, Hunts, was first with a grand plant of *Cyathea dealbata*, *Adiantum concinnum*, *concinnum latum*, and *farleyense*, and *Platyserium alcornu*. Mrs. Tindall Lucas of Foxholes, Hitchin, who staged smaller but well-conditioned specimens, was deservedly second. For six Zonal Geraniums Mr. Redman was first with fine bushy plants full of colour, the best being Colonel Holden, Henry Jacoby, and A. F. Barron (fiery scarlet); Mr. Rabbitt was a good second. For a specimen stove or greenhouse plant Mr. Redman came in with *Bougainvillea glabra*.

In cut flowers Roses were a prominent feature. For the forty-eight single trusses in the open class Messrs. Paul & Son, of the Old Nurseries, Cheshunt, had a first-rate stand, and were well to the front, their best blooms being *Baronne de Medeni* (a good autumnal Rose, not often seen, of a purplish carmine with darker centre), *May Quennell*, Mrs. Jowitt, *Senateur Vaisse*, *La Rosière*, *Alba Rosea*, *Etienne Levat*, *Paul Neyron*, *A. K. Williams*, *Emilie Hausberg*, and *Madame Willermoz*. Mr. J. House, of the Eastgate Nurseries, Peterboro', had second place with a stand of very fresh but smaller blooms, including *Helen Paul*, a good tinted light flower in the way of *Hippolyte Jamain*, but more incurved; *Merveille de Lyon*, as white as *Mabel Morrison*

and larger, but as shown somewhat thin. Mr. House had also fine blooms of *Alfred Colomb*, *Marie Rady*, *Camille Bernardin*, and *Baroness Rothschild*. For the twenty-four blooms in the amateurs' class the Rev. W. H. Jackson of Stagsden Vicarage, Bedford, was well first with blooms little inferior to those shown in the previous class, a grand and almost perfect flower of *Charles Lefebvre* being very conspicuous. Duke of Connaught, Star of Waltham, *A. K. Williams*, *Belle Lyonnaise*, *Xavier Olibo*, and *Pierre Notting* were also very fine. The Rev. E. L. Fellowes of Wimpole Rectory, Royston, was second with a stand of older blooms, containing a great many Teas. Mr. Fellowes also took first honours with some grand Dahlias, his stand of twelve containing a promising new variety named *Gwendoline*, of a distinct mauve colour, a sport from the dark claret-coloured *Burgundy*, and forming a singular contrast to that variety; also Mrs. Keynes, a fine flower, approaching mandarin red, but slightly shaded maroon; *Jas. Ashby*, *F. Burbank*, *Emperor*, *F. Tiffany*, *Ovid*, *J. C. Quennell*, and *Jas. Cocker*, all in first-rate form.

Mr. Fellowes also showed some remarkably fine Asters, and Mr. P. Meyer of Orwell twelve African Marigolds—in size, form, and colour rarely approached. Mr. J. House showed thirty-six spikes of *Gladiolus* in fine condition, and also a stand of single Dahlias, including blooms of the lovely little mauve repens; Messrs. Paul & Son thirty-six Dahlias, all masterly blooms; and Mr. Laxton of Bedford a very attractive stand of herbaceous and hardy cut flowers, amongst which were noticeable Dahlias *Juarezii*, *Constance*, *Pantaloon*, *Zulu*, *White Queen*, and *Christine*; *Lobelia cardinalis*; *Helianthus globulosus fistulosus* and *argyrophyllus*; *Rudbeckia Newmannii*; *Nicotiana affinis*, *Lathyrus latifolius* in several, from pure white to deep rose; and *Anemone japonica* *Honorine Jobert*.

Fruit was largely shown, but probably Grapes, which are usually a feature at Sandy, have in some former years been seen better. Mr. Allis, gardener to Major Shuttleworth, Old Warden, had, however, two superbly finished bunches of *Buckland Sweetwater*; and Mr. J. Shephard, gardener to J. Murfin, Esq., Great Staughton, Hunts, two well-ripened and highly coloured bunches of *Black Hamburg*, each taking first honours. For two bunches of any other variety of black Grapes Mr. Tillbrook, gardener to Bateman Brown, Esq., Huntingdon, was first with very fine *Gros Maroc*, and for two bunches of *Muscat of Alexandria* Mr. Allis was to the front. For the basket of six varieties of fruit, Pines excluded, five collections were set up. Mr. Tillbrook was first with good *Black Hamburg Grapes*, a handsome netted Melon, Peaches, &c. Mr. Allis, who had *Black Hamburg* and *Foster's Seedling Grapes* in good condition, and *William Tillery Melon* very fine, was placed second; and Mr. J. Vines, gardener to Harry Thornton, Esq., Kempston Grange, Bedford, was third. For a scarlet-flesh Melon Mr. J. Cook, gardener to Col. Stuart, Tempsford Hall, was first; and for a green-flesh Melon Mr. R. Carter of Waresley Park Gardens was also first. Apples, Pears, and Plums were largely shown in all classes. Mr. Allis had a superb dish of Tomatoes of a variety selected from *Trophy*, the fruits being perfect in colour, ripeness, and form, and all evenly sized—a better dish is rarely met with. Vegetables, as usual at Sandy, were in great force. Potatoes and Onions, being the staple of the district, were especially well represented, the usual show varieties of the former mostly coming to the front: *International* in the white kidney class, *Schoolmaster* in the white rounds, *Mr. Bresee* in the coloured kidneys, and *Reading Russet* in the coloured rounds. Amongst attractive and newer varieties white *Beauty of Hebron*, a selection from the coloured form of this now well-known and largely grown market Potato; *Snowdrop*, a very handsome white kidney of good quality; *Carters' Eight-weeks*, a very fine rough-skinned white round; and *Beauty of Kent*, a handsome round purple-flaked variety, were noticeable as advances in their respective classes. In the market gardeners' class for white kidneys a very rough, dirty, and not well-ripened sample of *Magnum Bonum* was selected for honours. For the basket of eight varieties of vegetables Mr. C. Ellis, gardener to Mrs. Orr, Pemberby House, Bedford, was first with good Tomatoes, *Snowdrop Potatoes*, and *Omega Peas* in his collection, and Mr. G. Vynes second with fine *John Bull Peas*, Tomatoes, and Cauliflowers as the cream of his lot. In the various competitions for Peas the *Ne Plus Ultra* and *Omega* types were in nearly all cases preferred to those of the *Telegraph* race. Mr. Laxton showed (not for competition) grand samples in the straw and in the pod of his new *Pea Evolution*, showing the great size and productiveness and beautiful colour. These with other specimens, the property of various exhibitors, seem to have been appreciated at the close of the Show, as they were removed without the consent of the owners. Unfortunately too, such depredations were not confined to vegetable productions, as a large number of valuable watches and purses were reported missing. Probably the management and the police experienced some extra difficulty from the downpour of rain which occurred just at clearing time, when a rush was made for the tents by the large concourse present, and which was on this occasion swelled by the despatch of a special cheap train from Moorgate.

The Exhibition was a very comprehensive and extensive one, and was comprised in about a dozen large tents, poultry, farm produce, honey, and cage birds being included. Amongst these, perhaps, the fine glass super of honey, weighing 9½ lbs., shown by the Rev. H. Wood of Biddenham, from a swarm on the 6th of June last, the glass put on on the 20th of that month and taken off on the 12th of July, is worth noting as winning the leading prize in that department. The Society was last year, from bad weather on the show day, debtor to its Treasurer, but continued prosperity is now assured, as the weather on the late occasion was until the close all that could be desired, and the receipts satisfactory.



HARDY FRUIT GARDEN.

Branch-twisting.—The coming of September heralds the swift approach of colder weather, and all possible means should be adopted to

prevent useless growth, to accelerate bud-development and wood-ripening. Discontinue stopping lateral growth, for it will only induce an untimely growth of spray that cannot reach maturity from buds which should be made as plump as possible in readiness for an early and robust spring growth. Carefully consider how many buds it is desirable to add to each spur, and then, instead of cutting off the lateral at the required point, twist it carefully slightly above the point of severance, and bend it downwards, leaving it so till winter; and then, when pruning, the buds below the twist will, though dormant, be plump and full, in striking contrast to the half-developed buds of useless autumn spray. Remove netting and tiffany from the trees as soon as the fruit is picked, so that there may be no obstruction to the air and sunshine.

Insects.—Without healthy foliage it will be useless to expect a full crop of fruit next year. Leaves of Peaches or Nectarines damaged by red spider cannot elaborate sap sufficiently for the requirements of the wood, which on infested trees is usually so weakly that when growth ceases the buds are quite unfit for the production of wood or fruit. This debility is also undoubtedly a cause of bud-shedding in spring. See, therefore, that any appearance of red spider induced by the recent hot dry weather is promptly met by a free use of the syringe, taking especial care to force the water well under the leaves.

Watering.—A hot dry September ripens the wood, gives finish and flavour to fruit, crowns the current year with success, and does much for the crop of next year. But for the trees to derive full benefit from it there must be no parched soil about the roots, watering must be closely attended to, and if the drainage be sound and thorough there need be very little fear of overwatering.

Fruit-gathering.—Look over ripening fruit frequently, especially early autumn Pears and Apples, many of which ripen quickly and soon spoil if left too long upon the trees. Remove overhanging leaves from contact with the fruit of late Peaches and Nectarines to obtain high-coloured fruit. Brunswick Figs are so much more luscious and tempting when fully ripe and with the skin splitting before gathering, that the trees should either be covered with hexagon netting or muslin bags put over each fruit as it become fully grown. Wasps are very fond of this Fig, and they are so numerous just now that no fruit is safe without some such protection.

FRUIT-FORCING.

PINES.—*Potting Rooted Suckers.*—Suckers obtained from the stools of the successive fruiting plants and potted about the middle of July, will, if treated as previously advised, be now in a fit condition for shifting into larger pots; but before this is done it is well to consider what the future requirements are likely to be, so that there may not be any surplus stock, as it is very important that the plants retained have every advantage of as much room as their wants require. It is advisable to divide the plants into two sections—viz., first, the strongest Queen plants and others, putting these into the fruiting pots at once, placing them in a close light pit about 2 feet asunder, and the surface of the bed in which they are plunged not being more than 3 feet from the glass. The heat at the base of the pots should be 95°, the night temperature kept at 70° to 75°, 75° by day from artificial heat and advancing from 80°, at which a little ventilation should be given, to 90° from sun heat, and at this close the house when the sun's power begins to lessen, giving a light syringing two or three times a week. Watering will need great care until the roots are growing freely in the fresh material.

The second section of plants comprises the smaller ones, selecting the requisite quantity and discarding the remainder. These should be placed into pots 6 to 8 inches in diameter according to their size, giving them moderate heat to insure a steady and sturdy growth, and be in good condition in spring for shifting into the fruiting pots early in spring. These will form a succession to those above referred to. A temperature at the roots of 80° will be ample for these plants, the night temperature 60°, and 70° by day, advancing to 80° or 85° from sun heat, ventilating freely on all favourable occasions.

CUCUMBERS.—*Planting Winter Fruiters.*—The plants from the sowing made the second week in August will now be ready for planting out in hillocks or ridges, or transferring to pots or boxes. They will need to be supported with sticks fastened to the first wire of the trellis. If the weather be sunny shade for a few hours at midday until the plants become established, when it should be discontinued, and water must be given with great care. The young plants should be stopped when they have reached the third wire, or about two-thirds of the allotted space.

Treatment of Fruiting Plants.—These will require examining frequently in order to effect the needful stopping, thinning, and removing of superfluous growths and fruits, tying and regulating the shoots, the object being to keep up a succession of fruitful wood. Close early in the afternoon, damping the house at the same time. Fire heat will be necessary to prevent the temperature falling below 65° or 60° at night.

Plants in Pits and Frames.—Damping plants in pits or frames heated by fermenting materials should be discontinued, as the moisture given out by the materials will be sufficient, and watering should be done without wetting the foliage more than can be helped. If mildew appear dust thoroughly with flowers of sulphur, keeping the foliage dry, and ventilate freely. The linings will need to be seen to regularly to maintain the requisite heat of the beds.

MELONS.—*Late-fruited Plants.*—The latest plants have set their fruit, and should have a warm, rather dry, and freely ventilated atmosphere, the blossoms being impregnated daily until a sufficient number of fruits are set on a plant, when all the remaining flowers should be removed. Stop one joint beyond the fruit, and keep subsequent growths

closely pinched to one joint as made; and if this has a tendency to crowd the principal foliage, the laterals so interfering therewith should be removed, but care should be taken not to make great reductions of foliage at one time, removing the unnecessary parts gradually. When the fruit is swelling freely earth-up the roots, feed copiously with weak tepid liquid manure, and maintain a moist genial atmosphere by damping two or three times a day, and on bright afternoons the plants may be moderately syringed overhead. The night temperature should be maintained at 65° to 70°, 75° by day, advancing to 85° or 90° from sun heat, with a little ventilation at 80°, increasing it with the sun heat. Close at 80°, and so that the heat will rise 10° to 15°. If mildew appear dust with flowers of sulphur, and keep rather drier and more freely ventilated. Black aphides, or aphides of any kind, are best subdued by careful fumigation. If canker appear rub quicklime into the affected parts, and repeat as necessary. Afford supports to the fruit before they become very heavy.

Fruit-ripening.—The present weather is not favourable to the production of highly flavoured fruits, especially in the case of those in pits or frames solely heated by fermenting materials. The heat generated by fermenting materials is moist, but is not therefore useless in expelling damp, as by its aid the ventilation can be freer, and a circulation of warm air, if it does not dry the atmosphere, reduces the evils of damp to a minimum. Moisture must be used in any form now very sparingly, and if it be absolutely necessary at the roots to prevent flagging, it should be given without wetting the foliage. Keep the laterals well in hand and the foliage thinned, so as to admit as much light and air as possible. Attend well to the linings, and admit a little air constantly. Canker must be subdued by rubbing quicklime into the affected parts. After the close of the month Melons from pits and frames are not of much value, but the case is different with those in light well-heated structures, as well-swelled and fairly flavoured fruit can be had until a late period of the season—even into November or later.

PLANT HOUSES.

Gesneras.—These are the most satisfactory when standing upon some moisture-holding material, where they receive a little warmth from beneath, and the atmosphere in which they are growing not overcharged with moisture. If they have been properly treated they will now be growing strongly, and should be placed in the pots in which they are intended to flower. Any moderately light soil suits them well in which a fair per-centage of leaf soil and coarse sand has been intermixed, pots 5 or 6 inches in diameter being large enough. After potting keep them close for a time and water them carefully at their roots, but when thoroughly established give them weak stimulants, nothing being better than clear soot water. Do not syringe these plants.

Gloxinias.—Seedling plants that are now growing in 2 or 3-inch pots and have not been checked will, if placed in 4 and 5-inch pots and liberally treated, make fine flowering plants in autumn. These plants delight in a rich compost, but will, nevertheless, succeed very satisfactorily in almost any soil. Place these plants in a warm pit or on a shelf close to the glass, and water carefully, but when established never allow them to suffer from insufficient supplies. A batch of old plants that flowered early and have been rested for some time in a cold house can now be shaken out and repotted. These, with the application of heat and moisture, will soon start into growth; and although they may not be so fine as when grown during the spring of the year, they will be found acceptable for the decoration of the stove and for cutting.

Calceolarias.—Plants raised from seed sown as advised some time ago, and pricked out singly into pans when large enough, should now be ready for placing into 2 and 3-inch pots. Use a light compost of fibry loam, leaf soil, a seventh of decayed manure, and coarse sand. Lift the plants out of the pans as carefully as possible with a small ball of earth attached to them, and pot them low in moderately drained pots. After potting give the plants a good watering, and stand them on a bed of ashes in a cold frame. Keep them close for a time and shade them from strong sun. Prick out successional batches into pans, placing them 1 or 2 inches apart according to their size, and treat them exactly the same afterwards as the early batch.

Cinerarias.—Where plants are grown to flower during November and December these should now be strong and well established in their flowering pots, and will need weak stimulants made from cow manure, and clear soot water will be found most beneficial, and should be given every alternate watering. Ventilate liberally, and shading should be gradually discontinued from this date. The second batch should now be in 6-inch pots, and so on in succession to the latest batch, which should now be ready for pricking out from the seed pan into others for flowering late next spring in small pots. Take care that these plants do not become root-bound until they are placed in their largest pots, or they flower prematurely, and only poor heads will be the result. A sharp look-out must be kept for green fly, and at its first appearance fumigate with tobacco paper. Syringe during the afternoon of bright days, and never allow the plants to suffer by the want of water at their roots. The material on which they are standing should be kept moist.

Hydrangeas.—Cuttings in which the flower buds have formed should now be taken off and rooted, if neat, dwarf, well-bloomed plants are appreciated, in small pots for purposes of decoration during spring and early summer. These cuttings strike readily in a little heat if kept in a close frame or under handlights and shaded from the sun until they are rooted. Insert them singly in the centre of 3-inch pots, place a little sand for the base of the cuttings to rest upon. As soon as the cuttings are rooted gradually harden them and place them in a cold frame, all the attention needed afterwards until the time to start them

into growth being supplying water and protection from frost. Care should be taken that the cuttings do not start into growth after they become rooted, or results anything but satisfactory will follow. This system, if properly carried out, will be found a very successful one, and decidedly preferable to retaining old plants in pots for flowering, unless larger specimens are required.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 2.

It would be greatly to the advantage of bee-keeping as a pursuit if a little information was given occasionally as to the difficulties which beset beginners, and with this view we propose to pay particular attention to this portion of our subject; because, though we occasionally find an apiarian "to the manner born," who begins to keep bees and succeeds in almost all he does by instinct as it were, these are the exception, not the rule, and the great majority are those who are induced to begin bee-keeping in consequence of something they may have seen at shows or read of in bee books, and who think it is only necessary to stock a hive, set it up in the garden, and appropriate the honey each season as it is accumulated. We need hardly say that the experience of a season or two will undeceive them. They will find that if apiculture is to be made a success some trouble must be taken to insure it, and that their new hobby must be carefully followed up and attended to if it is to yield them pleasure and profit. Now there can be no doubt that the first point to which special attention should be given is the hive itself, because if it has faults and errors in construction no satisfactory result can possibly be hoped for. Much may be said as to what a hive should be, and what sum should be expended upon it; but we think it will make our position clear at the outset by saying we cannot accept the idea so prominently put forward by most of the bee associations throughout the country—that the main object of such associations is to teach the agricultural labourer how to make money by his bees. If it were so all notion of the frame hive might be given up, and the straw skep (of course with a flat top) accepted as the best hive for all practical purposes. We have had a somewhat extensive experience of the matter, and find, so far as it goes, that the bar-frame hive is altogether beyond the agricultural labourer; he cannot grasp it. A very intelligent man of this class who had kept bees for thirty years remarked to the writer, after having had the advantages of the frame hive explained to him, "I see all the benefits you get, but it would take a seven-years' apprenticeship to learn that trade," and he stuck to his straw skeps as long as he lived. So much for the agricultural labourer.

When we come to the cottagers we include many intelligent men of the artisan class whose occupations enable them to dwell in rural districts. These men can understand a frame hive, and often make their own; but they are generally keen thrifty fellows, with a strong predilection for winning prizes at shows, and of that particular temperament which makes them delight in any amount of labour when incurred on account of their favourite hobby. It is to be regretted that these do not form a more numerous class, for they are most useful in their way. Few county associations that we know can boast of more than a dozen such bee-keepers, so that, after all, the chief reliance in sustaining and carrying on the work of bee associations must, as we have said before, be placed in a class distinct from either of the above, and it is to these we propose to address our remarks on the matter. We believe the soundest method of spreading abroad a knowledge of apiculture among the labouring classes will be to establish successful bee-keeping among those who will give it a fair trial with reasonable hopes of success, and encourage these to take a personal interest in showing their humbler neighbours a more excellent way of managing their bees on modern principles. It may be different in the southern counties, but here in the north such has been the experience gained during a long and rather active acquaintance with the subject.

Before endeavouring to point out what we consider a really good hive should be, it may be well to notice a few of the defects in hive-construction which will be found to give most trouble in honey-producing and general management. In the first place, fixed or immoveable floorboards are a great nuisance, because there will always be a certain amount of refuse, such as cappings of comb, &c., which is blown into the corners of the hive in the course of ventilating, where it accumulates and receives the condensed moisture always found running down the sides of a populous and flourishing hive in spring.

2. *Frames without Distance Guides.*—This is, we know, a moot

point with some of our high authorities; but it does not, in our opinion, need one moment's argument as to which is best for general use. If we were to say that 10 per cent. of the bee-keepers in this country could gauge distances for frames with the finger we should be going beyond the mark, and why hives should be made to cause trouble and annoyance to ninety out of every hundred is a mystery. We shall have more to say on the point when considering the construction of a hive.

3. *Play for Frames.*—It is curious to note the nicety with which the frames of most hives are made to fit—not the thirty-second part of an inch to allow for the numerous contingencies that are constantly cropping up where frames are supposed to be interchangeable—where, for instance, you cannot insert a queen cage without removing and leaving out the dummy, or the slightest irregularity prevents the insertion of a comb in any position other than that in which it was built by the bees. The moveable sides introduced a few years ago were excellent in remedying this defect, but somehow they have not come into general use.

4. *Space under the Bottom Bars.*—We had occasion to inspect some hives in an apiary where efficiency was aimed at, and expense had not been spared to insure it. The hives had only been in use a few months, and so no ill effects were visible, but there was a space of $1\frac{1}{2}$ inch under the bottom bar. The consequences of this will not be apparent till next year, when comb will be built on the under side of the bottom bars, probably across the frames in some instances. Sometimes the other extreme is reached, and less than three-sixteenths of an inch allowed under the bottom bar. We have always found these to make convenient homes of the larvæ of the wax moth.

5. *The "Dip" between the Hive Sides and Tops of the Frames.*—This is a fault found in some hives which are excellent in all other respects, but it is nevertheless a most glaring one. It is not difficult to see how it has arisen. It works well on a show bench, and has the seeming advantage of keeping the quilt from blowing off while manipulating, and of making the carpet covering fit nice and snug. Here, however, the advantages end, and when it comes to supering the "dip" becomes an intolerable nuisance. The zinc adapter must be dropped in, crushing bees of course. The crate of sections, on being let down into the "trap" (for it is little else) repeats the crushing, and when the unfortunate amateur has to remove his sections, &c., in the autumn his difficulties reach a climax. The crate is securely fastened down with propolis; he cannot insert a lever under the corners to prise it up, and he has to remove it as best he can, but not without great trouble to himself and annoyance to his bees.

6. *Close-ended Frames.*—It is not without some diffidence that we find ourselves at variance with one of the ablest bee-masters in this country (whose opinion is entitled to the greatest weight) on the question of close-ended frames. We have had no experience of them in our apiary, and only form an opinion from what we have seen of them in the hands of others. In one case, where the owner of a Giotto hive enlisted our services, the effects of the close-ended frames were simply dreadful, and the "setting things to rights" formed one of the few occasions when we were almost beaten by the bees; as it was we retained a lively recollection of an hour's work with close-ended frames, and a strong stock of hybrid bees, for some time afterwards. Of course these frames may be well enough in the hands of an expert, but for ordinary use we think they will never find favour, and so we are compelled to include them in the category of "faults" so far as our opinion goes.

7. *Section Crates.*—The use of sections for storing surplus honey in has become so general that a fault in the construction of either section or crate is soon felt, because, to say the least, they are rather shaky things to handle when full of bees and honey. The original crates as sent out by the leading hive-makers kept the rows of sections half an inch apart, and as they were wedged together at each end it gave great facilities for handling; but unfortunately the thinness of the material from which the sections were made allowed of the escape of heat to such an extent as to cause the bees to desert them on a cold night, besides the sudden chill given to the brood nest, if a crate of sections was set on without careful wrapping to retain the heat. This fault led to the introduction of another form of crate, in which the sections fitted close together in a box with high sides. This effectually prevented the escape of heat, but unfortunately it was "out of the frying pan into the fire" as the homely phrase goes, and the sections are almost unmanageable in the latter. The maker's catalogue described how a full section could be removed and replaced by an empty one in an instant; but we saw an apiarian make the attempt who could not remove a section at all until the crate was taken off bodily.

We could name many other defects in hives which have come under our notice, such as the disarrangement of the frames and general misfit caused by the removal of the dividers or dummies to

the centre of the hive when contracting the internal dimensions for winter, which often necessitates the removal of one frame altogether from hive before all can be made straight.

No doubt manufacturers are doing their best to produce hives which will be as perfect as possible in working, and if defects are pointed out when proved to exist it will enable those who are interested to choose the best article for this purpose. But, here again we are confronted with a new difficulty. Bee-keepers consist of two varieties, which may be called the active and the passive, whose systems of management widely differ. The first-named is always up, and doing all he can to insure success; he stimulates his queens in spring, and spreads the brood as soon as breeding warrants it. In short, it is to be feared he occasionally meddles with his bees more than is conducive to their welfare.

The other only looks into his hives when compelled to do so, gives the bees as wide a berth as possible on all occasions, puts supers on, and never looks at them again till they have been ready for removal for several weeks; never dreams of renewing queens when they are old—in fact, keeps no record of any kind as to his bees, and yet is an earnest bee-keeper withal.

It will be seen how difficult it is to construct a hive which will meet the requirements of apiarians whose plans of managing bees are so greatly at variance; yet we have no hesitation in saying that a hive, to be a really good one, should be equally well adapted for both systems, and we hope to show that such a hive can be made.

The long-continued controversy as to the most suitable size of frame for general use seems to have been settled, so far as it can be, by the adoption of the British Association standard size. This fixing of a particular-sized frame with a special name, the exact dimensions of which have been carefully given, and which all makers are supposed to adhere to, cannot but have a good effect on hive-construction generally, because the bee-keeper knows exactly what he is going to receive when he orders that frame. To suppose, however, that the question of the best size of frame is for ever settled by the decision arrived at, is to put an end to all progress in hive-construction, and we having tried and used for a long time a frame which we believe to be better than the Association standard one, we shall respectfully submit the hive and frame to our readers in a future paper, leaving it to stand or fall on its merits, as the case may be.—W. B. C., *Higher Bebington, Cheshire.*

TRADE CATALOGUES RECEIVED.

Stephen Brown, Weston-super-Mare.—*Catalogue of Bulbs and Flower Roots.*

J. Carter & Co., 237 and 238, High Holborn, London.—*Catalogue of Bulbs (Illustrated).*

E. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Bulbs (Illustrated).*

James Cocker & Sons, Aberdeen.—*Catalogue of Bulbs.*



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

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

Books (Sigma).—You will find our "Greenhouse for the Many," price 9d., post free from this office 10d., a useful work on the cultivation of plants for a cool house. Mr. B. S. Williams' "Stove and Greenhouse Plants," two volumes, 12s. 6d., also contains full particulars of plants for both warm and cool houses. It can be obtained from the author, Victoria and Paradise Nurseries, Upper Holloway. Your other question will be answered next week.

Back Numbers of the Journal (Mrs. J. L., Norwich).—The only mode that we can suggest is to advertise the numbers for sale, stating the particulars and price required.

Retinosporas Unhealthy (T. G. T.).—Evidence of Conifers suffering from drought is always unmistakably visible in the dull parched appearance of the foliage. As you make no mention of this, but rather of dead and shrivelled bark of the stems, by which sap-action has been so seriously

checked that "the top of one is nearly dead," it is clear that your theory of a want of water being the cause of the mischief is wrong. There are two ways by which the stem bark may be injured, either of which may apply to your case. The first and most common is by being eaten by rabbits. We have lost many young plants of *Juniperus excelsa*, *Cupressus funbris*, and *Juniperus virginiana* from rabbits eating the stem bark, yet numerous other sorts of Conifers have been left untouched; and the other is the exposure to wind, frost, and the almost equally trying extreme of scorching sunshine of young trees taken from crowded nursery quarters. The effect of such exposure is to check growth so severely that the trees are often four or five years recovering from it, and even then are frequently excelled in growth by younger trees that have escaped so trying an ordeal.

Large Caterpillar (G. S.).—What you enclose is the larva or caterpillar of the goat moth, *Zylcutes cossus*, or *Cossus ligniperda*, of almost adult size. This creature is occasionally found at large, taking a journey from one tree to another, but it usually lives out of view in the heart of trees, where it proves itself the destroyer of many a Poplar, Willow, and Elm; even the sturdy Oak sometimes succumbs to its attacks. The larva state lasts three years, the moth generally appearing in July, when it deposits a large number of eggs. Occasionally it visits our fruit trees, but these are more commonly infested by the leopard moth, *Zeuzera Aesculi*.

Insect upon Rose (H. B. B. Lymyne).—The leaves you enclose have been disfigured by a beetle, seemingly one of the weevil tribe. We are not aware that a similar instance is on record. Could you forward more specimens enclosed in a small box with a little wool about them? Those you obligingly sent, owing to the mode of transit, were not in a condition to enable us to identify them with certainty. The most likely way to keep the beetles from attacking the leaves would be to moisten these with some liquid which would render them distasteful to the insects. Decoction of quassia might answer the purpose, and it would not render the Roses objectionable to human beings, as solutions of a malodorous kind that are destructive to insects probably would, unless so far diluted as to interfere with their usefulness.

Propagating Cineraria acanthifolia (F. J.).—Stout short-jointed growths slipped off from the outsides of plants, divested of their lower leaves, and inserted in pots of gritty soil will, with proper treatment, strike now in a cool frame. They must not be kept moist, close, and shaded, as if propagating Verbenas or Ageratums, neither must they be so fully exposed to light and air as is suitable for Pelargoniums. They need to be kept only moderately moist, shaded only when the sun is bright, and ventilated sufficiently to prevent much atmospheric moisture. The foliage will flag, but eventually a number of the cuttings will emit roots. Good judgment is requisite in selecting the cuttings, and the inexperienced amateur might probably lose 50 per cent. of them. Soft growths taken from the interior of the plants will not strike at this season of the year, but young growths produced in heat will strike in heat in the spring.

Cutting Down Zonal Pelargoniums (Idem).—Plants that have flowered in pots may be cut down to any extent desired, and when fresh growth is starting they should be shaken out, the old soil and roots being considerably reduced, then placed in clean pots of the same size as those in which they were grown. Plants that are cut down in June and well cultivated flower freely during the winter. Those cut down now make dwarf specimens for flowering in spring and early summer. It does not follow that all should be cut down; some are dwarf and dense enough without, but those that need it should be pruned at once, and the cuttings inserted if young plants of the same varieties are required. Relative to your question about the Raspberry, all we can say is that no one variety is superior to all others in all soils and districts.

Forcing Roses (Keswick).—Select the strongest plants wherever they have been grown, and give them a slight shift at once, potting very firmly in turfy loam with a little decomposed manure added, and a twentieth part of the bulk of bonemeal. Place them in a sunny position in the open air for ripening the wood, and prune them when the leaves have fallen. You had better not attempt forcing too early. January will be soon enough to place them in gentle heat, and even then probably all the plants will not flower, as some varieties are not well adapted for forcing.

Mushrooms (A. Wilson).—Your mode of gathering the Mushrooms is quite right. No harm results from the process of pulling and leaving cavities in the beds; in fact, these are what the most successful cultivators like to see. But, of course, if you prefer to cut the produce you can do so. Mushroom spawn is usually found in manure that is neither wet nor dry, but where the material inclines to dryness rather than otherwise.

Pruning Laurels (H. C.).—The present is an excellent time for shortening the summer growths of the shrubs. You may cut them as closely as you desire, using a knife and not the shears, as these sever the leaves, and shortly afterwards the specimens have an unsightly appearance. The sample of moss you send is sphagnum, which is used extensively by cultivators of Orchids. They do not like dead moss, however, but prefer to see it growing healthily, as then usually the Orchids grow too.

Weeds in Lawn (J. W., Deal).—The plant of which you have sent a specimen is *Prunella vulgaris*. It is often a most troublesome weed in lawns, and as you have found, most difficult to eradicate. According to your letter you will soon spend as much money in weeding your lawn as would suffice to make a new one. There is no easy method of getting rid of the weed that as you say it seems almost "bopeless" to extirpate. In all probability you will never have a good lawn until you fork up the old one thoroughly, clean the land, and sow it with a suitable mixture of lawn seed. Dry weather is essential for cleaning the land, and this needs to be carefully done. The seed may be sown either in September or towards the end of March; and if showery weather follows the site will be green in two or three weeks. Perhaps, however, you will not adopt this plan, but prefer to continue the work of weeding; still if you require any further information on making a new lawn we shall be glad to supply it if you will state the nature of the soil.

Fern Fronds Browned (J. S.).—We are quite unable to account for the brown appearance of the frond, and can only suggest that you try the plant in another and more shaded position in the house, and if the pot is filled with roots give liquid manure, clear soot water being very suitable for Ferns. We have rarely seen a finer frond, and the size and description of the plants generally

denote that you are a skilful cultivator of Ferns. The old fronds of *Adiantum concinnum latum*, which we consider one of the most beautiful of the genus, are rather apt to become discoloured towards the end of the season. We will readily publish a letter from you on the cultivation of these plants, which you can evidently grow so well.

Market Gardening (H. T. G.).—However willing we are to advise you, the data before us is quite insufficient to enable us to do so satisfactorily. You allude to a garden of which you do not state the size, nor do you appear to know whether the glass structures are suitable for your purpose or not. You must satisfy yourself on this point, also on the character of the soil, taking note also on the fruit trees. In a garden of 2 or 3 acres with good fruit trees an industrious and competent man ought to be able to get a living if, as in the case to which you allude, there are good markets for the produce. The best advice we can give you is to inspect the garden closely and estimate its resources carefully, and if you can induce a practical gardener to accompany you, you will be the better able to arrive at a sound decision on the matter.

Vines Unhealthy (J. T. S.).—The portion of lateral you have sent is very unsatisfactory, being weak, soft, and containing too much pith. As you say all the Vines are not in this state, the best course you can adopt will be to train additional growths from the healthy Vines and remove the rods that are the most disappointing. You have done right in encouraging lateral growth, but if you are doing this to such an extent as to obstruct the light from the main leaves near the base of the laterals you are carrying out the principle of extension to excess. You had better take off the points of the laterals now as you suggest, and in all probability some of the weaker will be better removed entirely to admit light and air freely to those remaining with the object of maturing the wood. The temperatures you quote are correct, and syringing should not be resumed.

Chrysanthemum Culture (C. P. H.).—Practical hints on culture are, as you suggest, never unwelcome; but your note is so extraordinarily concise as to fail to convey practical information. You say, "watering as practised by many cannot lead to good results," but omit to say how it should be practised. The chemical constituents you quote, even if correct, are of no value as they stand; they at least should be quantitative. You say, "manures rich in animal matter are productive of mildew," but do not indicate what to apply. Your note on pegging down a practice with which we are well acquainted with, is quite unintelligible. If you will write more fully and clearly on the subject, which no doubt you well understand, we will readily publish your notes. You do yourself an injustice in the scrap before us.

New Pea (A. S. D.).—Although we do not remember a Pea exactly like the one of which you have sent pods, we are not prepared to say the variety is distinct from all others, as we know that others have "selected" from the same variety that you have with the object of improving on an excellent Pea. You must at least grow your selection another year and note all the characters of the variety before its merits can be sufficiently tested. The Pea pods you have sent are alone quite insufficient to enable us to answer your question. We can only say they are too tapering to be considered first-rate, but you admit you can grow them finer. We advise you to do so, especially as you will not lose if you do not gain anything by another year's trial. While the variety appears promising, we are not sanguine that it will possess any great commercial value; it is, however, worthy of further trial.

Aspect for Lean-to Fruit Houses (J. Chapman).—Peaches and Nectarines should for choice have the south and west aspects, and Apricots the east. All three fruits answer so well, however, on either aspect under glass that it would be well to mix them, so as to obtain successional crops of all, and thus add to the utility of your long ranges of glass. The position and method of training the trees is ruled by the width of the house. A house 12 to 18 feet wide has ample space for the trees to be planted in front and trained upon a trellis under the roof; but in a narrow house the trees answer best trained against the back wall, in which case you may take a single cordon up each principal rafter from the front. Such rafters are usually about 8 feet apart, and cordons at that distance throw no hurtful shade upon the back wall. If you adopt this plan have fan-trained trees of Peaches, Nectarines, and Apricots against the back wall, and cordons of Plums to the rafters. Sometimes, instead of cordons up the rafters, Grape Vines are planted near the front about 20 feet apart, each Vine having a single rod trained horizontally along under the glass 2 feet from the bottom of the roof. We have seen excellent Black Hamburg Grapes grown in this manner equal in every respect to any we have ever had from a vinery.

Collecting Plants (Collector).—Your letter does you very great credit. We admire your earnestness, and not less the endeavours you are making to fit yourself for the arduous duties pertaining to the work in which you desire to engage. We are glad also to observe, to quote your own words, that you are "fully aware that hardships, dangers, hunger, and disease may beset the plant-collector at every step;" but then you ask, "What, to the scientific naturalist, are the weary days of toil and wandering he has passed through in comparison to the delight experienced in discovering some new and rare exotic unknown to science and commerce?" To fit yourself for this work you must first be intimately acquainted with all plants that have been introduced. A sojourn at Kew would afford you the best facilities for acquiring knowledge, and if you write such a letter to Mr. Smith, the Curator, as you have written to us it will be sure to receive his attention. As you cannot for some time leave your father's nursery you might with advantage study Oliver's "Elementary Botany" (4s. 6d.) and Hooker's "Elementary Botany" (1s.), both published by Macmillan. Lindley and Moore's "Treasury of Botany" (Longmans), and Lindley's "Vegetable Kingdom" might also be useful, but the latter can only, perhaps, be obtained second-hand. The price of the former two volumes is 12s. At Kew the students have access to a complete botanical library.

Wool Waste as Manure (T. B.).—Wool waste from a carpet manufactory is not "a good manure for garden crops in general," for it supplies nothing but nitrogen to growing crops, unless it be sulphur. The trouble is to get it to supply even these, for, as you observe, there is no getting it to decay. When dug-in in the ordinary way the masses are crushed into pieces of felt that are rather worse than nothing in the soil, as they remain undecayed, and produce often enough a crop of bad fungus. If you can

find time to shake out the "shoddy" or "cadis," so that it can be thoroughly diffused through a heap of ordinary manure, and then subjected to a long fermentation, it will greatly add to the value of the manure, as such contains 4 or 5 per cent. of nitrogen, and ordinary manure about an eighth of that only. As nitrogen is the most valuable ingredient, although by itself not sufficient, in manure, the thorough decomposition of the waste in mixture with the manure would be a highly desirable object. The mixture of waste with sewage is even more valuable still, but the same process is necessary to make it of any use. If a market could be got for it, perhaps you could not better do than sell it and buy manure with the proceeds, for it may fetch £2 per ton from the manure manufacturers, who, to render it fit for use, subject such material to a prolonged digesting process with sulphuric acid. We do not suppose you have the apparatus for doing so, or we would recommend you to digest it. But for the trouble in properly mixing it with manure, fermenting it is the best way for you. The closet mixture might be laid up, mixed with half its bulk of soil, and this would, in a year or two, if protected from rain, form a very valuable manure indeed; but merely digging it in as you do is of little or no use for anything.

Names of Fruits (E. F. B.).—No one can possibly name a Peach from a solitary fruit, and that perhaps not a well-grown typical specimen. We can only say, if the tree bears small flowers and there are no glands on the leaves, that your variety is probably Royal George. (J. Charlton).—The Apple is Keswick Codlin. The Rose is very fine and very fragrant, one of the sweetest scented we have seen. Send it to the Floral Committee of the Royal Horticultural Society on Tuesday next.

Names of Plants (Lady King).—The petals of the flowers had quite withered and curled up in transit, but judging by the character of the stems and seed pods the annual appears to be a *Viscaria*, probably *V. oculata*. (Capt. Preston).—*Abies alba*, the White Spruce, a hardy and useful tree for general planting, but the wood is of little value. (T. S.).—Tall umbellifer, *Smyrnium olusatrum*; Aster-like flower, *Stenactis speciosa*; white flower, *Malva moschata alba*; 10, *Francoa ramosa*; 11, *Caucalis Anthriscus*. The others will be named next week. (J. W. A.).—1, *Veronica incana*; 2, *Saxifraga (Megasea) crassifolia*; 3, insufficient; 4, *Tradescantia virginica*.

Transferring Bees (F. J.).—Although expert apiarians would not hesitate to move bees from one hive to another at any time between the end of March and September, yet the any-period system is always attended with more or less sacrifice of brood. We would advise you to move your bees out of your old hives and put them in clean sweet hives at once, and place them on the same stand as before. Utilise any patches of brood by placing them in a super, and wedge them apart by small pieces of comb, so that the bees can run amongst them, and place them over the crown hole of your hives to hatch out, when they may be dispensed with; or, if you prefer, you may wait until twenty-one days after the issue of your first swarms next year, when the bees may be transferred without the loss of a single cell of brood, other than a few drones, which will be of no value at that season of the year; indeed, drones are at all times too plentiful.

COVENT GARDEN MARKET.—SEPTEMBER 5TH.

BUSINESS remains quiet, the supply of soft fruits being almost over, a good supply of foreign Pears arriving realising high prices.

FRUIT.					
	s. d.	s. d.	s. d.		
Apples	½ sieve	1 0 to 2 6	Grapes	lb.	1 0 to 3 0
"	per barrel	0 0 0	Lemons .. .. .	.. case	10 0 20 0
Apricots	box	2 0 2 6	Melons .. .. .	.. each	2 0 3 0
Cherries	½ sieve	0 0 0 0	Nectarines	dozen	2 0 6 0
Chestnuts	bushel	0 0 0 0	Oranges .. .. .	.. 100	6 0 10 0
Currants, Black ..	½ sieve	3 6 0 0	Peaches	dozen	2 0 6 0
" .. Red	½ sieve	4 0 0 0	Pears, kitchen ..	dozen	0 0 0 0
Figs	dozen	2 0 0 0	" .. dessert ..	dozen	2 6 3 6
Filberts .. .. .	.. lb.	1 0 0 0	Pine Apples, English ..	lb.	2 0 3 0
Cobs	100 lb.	0 0 0 0	Raspberries .. .. .	.. lb.	0 2 0 3
Gooseberries	½ sieve	2 6 3 0	Strawberries .. .. .	.. lb.	0 3 0 6

VEGETABLES.					
	s. d.	s. d.	s. d.		
Artichokes	dozen	2 0 to 4 0	Mushrooms .. .. .	.. punnet	1 0 to 1 6
Asparagus, English	bundle	0 0 0 0	Mustard and Cress	.. punnet	0 2 0 3
Asparagus, French	bundle	0 0 0 0	Onions .. .. .	.. bunch	0 0 0 4
Beans, Kidney .. ..	.. lb.	0 3 0 4	Parsley	dozen bunches	3 0 4 0
Beet, Red	dozen	1 0 2 0	Parsnips .. .. .	.. dozen	1 0 2 0
Broccoli .. .. .	.. bundle	0 9 1 0	Peas .. .. .	.. quart	0 9 0 0
Cabbage	dozen	0 6 1 0	Potatoes .. .. .	.. cwt.	4 0 5 0
Capsicums .. .. .	.. 100	1 6 2 0	" .. Kidney .. .. .	.. cwt.	4 0 5 0
Carrots .. .. .	.. bunch	0 4 0 0	Radishes	dozen bunches	1 0 0 0
Cauliflowers	dozen	2 0 3 0	Rhubarb .. .. .	.. bundle	0 4 0 0
Celery .. .. .	.. bundle	1 6 2 0	Salsify .. .. .	.. bundle	1 0 0 0
Coleworts	doz. bunches	2 0 4 0	Scorzonera .. .. .	.. bundle	1 6 0 0
Cucumbers .. .. .	.. each	0 4 0 6	Seakale .. .. .	.. basket	0 0 0 0
Endive	dozen	1 0 2 0	Shallots .. .. .	.. lb.	0 3 0 0
Fennel .. .. .	.. bunch	0 3 0 0	Spinach .. .. .	.. bushel	2 6 3 0
Herbs .. .. .	.. bunch	0 2 0 0	Tomatoes .. .. .	.. lb.	0 6 0 0
Leeks .. .. .	.. bunch	0 3 0 4	Turnips .. .. .	.. bunch	0 0 0 4
Lettuce .. .. .	.. score	1 0 1 6			



MOUNTAIN BREEDS OF SHEEP.

(Continued from page 198.)

The next breed to be noticed is the Lank, and this from

the earliest period has found its home on the hill ranges of Yorkshire and Lancashire principally, although they are occasionally kept in Scotland, and also in some districts of Northumberland. They possess great merit in various respects, and are certainly the largest of any mountain sheep. They are black-faced when pure bred, but some have shown copper colour on the nose, and have the face and legs of the same hue, which was a sign of pure breeding by some; but a white face is generally considered as opposed to hardihood, and any tendency to a brindle shade as a sign of cross-breeding. However strong and weighty the Lonk may prove, yet the lightness of the forequarter is a characteristic of the breed; and as in great milking capacity in cows, so it shows or indicates good nursing power in the ewes for their offspring. Their necks are usually light and their legs long, and loin as frequently lacks strength. The lambs drop or shoot their horns with the new year, and the wethers never exceed one curl. Breeders, however, think much of the horn, and consider it when strong a great proof of constitution.

For sagacity the Lonks are unequalled. They are, in fact, continually working for their own benefit, with a zeal and cunning which makes them very difficult of restraint by ordinary fencing. It is said if there happens to be one better acre than another of grass land in a district or parish, whether it proves to be an orchard or churchyard, these breed of sheep quickly make themselves tenants at will. In consequence it is frequently necessary to "hopple" them in the spring season. Upon the hills they are said to run up walls or abrupt precipices like a cat, but a wire fence about 5 feet high is too much for them, and proves almost the only safeguard against their intrusion. A curious anecdote is told of one animal having broken bounds, and wishing to return to its comrades found a canal in the way and the bridge gate strongly barricaded, but the Lonk bided his time till a canal boat sailed past, and then jumping on to its deck cleared the canal at twice.

These ewes begin to drop their lambs at the end of March, when they are brought to the enclosed grounds under the hills, and stay there during the lambing period. They are not especially hardy, and require to be liberally fed with hay during the season of frost and snow. Feeding on the fells, however, for a certain period of the year is considered essential to the Lonks, as the Heather shoots and blossoms are said to give them more bone, and acts as an antidote to the foot-rot. The hogs are generally fed in the vales from September to April, and those which are intended for stores or Christmas shows are scarcely ever trusted with a run upon the hill ranges.

As an instance of what the Lonks will do when carefully and judiciously fed and managed, we must give the result of Mr. Jonathan Peel's wethers shown at the Smithfield Club in the year 1863 and fed below the hill, proved that his pen of three prize shearling wethers 215 lbs. each when they were weighed on October 25th, and their clip of wool on the April previous averaged 11 lbs. The Herdwicks are another important breed found chiefly on the mountain ranges of Cumberland and Westmoreland, where they enjoy the reputation of being not only a hardy but profitable race of animals, well adapted for the rough and bleak country where the hills are covered with Heather and short wiry grass. They are without horns, and have usually mottled or speckled faces and legs, which gradually shade off into grey or white as the age of the animal increases. When fed on these hills the fleece weighs about 3 or 4 lbs., the wool being coarse and open. Left on the hill pasturage the wethers usually remain until they are four years old before they become fit for the butcher, as to weight and quality; they will then average from 40 to 50 lbs. each, the quality of the meat being first-rate.

The ewes are good mothers, and generally produce fine strong lambs. They display great sagacity on the approach of snow storms by choosing situations free from the peril of deep drifts. When a storm reaches them they seek the most exposed part of the hills, which by the power of the wind is often swept clear of snow, and here they remain herded and congregated together until the storm has passed, taking the precaution to keep up a constant movement, and in that way to trample down the snow as fast as it falls. They possess at the same time a particular feature for a mountain breed, inasmuch that they remain attached to a certain district or locality, and it is rare for them to stray away from it. These are very desirable habits, instincts, and peculiarities for a mountain breed of sheep, because there is no doubt that with all the care which the owners and shepherds can take with various races of sheep, natives of the mountains, that great losses during exceptionally severe and deep snows have occurred, and which difficulty and losses can only be more advantageously met by the instincts of the animal combined with the experience and faithful services of the shepherds and caretakers.

The advocates and breeders of the Herdwick sheep are often jealous of their rivals the Lonk, and disdain any cross with them. On the ranges which the Herdwicks occupy Black-faces have been tried, but the ewes, more especially, failed because of the climate and the scanty nature of the grass; and it has proved the same when the Cheviots have been tried. In fact it has been found impossible to farm against the Herdwicks, which have been improved in the hands of certain breeders into and yielding a thick and heavy carcass, with points which a few years ago might have been looked for in vain. At the Royal Agricultural meeting at Carlisle they had a local class to themselves, and all the prizes went into Westmoreland, whereas at the Newcastle meeting in 1864 the Messrs. Brown and Mr. Edward Nelson represented the two native counties of the breed, and shared the prize list between them. The last named of these breeders, whose Herdwick prizes number between 200 and 300, and furnish in fact an excellent example of enterprise for other breeders to follow. It must be understood that each fell preserves the same earmark for generations, and the farmer takes to the flock with his farm, and leaves it at a fresh valuation to his successor. All the marks are registered in a quarto shepherd's guide, "The Star," and the raven, which typifies "Ravencrag Black as the Storm," are among its symbols. It is, however, in their ability to tide through a Siberian winter that the real blue blood of the Herdwick comes out.

The Penistone sheep is a breed found on the borders of Yorkshire, Lancashire, and Derbyshire on a heathy tract of land about 26 miles in length by 20 in breadth, and they are called the Penistone from the market town of that name where they are sold. These are no doubt descendants of the original Lonk, but by their advocates and breeders have established a character and conformation of their own, as they are a shorter and thicker animal than the pure Lonk; their wool is of medium length, of a silky appearance but harsh and wiry in texture, and weighing from 4 to 5 lbs. the fleece; they have white faces and legs. The rams exceed the size of the ewes and wethers in an unusual degree, a peculiarity which may be ascribed to their being taken to the lower country to be reared. The rams have horns which are very large, lying close to the head and projecting forward. A distinguishing character of this breed is an extreme coarseness of form, and particularly of the extremities. The feet are large, the limbs bony, the shoulders heavy, the sides fat; but the most singular formation is the length and muscularity of the tail, in which respect Penistone stock differs from all other sheep in this country. This enlargement of the tail is merely muscular and bony, and not at all analogous to the growth of fat which takes place in the tails of certain sheep of eastern countries. The mutton of these sheep is, however, highly valued for its juiciness and flavour. In the statement of the breeds of various sheep we have named as mountain breeds and their localities, great changes are going on, and sheep of superior type have been lately introduced.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Men have been employed mostly in the harvest carting of Wheat, Barley, and Oats. At intervals some latter cutting of Clover for hay has been taken to the stack in first-rate condition, and of far superior quality and make to the general crop of first cutting throughout the country. It is a simple fact that none of the first or early crops either of field or meadow produce has been made into superior hay, and this peculiar state of things will increase the value of late growths stacked in good condition. The work on the fallows, as well as sowing and preparing the land for late Turnips, has not been neglected; the land, too, is dry and favourable for the seeding of the corn stubbles not only with Turnips but also with the seed of Mustard, to be fed off or ploughed in as the case may be as a manurial preparation for Wheat or Lent corn in the spring. Without doubt where the autumn rains commence vegetation will receive a great impulse, the land being so hot and dry previously. The seeding of Trifolium, too, should now be proceeded with, using the three sorts of seeds—viz., the Early Crimson Blossom, the second early Pink Blossom, and the latest sort Perfect White Blossom, and these if cultivated with care are, or may be, mixed with Italian Rye Grass of foreign growth, in which case the Clover is protected during winter, and also is found to fill up vacancies caused by the slug eating the young Clover or other casualties; it is also better adapted for hay when in admixture with early Grasses. The weather has been inviting to farmers to thrash Wheat in the field, and much has been done in the early districts. It is, however, a questionable practice in our fickle climate, for the latter part of the harvest may be endangered, unless in those cases where a large staff of manual labour is available or extra horse power is at hand.

The last cross-ploughing of the fallows on heavy land should now be done, and the weather being favourable the cleaning of the land will be insured; but soon after this is done and the land worked sufficiently the important question of manuring arises. In outlying fields the use of

guano and bone superphosphate may be applied with great advantage, as the distant cartage of farmyard dung is costly, and at the same time dangerous on clay soils if early or heavy rains should occur, as the surface would then be tracked and injured, for these soils ought to be seeded in the first or second week in October. Then the question of drilling arises, for we consider that no farmer is master of his position on heavy land subject to yellow cress and black bent, unless the corn is drilled at 10 or 12 inches between the rows, in order that horse or hand-hoeing in the spring may be done if required. We have frequently seen the Wheat crops entirely ruined by weeds when sown broadcast; in Clover lea, however, broadcast sowing often proves best, especially when sown after the presser.

Hand Labour.—In harvest this is frequently much neglected for want of labourers, and the root crops become foul with Charlock and other weeds, especially on the chalk hill farms. We must also call attention to the importance of thatching the corn and hayricks as fast as made, but in some localities none but professional or journeymen thatchers can be obtained; and as they are of insufficient as to time, we advocate that every farm of importance should be able to command a thatcher as one of the staff of labourers on the farm. For many years we brought up several young men for this purpose, and although they were reluctant to undertake the work at first, yet in every case we found them after practice to make good rick-builders as well as thatchers.

Live Stock was rather falling in price at the recent fairs, and should the dry weather continue long into September the grass will be scarce, and the root crops will prove lighter than they previously promised to become. It may be a question, however, if sheep can be purchased at a price to pay for root-feeding on the land next winter, because of the short numbers in the country, as shown by the recently circulated statistical account of numbers of live stock in this country. Sheep during the hot sunny weather should always be in fold during the heat of the day on the arable land, in order that their droppings may be available, but have their range of park or pastures during the night and remaining period of their feeding. We have frequently noticed that sheep resort to shade where they can, and in the case of ornamental or other trees or hedges they frequently shelter themselves, and leave what should be manure not only without benefit, but in fact is entirely lost. Where the grass is short this dry weather, and after having been fed during the summer with the dairy cows, is now getting stale. They should, therefore, now get a good change of fresh grass, Clover in the troughs, or early roots mixed with cake or corn meal in order to keep up the milking power of the cows, and also that they may not be let go dry too early; for with great milkers it is dangerous for them to dry off their milk too soon, in which case they are sure to form fat internally, and likely to produce downfall in the udder and puerperal fever at the time of calving.

MANURES VERSUS STIMULANTS.

It is an undoubted fact that great harm has resulted to agricultural progress from a misapprehension of the effect of manures in assisting plant-growth. The word "stimulation" is at the bottom of this difficulty. Properly speaking there is no such thing as stimulating plants except by feeding them. Men sometimes take whisky, wine, or opium, which, though they contain no nutriment to support strength, operate on the nerves to impel them to abnormal vigour. The vegetable world indulges in no such excesses, if for no other reason than that plants and trees have no nerves to be stimulated. We may, indeed, force a more rapid growth of plants by giving such food as is easily assimilated; but it is food none the less, and not stimulant. Some kinds of fertilisers may after a time become inoperative, yet it is because the soil has been fully supplied with that which the particular fertiliser in question furnishes and is deficient in some other ingredient. It has no parallel in the stimulating drug which loses its effect on the human system after repeated dosing.

In the apparent effects of some fertilisers, such as salt, gypsum, and potash, on certain soils, there is something akin to stimulation; but the effect is on the soil rather than on the crop. Salt, for example, is a powerful solvent and often produces effects inexplicable from its own manurial value. This beneficial effect, however, is due to the power which salt has in making available latent mineral fertility in the soil. By the use of salt the compounds of potash and phosphate previously insoluble are released and fitted for plant food. In other cases salt may decompose vegetable matter and release ammonia. Thus the crop may be greatly assisted by a dressing of salt without showing more than a trace of the salt in its chemical analysis. This, however, is not stimulation of the crop, for the plants only grew as they were fed, as truly as if the feeding had been a dressing of stable manure instead of a solvent to develop latent fertility in the soil itself. It is indeed true that the soil is stimulated to produce more than it naturally would, and unless feeding manures are used these fertilisers, which only act by making plant food available, will in time cease to produce any effect.

A common objection among the mass of farmers to commercial fertilisers is that they act as stimulants; but it is certain that the same objection might be urged with equal propriety against every kind of manure. The decomposition of stable manure in the soil gives off carbonic acid gas, which decomposes the particles of earth with which it comes in contact. So, too, in greater degree with Clover or other green herbage turned under in June, which decompose with even greater rapidity than manure. A well-worked summer fallow has its chief advantage in exposing as much soil as possible to the influences of air and heat, so as to make its fertility more available. Yet there are many farmers who scout the idea of using concentrated manures lest they exhaust the soil, while they think everything of the naked fallow. The effect of the latter is much the worse in this

respect. The concentrated manure generally adds some fertility, while with the naked fallow the increased crop has been produced through taxing the soil to part with more of its strength than would occur naturally.

The thorough cultivation which farmers should give hoed crops answers much the same purpose of this so-called stimulation. It develops ammonia and other plant food. Often the passing through corn with hoe or cultivator in the growing season will start the plants into such vigorous growth as to make one think the corn had been "taking a drink," to use the language of a certain observant farm labourer. The expression was literally true, yet the drink was ammonia, which the loosened soil had absorbed from air, and rains, and dews. The ammoniated water of dews is the most stimulating of all manures; but it is only so because it supplies food just in the right condition for plant roots to take it up. The same is true of liquid manures generally. They are immediately available, and thus help the crop to which they are applied. If it were possible to make the greater share of the latent fertility available each year the soil would soon be exhausted. On light soils this is sometimes the result, unless the land is manured as soon as cropped. Heavy soils cannot be exhausted to the same extent. The crop falls off while there is apparently plenty of fertility in the soil, but it is locked up in clods where the roots of plants cannot reach it. On such land under-draining and thorough tillage must precede and in part take the place of manure.

The use of guano has been objected to by some because after a few years it leaves the soil poor. This is, however, only the result where continuous cropping with exhaustive crops is practised. With frequent seedings to Clover, selling none, but either ploughing it under or cutting and feeding on the farm, the use of guano should never leave the farm poorer. Purchasing stable manure, yet making none on the farm, tends to sterility as surely if not as rapidly as purchasing guano. The stable manure is not so immediately available, and hence the process of exhaustion would be slower. The immediate availability of the concentrated manure gives it an important advantage. The nimble sixpence is better than the slow shilling in manuring, as in business matters. It is, however, easy by diverting a part of this available fertility to growing Clover and other renovating crops, to get not only the nimble sixpence in the first crop, but also the slower shilling in the greatly increased fertility of the soil.—(*American Cultivator.*)

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—At the Council Meeting held at Bristol on August 28th, Sir J. T. B. Duckworth, Bart., in the chair, a letter was received from the Hon. Secretary of the Royal Agricultural Society of Guernsey, stating that the Society having obtained a grant from the Island States of £130—an increase of £40 on the amount usually voted—it was their intention to spend this surplus in partly defraying the expenses of their poorer farmers (owners of good stock) in exhibiting at the meetings of the Royal Agricultural Society of England and Bath and West of England Society and Southern Counties Association, the object of the Society being to strain every nerve in order to encourage and guarantee the representation of cattle from the island at the shows of these Societies. A letter was received from the Town Clerk of Brighton proposing that a deputation of the Society should meet the Local Committee for the purpose of inspecting the proposed site, &c., for the 1885 Show, on Tuesday, September 4th. A deputation, with Sir J. T. B. Duckworth, Bart., as Chairman, was appointed to visit Brighton on the date named, and power was given them to sign and seal conditions on behalf of the Society. The usual sums were granted for stock and poultry prizes at the Maidstone Meeting in 1884, and for the horticultural department of the Show.

OUR LETTER BOX.

Sowing Vetches (S. W.).—If your Carrots are raised about the middle of this month they will keep very well if carefully stored. The land may then be sown with winter Vetches, the sooner the better. Two and a half bushels of seed per acre will be enough. If half a bushel of winter Barley or Oats be mixed with the Vetches, then two bushels of the latter would be sufficient.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 38° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883. August and September.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	26	30.137	67.4	60.7	N.W.	62.9	79.8	50.8	118.0	45.9	—
Monday	27	30.070	64.4	55.9	S.W.	63.2	76.4	54.9	113.7	49.4	—
Tuesday	28	30.022	66.6	60.6	N.W.	63.3	76.0	59.3	117.3	53.1	—
Wednesday ..	29	29.837	64.9	60.6	N.W.	64.0	72.3	59.0	117.4	53.6	—
Thursday	30	29.929	61.5	56.6	W.	63.7	71.7	57.0	117.3	51.4	0.067
Friday	31	29.896	61.1	57.4	W.	63.5	65.7	55.2	78.9	50.6	0.347
Saturday	1	29.590	56.7	54.7	S.W.	61.6	66.7	50.6	110.9	45.4	0.158
		29.913	63.2	58.1		63.2	72.7	55.3	110.4	49.9	0.572

REMARKS.

26th.—Thick mist in early morning, fine hot day.
27th.—Calm and warm, but rather overcast.
28th.—Fine, bright, and warm.
29th.—Dull at first, fine afterwards.
30th.—Breezy, good deal of cloud, and slight rain at night.
31st.—Dull and calm, with slight rain; heavier in evening.
1st.—Fine morning, cloudy afternoon, rain in evening.
With a more cloudy sky the exceptional range of temperature has ceased, and the past week presents no exceptional features. The temperature was above the average but only slightly.—G. J. SIMONS.



COMING EVENTS

13	TH	International Potato Show, Crystal Palace (two days).
14	F	Aberdeen Show (two days).
15	S	
16	SUN	17TH SUNDAY AFTER TRINITY.
17	M	
18	TU	
19	W	

PEAS IN 1883.

THIS season has been a very favourable one for Peas. Early crops came in well to time, and midseason crops were luxuriant and prolific. Late ones are now suffering from the gales and wet, and the crops generally for this year will soon be over. Some new varieties have come very prominently to the fore with us this season, and several of the old standard sorts retain their position. The most noticeable of all these is Telegraph, which may be said to be the best midseason Pea in cultivation. It grows robustly, fruits profusely, is dark green in colour and superb in flavour.

Day's Sunrise we have ceased growing, as with us it did not equal its reputation. It is not so early as William I. The pods do not fill quickly, and they frequently remain empty at the points.

Culverwell's new Paragon sent out in 1883 is a grand new variety. It is not the earliest, but it fills its pods wonderfully well. In fact, it has a peculiar point to each of the pods, as they are quite square across, and always filled to the end. With us it attained a height of 5 feet, podded profusely, and each pod contained nine or ten peas. It is a robust grower, and has an excellent constitution. It will soon become a favourite, as it possesses all the qualities which could be desired.

The Stourbridge Peas always turn out well, and Electric Light, Kinver Gem, and Stourbridge Gem are amongst the finest of our Peas. The Messrs. Webb strongly recommend the Electric Light as the best, and, from experience, I can thoroughly confirm their advice.

Messrs. Carter have of late years mainly confined their Pea list to four varieties—*i.e.*; Telegraph, Telephone, Pride of the Market, and Stratagem, and they would do well to adhere to these, as it would be difficult to find other four to surpass them. Telephone is a second Telegraph, only it has not the deep dark green colour, and its pale pods tell against it, especially in competition; but apart from this nothing can be said against it. Stratagem and Pride of the Market are not unlike each other. Neither of them grows tall; both produce long handsome green pods, which fill up and become magnificent, but they are longer in doing this than the other two. We always gather Telegraph and Telephone a fortnight at least earlier than those two, and anyone who sowed the four to come in at the same time would not find them do so.

Giant Marrow, which is another of Mr. Culverwell's productions, is a splendid Pea. It might be described as Telephone extended, as it has all the qualities of the latter, but the pods are very much larger. Two years ago Mr. May, seedsman, Leeds, became the owner of one of Mr. Culverwell's new Peas, and the few I had of it have been grown here for two seasons with much satisfaction. It is not yet in commerce. It could not be distinguished widely on any particular point from the Giant Marrow, yet it is undoubtedly a few degrees better in every respect than that variety—more prolific, larger pods, and a better Pea. Large-podded Peas

as a rule are considered bad fillers; but this charge could never be sustained against any of Mr. Culverwell's Peas, because they fill as well as any of the small varieties.

Last autumn a Pea attracted my attention at Drumlanrig. It had grown about 6 feet high, and was bearing many pods about the size of William I., and each one was covered with a moss-like deposit. Mr. Thomson called it the Moss-podded Pea, and after growing it this season I find it of most excellent flavour. The only objection to it is that the haulm is rather high before it begins to bear, and this is the chief objection I have against Ne Plus Ultra.

Laxton's Omega and Veitch's Perfection are two late Peas of the highest value. Last spring I had a variety sent from Messrs. Sutton with no name, but under a number, and after growing several rows of it I am highly impressed with its qualities. It is of the Omega type, grows about 6 inches taller, produces pods an inch or so longer, and is unique in flavour. It does not require to be used young to secure its flavour fully, but it retains all its deliciousness until it is quite large. Another new Pea I had on trial from Canada was represented as the "earliest in cultivation," and I believe it will turn out to be so, as this year it came in many days earlier than Dickson's First and Best. It is longer in the pod than William I., fills well, grows 4 feet high, and has a very hardy appearance. As to its flavour I cannot speak, as every pod was saved for seed.

Last year a new Pea named Duke of Albany was described by Mr. J. Wright in the Journal. I secured a small supply of seed, and have now converted it into some quarts, as, like the Canadian, it proved so good as to induce us to save all the seed possible. This variety is not unlike Telegraph in its habit of growth, and it is equally as prolific and good in colour. The pods, however, are a little narrower and most handsome in appearance.

I had the pleasure of inspecting the Chiswick Peas in July last. They numbered over a hundred sorts, but amongst them all I did not see one so good as most of those named in these notes.—J. MUIR.

ROOT-PRUNING—LARGE PEARS.

THE time for this operation is now near at hand, and although most gardeners know the good results that arise from careful root-pruning, judging from the majority of gardens which we see from time to time, it is not half vigorously enough carried out, as is evidenced by the mass of breastwood, or the paucity of fruit on the extremities of the branches. The best results are probably attained by preparing the trees one year before in the case of wall trees, and two years before in the case of espaliers. In the former trees the roots are certainly confined by the wall, and the latter have the power of feeding themselves on all sides; and if the roots are shortened on the face of the tree one year, the next season the back can be operated on, and so treated the tree will feel no check. Fertility will thus be induced, and the fruit also gains in quality; the warmth of the surface soil will greatly benefit the newly-formed roots, which it is as well to protect and encourage by a summer mulching of leaf soil and manure.

I am led to refer to this subject, having recently seen remarkably heavy crops of fine fruit on the large wall Pears at Kenward Yalding (Lady Fletcher's), where the gardener, Mr. Smith, has very successfully operated on the unfertile trees, and I was shown sections of the coarse roots as much as 3½ inches in diameter that had been removed. Many of the trees had been bodily transferred (after preparation) to more suitable sites, and were forming a host of plump fruit buds. A large tree of Doyenné Boussoch was carrying a grand crop of probably twenty-five dozen fruit, which were all clean and of large size, while the rather shy-bearing Beurré Rance was fully covered all over with fine fruit free from specks or cracks. I counted thirty dozen on the tree. Trees that have been wholly or partially prepared or entirely lifted will require syringing in very dry weather, and watering at

the roots as well. I am inclined to think that our wall Pears have too much manure as a rule. Would it not be preferable to manure or mulch only when a full crop is set as is generally done now with pyramidal trees on Quince?

A very useful instrument for severing the roots will be found in the French hoppers—a pair of parrot-billed shears with long handles—which give immense leverage power, and enable a clean cut to be made through any root that they can grasp. The same tool is useful for taking off boughs from trees, or pruning old standard fruit trees from a ladder. They are supplied by most seedsmen, and can be had wholesale of Messrs. Corry, Soper, Fowler, & Co., of 18, Finsbury Street, London, in three sizes. While on this subject, too, let me note the great improvement in Aubert's secateurs, the latest being that one handle is lengthened and then returned to the pin that fastens the blades together, so that the spring cannot get broken or fall out. The hoppers and these secateurs (No. 193a) are used in the continental vineyards, and are very handy tools in a nursery or garden. I would also call attention to the American "Lightning" saws, which cut on both edges, one being for fine work and the other a perfectly new arrangement of teeth for green wood, while the handle being on a level with the centre of the blade, all the force of the arm acts directly on the cut, and they work with great ease. In the old saws the hold is rather above the blade, thus necessitating some pressure in sawing.

In the same garden were remarkably well-managed Peaches and Nectarines on open walls—quite a treat to see such—after the bad seasons for these fruits we have had for some years. Noblesse, Royal George, and Bellegarde Peaches were large in size, and I saw a tree which produced fifteen dozen of the finest Early Beatrice Peaches I ever saw. Pine Apple and Elruge Nectarines were loaded with highly coloured fruit. These trees had no more protection than a 9-inch board at the top of the wall. Every precaution had been taken to ripen the wood by laying in only suitable shoots somewhat thinner than usual.—GEORGE BUNYARD, *Maidstone*.

HARDY FLORIST FLOWERS.

SEASONABLE NOTES.

ANTIRRHINUM.—We have two long rows of striped and spotted Antirrhinums which have been very beautiful for a few weeks past, and which it is expected will continue flowering until winter. These were from seed, and are not so fine as named varieties; still they are good enough for ordinary decorative purposes, and in the majority of flower shows would be superior to common strains usually grown. The present is a good time to sow the seed, either on a warm border or in a box to be placed in a cold frame during winter. In spring prick the plants out where they are to bloom, and about a foot to 18 inches apart. Self flowers should be weeded out as they come into flower, otherwise the strain will soon degenerate.

AFRICAN MARIGOLDS.—A good strain of these is well worth growing. The flowers range in colour from a very light shade of yellow to a deep orange tint. Like Antirrhinums a really good strain is not easily obtained. In general the flowers have strap-shaped florets and are coarse in appearance. In a good strain the florets are quilled like an Aster, only much larger. Marigold seed is sown in April in a cold frame, and the seedlings are transplanted in June.

PENTSTEMONS.—For two years some plants of these have been lifted and potted, the flower stems cut off, and the pots plunged below the rims amongst coal ashes in a cold frame. In April they are planted out, and flower in early summer, not with one spike but half a dozen. There is no more floriferous plant than the florists' Pentstemon if the weather does not become too dry or cold. Our old plants consequently yield a continued supply of spikes from June till October. All that is required is to cut the old spikes off and not let too many appear at a time. Named varieties should be grown.

PHLOXES.—It is surprising that the florists' Phlox is so seldom seen in any quantity in gardens. It is perhaps the best of hardy flowers. Bold in appearance, chaste or rich in colouring, deliciously scented and free-flowering, only ignorance of its good qualities could have kept it so long in the background. The

best for effect are doubtless such richly coloured sorts as Bryan Wynne, Coccinea, and Souvenir de Berryer, but many of the light-coloured varieties are also worth growing. Early-flowering varieties cut down after flowering are again yielding a crop of bloom, but the colours in these are not so fine nor the decorative value of the plants as a whole so good as the late-flowering sorts. To have these very late plants are divided and planted in spring, the result being that these flower much later than older-established plants. Five stems are quite enough for one plant to carry. We often have individual spikes much larger than any we have seen elsewhere as the combined produce of a stool unthinned and tied closely up to a stake. In staking there is no necessity to tie the plants higher than half the height to which they will attain.

HOLLYHOCKS.—Last year our plant stock were free from disease; the year previous they were covered with Puccinia. The plants were cut down before winter and left to their fate. Strangely enough most of them started into growth late in spring and are now in great beauty, most of them with three or four 9-foot spikes of bloom and not a trace of disease to be seen. As we grow only named sorts, and such fine old varieties as Cygnet, In Memoriam, Queen of Yellows, W. Thomson, Champion, Hercules, Memnon Improved, &c., the plants, which were left in disgust last year, will this autumn be lifted and wintered in large pots in a cool house, and the most made of them by propagation in spring. Mr. G. Rudd kindly gave me a hint two or three years ago that Hollyhocks would strike freely from cuttings in spring if sufficient bottom heat was given. Since then I have proved his advice to be good. Where the heat is not strong, however, I would still prefer root-grafting.

PANSIES.—It is worth noting of these that cuttings unprotected through the winter do better than those protected by a frame. There are plenty of rooted slips on the plants just now, and these should be pulled up and dibbled out in preference to cuttings. Is there any good reason why Pansies, both Show and Fancy, should be kept to little rectangular beds with small footpaths between? They are quite as floriferous as bedding Violas and much more interesting. All that is required to cause a prolonged bloom is soil in good condition in the first place, and all seed pods removed during the season. All our Violas require going over twice to remove the seed capsules, and the others require the same treatment, but Pansies are especially valuable for filling small vases. If the flowers are picked singly and crammed together thickly the effect is bad; but gathered, each flower on the growing shoot and loosely arranged by themselves, it is necessary to go to exotics of the best class to get a better flower for this purpose than the simple Pansy.—B.

MAIN CROP APPLES.

Of the dessert Apples mentioned in my letter (p. 175), Worcester Pearmain and Yellow Ingestre (in the London markets called Summers) will last some time longer. In the kitchen list Small's Admirable, Warner's King, and Stone's may be considered as belonging to the main crop, as they will keep good till nearly Christmas, and in the north no doubt longer. There is one other Apple that ought perhaps to be included in the early varieties. This is Yorkshire Beauty. It makes a handsome tree, suitable either as bush or standard, but preferable, I believe, as the former. It has a very clean and distinct growth, the wood having a purplish appearance. I believe it to be identical with Red Hawthornden and Counsellor. I wish those of your readers who grow these varieties would compare them; I can find no difference either in fruit or wood. Yorkshire Beauty would be the best name for it, as it has nothing in common with a Hawthornden.

The late gale has done very serious damage to the orchard fruit; in many places more than half of the crop is on the ground. Many bushels of Ribston Pippins, Blenheim Pippin, and Cox's Orange Pippin will thus be lost. This latter Apple will of course be planted by everyone, but it does not fruit well in every locality. I believe a light loam on gravel or any light soil is preferable. I should not advise any grower to plant more trees than would be required for home consumption until he has proved it. I have this year, when almost every variety is cropping, over 700 trees which will not apparently bear more than seven bushels. King of the Pippins (Golden Winter Pearmain) is an Apple that is very popular in the London markets, and in consequence of its hardiness and free-cropping properties should be grown by everyone. It is very handsome in appearance and usually of good flavour, but at times the quality is second-rate—due perhaps to the soil on which it is grown. There is another dessert Apple that I did not allude to in my list of early ones that is very popular in the north—Lady Derby or Whorle Pippin. This is a small Apple, in shape like the Wyken, but with a bright

crimson colour streaked with a darker colour, and is a good bearer. The Ribston Pippin will continue to be grown on account of its agreeable flavour; but where the Cox's Orange will fruit I have not the least doubt it will supersede it, as the texture of the flesh is not so firm, and therefore easier of mastication. The same remarks will apply to that old favourite the Margil.

Two comparatively new Apples, the Melon and Mother, if they will generally succeed out of doors, are sure to be favourites, but I fancy they are more suited for pot cultivation. This applies also to Calville Blanche, which will only obtain quality in a house or on a wall. Another good Apple but doubtful bearer in ordinary cultivation, the Reinette de Canada, is suitable for all purposes. Mr. Haycock grows them well on the cordon system, and says they require to be grown in the open to obtain the benefit of the sun. There are many large orchard trees of the Wyken (Warwickshire) in cultivation, and when well grown it is a beautiful dessert Apple. I have found it succeed well as a bush. I suppose it will be long ere the Blenheim Pippin goes out of cultivation, as it is a favourite with all; but the number of years it must be grown before it repays by fruiting will prevent its being extensively planted now that we have so many early bearers.

There are many good dessert Apples that I shall only casually allude to now, as it will be impossible in this letter to enumerate them all, and there will be many opportunities during the autumn, especially after the proposed show at Chiswick, to discuss their merits with a better knowledge of their respective values. The Aromatic Russet, Braddick's Nonpareil, Adam's Pearmain and Mannington are all of the highest quality, and will be appreciated by the grower. Later on we have the Sturmer and the Baddow (Spring Ribston or D'Arcy Spice). Both of these are good, and should be grown by everyone. There is another which is a favourite with many, and justly so, although its size is not in its favour. This is Sam Young, a highly flavoured Apple of Irish origin. Pearson's Plate and Cornish Gilliflower are also of good quality, but the latter is a very shy bearer. Many of the Russets are worthy of cultivation, and Brownlee's will become more popular as it is better known. I think, also, that Beauman's Red Winter Reinette is worthy of trial. There are many other good dessert Apples which I will allude to another time.

In kitchen Apples there is not the necessity to name so many sorts. With the addition of the New Hawthornden and Grenadier to those I have already named there will be a sufficient variety up till Christmas. The Grenadier is a fine useful Apple. Some two or three years since I asked your readers whether they could inform me of the origin of Grenadier or Lord Derby, and I am still in ignorance. I believe at that time in some nurseries they were mixed, but there is no doubt now of the difference. Lord Derby is much greener than the other, and in shape like the old Catshad. Grenadier can now be seen in perfection at Messrs. Bunyard's nursery.

With Lord Derby in the winter months must be associated one of the most prolific and valuable late Apples we have, that is Lane's Prince Albert. It is a handsome compact Apple, and a good keeper. The tree will require space, as it is of a free growing nature, and might be alternated with some Apple of upright growth, such as Worcester Pearmain. It is worth a visit to Berkhamstead to see the numerous trees there in full bearing. The Wellington (Dumelow's Seedling) still remains popular on account of the delicacy of its flesh. Peasgood's Nonesuch is the handsomest Apple in cultivation, and this year is remarkably fine; but I do not think it is a sufficiently good bearer for general cultivation. One of the best late Apples, but which would precede Prince Albert, is Tower of Glamis. It will grow in any form, but its lengthened shoots make it especially suitable as an espalier. Dr. Harvey is also a favourite in the London markets. In the varieties I have mentioned a sufficient selection could be made for succession.—L. A. K., *Maidstone*.

P.S.—Since writing the above notes on the Yorkshire Beauty, I have found true types of the Red Hawthornden (as described by Dr. Hogg) on the trees. As I find the Apple is known in Covent Garden Market under the name of Red Hawthornden, although but few fruits are typical of the class, it will be better to continue it. As the Apple is so worthy of cultivation, it will no doubt be cleared up.—L. A. K.

ACACIA GRANDIS.

THE vast genus *Acacia* stands pre-eminent among the plants of the Leguminous family, if not for its utility to mankind, at least for the considerable number of species included within its limits. A large proportion of them are natives of Australia, and numbers are exceedingly beautiful when in flower; from these we select one of the neatest and dwarfest species, more especially adapted for window or frame culture.

The *Acacia grandis* is a native of Western Australia. It forms a

shrub of moderate size, and flowers freely while small. The stems are angular, grooved, and usually, but not invariably, quite glabrous. The leaves consist of two pinnae articulated at their base, each pinna being about an inch long, and composed of from eight to ten pairs of linear, alternate, smooth leaflets, the rachis or stalk to which they are attached being flattened, and terminated by a small leafy point.

A. grandis is a most charming window plant for spring flowering, being at that season loaded with its golden yellow halls; and at all periods of the year its elegant foliage gives it an ornamental character.

Its propagation is effected either by seeds or cuttings, usually by the latter method; they should be inserted in white sand, or very sandy soil, and covered with a bellglass or tumbler. As they are impatient of damp, they require a little more care during the rooting process than those of the leafless species. The inside of the glass should be wiped daily, and as soon as the cuttings are fairly struck they must be potted-off into sandy peat, and eventually into good fibrous peat containing less sand.

Though accorded specific rank when first introduced, *Acacia grandis* is now universally regarded by hotanists as but a variety of the polymorphous *A. pulchella*, and it differs chiefly from the type in having more numerous and longer leaflets. Several other desirable forms of



Fig. 40.—*Acacia grandis*.

A. pulchella are in cultivation, one of which—*A. hispidissima* of catalogues—is specially deserving of mention on account of the long spreading hairs with which the branches are clothed. This variety is also cultivated under the name of *A. lasiocarpa*. As a companion plant to *A. grandis* may be recommended *A. Drummondii*, a plant of more recent introduction, and perhaps somewhat more delicate in habit. Many other desirable species occur in catalogues, but a large proportion of these flower only when the plants have attained an inconvenient size.—W. T.

CHANGE OF CUTTINGS AND FRUITS.

A CHANGE of cuttings of hedging plants is often very desirable. It is not only in hedging plants that a change is desirable, but it is the same in fruits. Strawberries, for instance, are very much benefited by a change. I know a garden where Keens' Seedling would not grow at all well, though formerly it had succeeded admirably; but plants from another district grew, and fruited with their former vigour. It is the same with Apples and Pears. I have seen varieties that have been propagated on the place refuse to grow well, and eventually die; whilst when the same varieties have been obtained from a distance they have been most satisfactory, and even grafts from a distance have been beneficial. I read with pleasure in the Journal of the success of the Woolhope Club in their endeavour to prove that the old Herefordshire orchard Apples and Pears would not die out, which a few years ago they were in danger of doing. In many fine old orchards the trees were in different stages of decay, and no means were taken to preserve the varieties; and I often

thought if grafts were sent to a distance the old varieties would be easily reinvigorated. I suspect the old Golden Pippin in Thomas Andrew Knight's time was in the same condition as the Foxwhelps, Skyrme's Kernel Apples, and Taynton Squash Pears were when the Woolhope Club took them in hand. But I find on referring to "Knight's Treatise on the Apple" that the Foxwhelp, Redstreak, and Taynton Squash Pears were in nearly the same condition as the Golden Pippin, especially the Taynton Squash Pear, which was quite as bad. It seems that he was very careful in his experiments, and the results of those experiments led him to suspect that varieties of Apples have their limits fixed by Nature, like the seasons—spring, summer, autumn, and winter—and that it was impossible to perpetuate the old varieties. But I should think if he had tried his experiments at a distance, or procured grafts from a distance, the results would have been better. To make matters worse he cautioned planters from receiving trees out of the district.

It may be of interest to some of the readers of the Journal to know how his experiments were carried on. In his "Treatise" he says:—"When I first observed the unhealthy state of all the young trees of these kinds I suspected that it arose from the use of diseased grafts taken from old trees, and that I should be able to propagate all the valuable varieties by buds taken from young newly grafted trees, as these can scarcely be said to take any of the wood of the old stock with them; but to remove still further every probability of defect which might be communicated from the old trees, I inserted the young shoots and buds taken from newly grafted trees in other young stocks; and I repeated this process six times in as many years, each year taking my grafts and buds from those inserted in the year preceding. Stocks of different kinds were also used; some were double grafted, others obtained from the branches of Apple trees which had emitted shoots from cuttings, and others from the seeds of each kind afterwards inserted in them, under the idea that there might be something congenial to the fruits in stocks of this kind. The grafts grew tolerably and equally well in all, but there was always a want of hardness and elasticity in the wood; and at the end of three or four years all began to canker. Several kinds of fruits were subjected to these trials, but principally the Redstreak and Golden Pippin (particularly the latter); and as these had formerly grown well in the same soil, I began to suspect that their diseases arose from the debility of age, and would consequently be found incurable."

It will be seen by the above that his opinion was not theory.—
A. YOUNG.

NOTES FROM MY GARDEN IN 1832.—No. 5.

HERBACEOUS AND ALPINE PLANTS.

CONSIDERABLE attention having been directed of late in the columns of the Journal to these plants it may be interesting, perhaps, to some to know what can be done in a small garden with the careful use of means, and, I flatter myself, with an eye to the selecting of proper subjects for it. I have often advocated the more liberal use of these plants, but the multitude of varieties has often deterred persons from attempting them. This has been somewhat intensified by the desire that many people have to possess complete collections of different genera. This is all very well in its way for scientific objects, and doubtless those who thus grow them are benefactors to horticulture; but it may be desirable for Mr. Maw to grow a complete collection of Crocus, or Mr. Barr of Daffodils, or Mr. Wilson of Lilies; but we cannot all do this, and my object has been to get together such herbaceous plants as are interesting for their flowering qualities and not merely as botanical curiosities, and also to insure through them and a selection of a few annuals and other plants a succession of flowers from the early spring to the late autumn, so that at any period I may be able to have something in bloom in my garden, and this is how I have managed it.

In front of my greenhouse there is a border about 4 feet wide and about 30 long. This is an early bulb border. There are Crocuses at the edge, and just behind them alternate clumps of *Chionodoxa Lucilæ* and *Galanthus Elwesii*, and behind them again some clumps of different varieties of *Narcissus* and *Jonquils*, and when the grass of these has decayed I sow it all over with *Mignonette*, which is now (August) filling the beds and sending out its delicious fragrance much to the gratification of passers-by and also of the bees which are busy over it. I do not care much for a scentless garden, and I have walked through many a one gorgeous in its colouring and neat in its carpeting, but as far as perfume went you might as well have gone through a series of Turkey carpets; therefore *Lavender*, *Mignonette*, and *Sweet Peas* always find a place with me.

There is a border alongside of my lawn which is not (Goth that I am!) dedicated to lawn tennis. This border is about 15 feet wide and 80 feet long, and contains a variety of herbaceous plants and bulbs. It is edged in its entire length with *Campanula pumila alba*, which is always green, and when, as it has been lately, it is in full flower, is exceedingly pretty. The Crocuses push their way up through it in the spring, and it forms a good groundwork for them. When they are withering

I cut off the grass, and then the *Campanula* has its way. At the back of the border I have some of the taller-growing varieties of Lilies, some grand clumps—*e.g.*, of *L. testaceum*, *L. davuricum*, *Sappho*, *L. incomparabile*, *L. auratum*, *L. superbum*, and *L. lancifolium rubrum*. Intermixed with these are tall plants of good varieties of *Delphiniums*, and in front the smaller-growing kinds *L. Leichtlinii*, which has not done well, *L. pomponium verum*, *L. Batemannia*, &c.; also *Fritillarias*, *Ornithogalum umbellatum* and *arabicum*, *Gladiolus Colvilli albus*, &c. The upper end is occupied by a large mass of *Anemone Honorine Jobert*; and amongst the herbaceous plants used are *Hypericum*, *Farfara*, *Senecio pulcher*, *Achillea Ptarmica fl.-pl.*, several species of *Campanula*, &c.; while interspersed amongst them are a few clumps of such annuals as *Sweet Sultan*, *Chrysanthemum Dumetia*, and also some plants of *Pelargoniums*, especially *Marshal McMahon*, which tends to lighten up the border with its brilliant foliage. At the upper end of the lawn I have a wide bed about 10 feet wide by 20 long. This is planted with tall flowering *Delphiniums*, and *Phloxes* at the back, *Galega officinalis* and *officinalis alba*, *L. candidum*, &c. In front are, in the spring, clumps of *Narcissus poeticus*, *Hyacinths*, &c., and amongst them *Sedum spectabile*, which is dwarf when they are in bloom, and as soon as they die down fill their places. I have besides at each end clumps of the old *Orange Lily*, and in the bed the old *Tiger Lily*, *Anthericum Liliastrum*, *Allium Moly*, *Aquilegia chrysantha*, *Doronicum austriacum*, *Epimedium pinnatum*, &c. The *Sedum* makes the bed very gay in autumn, when its large heads of purplish lilac flowers attract large numbers of butterflies, especially *Vanessa atalanta* and *V. Io*, besides my friends the humble bees, who seem to get almost tipsy with the honey they obtain from it.

I have besides this a long border opposite my *Rose* garden in which there are a number of the larger-growing plants. Here I have *Harpalum rigidum*, *Telekia speciosissima*, the *Winter Cherry*, some clumps of *Irises* and *Campanulas*, *Gypsophila*, various *Asters*, and a number of *Aquilegias*, many of them self-sown seedlings of various colours, seedlings from *chrysantha* and *californica*, *Bupthalmum salicifolium*, *Papaver orientale*, tall-growing Lilies, &c. It will thus be seen that I have throughout the season something in flower. There are a number of other plants which I have not enumerated which fill up the spaces in the beds, but I have named the principal ones.

The rockery is, however, I think, my special favourite in this department of the garden, and in it I have endeavoured to get some of the best plants I could afford to. It is about 100 feet long and about 4 feet wide. The stones are placed, I hope, in not a very formal way, and I have endeavoured to give it as natural an appearance as possible. There is a dip in the ground about two-thirds of the way, and here is the only place where I can grow plants that like a damp situation, and as it is very limited there are but few. On the rockery I have the following plants—A delightful group of *Ramondia pyrenaica* under the overhanging shelter of a large stone, keeping it from the sun's rays. Here is a mass of the *Pyrenean Rose*, which, however, I have to keep within bounds, as it spreads rapidly in all directions. Amongst it are some plants of *Hepatica angulosa* and some roots of *Crocus Imperati*. Then there is a clump of *Anemone apennina*, very lovely in spring; *Triteleia uniflora*, *Silene alpina*, *Lychnis alpina*, *Dianthus neglectus*, *Gentiana acaulis*; and over-running the stones and creeping all over the ground *Arenaria balearica* and *Mentha minima*, which form a green carpet for the other things. Here again on an elevation are *Androsace carnea* and *carnea eximia* (the *Mont d'Or* variety), and the *Edelweiss*, which is quite at home and has propagated itself from seed in other parts of the rockery. *Campanula turbinata* and *turbinata alba* are here, and running all over this portion is *Acana novæ-zealandiæ*, which is now conspicuous with its crimson spikelets. This forms a capital groundwork, as all other plants seem to push themselves up through it. Here, too, are *Anemone stellata fulgens*, conspicuous in early spring with its brilliant blossoms. *Erinus alpinus* seeds itself over the rockery. *Phlox Nelsoni* makes a brilliant display in spring, but the slugs, one great bane of the rockery, have finished off *Phlox divaricata*. *Androsace lanuginosa* is here also; then *Ajuga reptans variegata*, although this will go back to the green form. *Æthionema grandiflorum* has flourished well here, while *Campanula Allioni* has quite disappeared. *Dryas octopetala* flourishes, but is a shy bloomer; but a large clump of *Aubrietia* (Ingram's variety) is beautiful in spring. Here, too, *Linaria alpina* is very pretty. This is the lowest part of the rockery, and here I have a nice clump of the very beautiful *Cypripedium spectabile*, which has established itself well and flowers in abundance every year. *Orchis foliosa* I have not succeeded so well with, but *Primula rosea* does very well here and in the upper part of the rockery. I have

various plants of *Primulas pulcherrima*, *cashmeriana*, &c., and *Omphalodes Lucilæ* is flourishing. *Dianthus neglectus* and *alpinus* are also well established, and *Androsace sarmentosa* has made a large plant quite a foot square, but has disappointed me by not flowering this year, although nothing can be more vigorous than the plant itself. *Dianthus deltoides* is somewhat too vigorous as it spreads itself all over the rockery, but is very pretty when in flower. At the back of the rockery *Myosotis dissitiflora* has established itself and requires very close watching; it seeds itself all over the place, and must be pulled up or it would overrun everything.

I have, in giving a description of these parts of my garden, not done so because I flatter myself that there is anything peculiarly excellent in my culture, far from it; but I wish to show how in a limited space much real enjoyment may be had by those who prefer this style of gardening. Had I been addicted to bedding-out what would have been the state of things? I should have filled my greenhouse with bedding-out plants, which would have deprived me of the pleasure that it has afforded me all through the year; my garden would have been bare for eight months at least, and then I should have had a blaze of colour to be dashed by the first heavy rain and cut up by the first severe frost. As it is, there is hardly a day in the year that I cannot find something in flower and at most times something to cut; and one great feature in it is that you are continually coming upon something fresh, something that you had forgotten was there, and which all at once has revealed its beauty. I may add that I have other pieces of rockwork and other herbaceous borders, but these are the principal ones; and although I have not enumerated anything like the whole of the plants that I grow, yet I have given the names of the principal ones, and of such as I am pretty sure would give satisfaction.—D., Deal.

THE GREAT STORM OF SEPTEMBER 2ND.

So calm and bright was the morning of "Partridge Day" that one might suppose the barometer had risen to "set fair," and that the soft balmy air of that smiling morn was an augury of the month's fine weather for which we were longing to crown the growth of fruit and grain with ripeness and full maturity. Much corn was still out in the fields, Apple trees were bending beneath a heavy crop of fruit, hop-picking was only just beginning, and the hops were so abundant and so fine that the growers were confidently looking forward to recouping themselves for the losses of last year. But as the day wore on clouds from the south-west gradually overspread the sky, rain began to fall and wind to rise as evening closed in; it blew harder and harder through the night. On Sunday morning there was a great storm. The barometer had fallen in parts of the country as low as 28.44; the pressure of the wind was 17 lbs. to the square foot, which indicates a velocity of sixty miles an hour. The storm continued till noon on Monday, doing incalculable mischief. In hundreds of orchards most of the fruit was swept from the trees, and that which was left on the branches is so battered and bruised that its speedy decay is inevitable. Hops suffered severely, for the heavy crop had just reached maturity. Many of the heavily laden poles were dashed to the ground, and upon those which were not blown down the branches were dashed about violently, and the bulk of the crop so much bruised that an inferior sample and low price must follow.

In the flower garden the beds have just reached the perfection of summer beauty, and were all aglow with colour rich and unblemished. Much colour still remains, but all the freshness and much of the beauty passed away on the wings of the storm. Not a perfect truss, hardly a perfect flower, was left behind. A huge *Gloire de Dijon* Rose, that has reached a height of full 30 feet upon the west side of a lofty building, had several dozen magnificent blooms clustering among the large handsome foliage before the storm. After it not a flower remained upon the tree, which is a wreck of broken branches and lacerated foliage. To show how powerful and searching the wind was, I may also mention an *Aristolochia Siphon* covering a trellis in a snug south-east corner, apparently quite screened from the south-west by lofty buildings, yet its foliage is quite spoilt. I need not enumerate further details of damage that is painfully visible on all sides. Some good may come of it if its baneful effects arouse attention to the importance of shelter for growing crops as thorough as is possible. No mere hedge or narrow belt is of much use to break the force of such a storm, for it blew with such violence that the foliage of a belt of Hazel some 30 or 40 feet wide is shrivelled and dry as though it had been scalded, the side farthest from the wind having suffered equally with that which was fully exposed to it.—EDWARD LUCKHURST.

JUDGING AT COUNTRY EXHIBITIONS.

I AM rather an old judge at country exhibitions. I have judged at one village horticultural show for twenty years, except one year, and then I could not possibly go, and so badly did the officers and my usual co-judge get on with the substitute in my place, that I was appealed to not to let

anything, except a life and death affair, interfere again with my attendance. I may say, then, without any affectation, that I must have given satisfaction. In the twenty years, of course, I have had a good few colleagues, and some rather difficult to deal with—viz., the uncertain, or weak-minded man; he who took such a long time to make his mind up, who "liked to be qu're sure, you know;" the narrow-minded, or one-class man who was great in one thing, say Potatoes, but little in everything else; the bumptious man, the solid man, the know-every-man, a village shopkeeper, or publican, perhaps, who looked down upon you over his spectacles as much as to say, "Young man, don't you think to take me in, I know all about it;" the crotchety man, the judge with a fad or idea, to which everything must square or he cannot pass it. These men are all difficult to deal with, but the best way is to appear not to see these oddities, and get them to talk over their different standards and try to arrange a common ground of agreement as to certain points before judging, with the understanding that an arbitrator shall be called in on any point of strong disagreement. I find it the best plan again first of all on going into the show to take a general survey of the whole and set up in your mind the standard of judgment from what is exhibited. Make a local standard of judgment, and work up to it, rather than fix before you go to the show an ideal standard in your mind and expect everything to come up to it. I like to begin with the lowest class, the labourers, and judge upward, through the tradesmen's class up to the amateurs' and gentlemen's gardeners. In the labourers' class, of course, quality is not insisted upon to such a degree as quantity is, and food exhibits are encouraged more so than anything else, and the standard of judgment is gradually raised up to the highest, the gentlemen's and gardeners' class. In judging, it is wise for the judge, in case of an exhibit looking as if should have the first prize, to expose to view the blemishes that have put it down, to turn up the decayed portions to the light, or to cut open, or otherwise display to anyone who looks at it, what it is that has caused the judgment to go in the way it has; or, if that cannot be done, and the judge is not a good one at taking a mentagraph of the special exhibits, to make a note of it, and either give in the note to the Secretary, or keep it himself for reference if he is pulled up about it. One of the best things a judge can do is to clear out of the place as quickly as he or they can. If they stay, and they are men that are easily approached, they will most assuredly be "called over the coals" on something in their judgment that does not suit some exhibitor.

I forgot to say, in speaking of the difficulties of judging, that officers that are themselves exhibitors are dreadful people to have to do with. If they are men of strong opinions, as in my experience I have generally found them; if their exhibits are not adjudged first, or very nearly first, they can be, and often are, uncommonly unpleasant to the judges. No officer who is himself an exhibitor ought to have anything to do with the judges. Sam Slick says that "there's a deal of human nature in men," and a man must be a very unselfish and generous man indeed who can see his productions put down and his neighbours' put up, and that under his very eyes, and be satisfied. We all cry out more or less in our several ways when we are trod upon; but of all the virtues required in judging at country exhibitions there is no virtue so necessary as plain common sense, added to quick discernment and rapid judgment. These will settle most things timely and satisfactorily.—H.

BATH FLORAL FÊTE.

IN some of the principal cities and towns in Belgium there is a formal alliance of music and flowers. Societies of harmony and of horticulture combine, each strengthening the other, and concerts and flower shows, not necessarily in combination, are held in the gardens of the twin organisation. Something of the same kind would appear to exist in Bath, Sydney Gardens forming the head-quarters of the Floral Fête and Band Committee. Horticultural exhibitions under the auspices of this Committee have been held for upwards of a quarter of a century, the one to be noticed being the third of the present year, and another has yet to be held. The Gardens referred to are most enjoyable, and a better position for a floral fête could scarcely be imagined. The ground is boldly, almost abruptly, undulated, and beautifully timbered. A railway in a deep cutting runs through them, also a canal, these being spanned by a series of fine bridges. The marquees containing the exhibits are placed in different parts of the grounds, being almost hidden by the overhanging branches of the trees. Quite a promenade, and in fine weather a very agreeable one, is thus involved in inspecting all the products.

These floral fêtes, as they deserve to be, are evidently much appreciated not only by the inhabitants of the "Queen of the West," but by those of adjacent towns, special trains being provided for their accommodation, and the weather being fine, as on the present occasion, visitors are very numerous. In honour of these fêtes flags are seen here and there. Very conspicuous was one floating from the tower of the grand old Abbey, the bells of which rang merrily in honour of the occasion, while the horses of the trams were gaily decorated with Sunflowers and Dahlias, and now and then a conductor decorated himself by wearing a fine specimen as a *boutonnier*.

The Exhibition of last week, taking it in its entirety, was considered the finest that has ever been held in Bath, although the fruit was below the average, and cut flowers had been injured by the storm of the first two days of the month; yet these were excellent—Dahlias, Roses, Phloxes, Gladioli, and especially Asters, these being admirably represented; while the display of wild flowers, neatly staged and accurately named, was the most creditable we have seen at any exhibition. Vegetables were also good; but the feature of the Show were the Fuchsias, which were of extraordinary merit, and the grand specimen stove and greenhouse plants staged by the redoubtable and ubiquitous Mr. Cypher.

PLANTS.

Fuchsias.—These had the place of honour in the schedule, and well did they merit their position. There are numbers of persons in the country who consider themselves good Fuchsia growers, founding their claim probably on their success at local or metropolitan exhibitions; but let all whom it may concern be very respectfully told that if they have not seen the specimens that are grown in the counties of Wilts and Somerset they do not know what a good Fuchsia is. The third-prize specimens at this Show, and even some of the plants that did not win a prize at all, would be easily first at most of the shows in the kingdom that are held beyond the radius of this Fuchsia-growing district. After this rather bold yet perfectly sober assertion not a few readers will be anxious to know what the specimens were like. To adequately describe them is impossible, but a general idea of their character may perhaps be conveyed.

The most valuable prizes were offered for nine plants, the amounts being £5 10s., £3 10s., and £2 10s. These prizes were won, and more than merited, by Mr. Tucker, gardener to Major W. P. Clarke; Mr. Lye, gardener to the Hon. Mrs. Hay; and Mr. Wilcox, gardener to Miss Barrow respectively. Mr. Tucker's specimens were magnificent pyramids, 9 to 10 feet high, and 3½ feet in diameter at the base, the pots being almost obscured by the pendant growths, and every inch of the plants from base to summit covered with flowers, resting on clean and healthy foliage. The following are the varieties:—Charming, Bountiful, Doel's Favourite, Elegant, and Lead-me-well (darks); and Queen Victoria, Flower of the Flock, Arabella, and Emily Doel (lights). Mr. Lye's plants were close columnar specimens of wonderful symmetry, clothed with fine foliage, and bearing large fresh and beautiful flowers, in the latter respect far surpassing the first-prize examples; but they did not equal them in size, nor did the drooping sprays hide the pots. They were about 8 feet high, and nearly 3 feet in diameter at the base. The varieties were similar to those above named, except Mr. Bright, which was perhaps the finest light Fuchsia in the Exhibition, and the Hon. Mrs. Hay, a superior dark variety. Mr. Wilcox's specimens were less formally trained—grand, free, vigorous, obtuse pyramids, 4 feet in diameter at the base, and from 5 feet to 7 feet high. A plant of Arabella was of marvellous excellence, the pot being quite hidden, and the flowers resting on the ground. For luxuriance of foliage and size and substance of blooms these were unequalled; it, in fact, seemed hard to have to admit that such splendid examples of culture should only obtain a third prize. Without questioning the justice of the awards it may be observed that the natural elegance of the Fuchsia is better displayed by plants of this nature than by hard, close, and severely formal training. This latter, however, appears the "fashion" in this district, but is there not a danger of its being overdone? At any rate, we consider the plant of Arabella referred to the premier Fuchsia of the Show.

Only briefly can the remaining classes be referred to. Mr. Fletcher, gardener to C. H. Gabriel, Esq., was well placed first in the class for six plants with beautiful pyramids 6 to 7 feet high and 2½ to 3 feet in diameter at the base. Mr. Snell, gardener to Mrs. Counsell, was second with equally large but less dense specimens, and Mr. Drummond third. Whether Mr. Drummond is the owner of the plants or the cultivator we are unable to say, the prize cards failing to indicate this, as they did in many other classes, while in few, if any, cases were the addresses of the exhibitors given. If the Bath shows are to win more than local fame, as they should do, the prize cards cannot be too complete. The excellent and evidently too hard-worked Secretary needs more assistance, or rather the entire system of placing the awards needs remodelling; but more of this in a future issue.

To resume. In the class for four specimens the prizes were awarded to Mr. Riddick, gardener to Mrs. Pinder; Mr. Bailey, gardener to Mrs. Phayre; and Mr. Wilcox in the order named, all with admirable examples of culture. In the single-specimen class (light varieties) Mr. Wilcox was first with Emilie Lye, 6 by 3 feet; and Mr. Lye second with Harriett Lye, 6½ by 2-foot columns. In the corresponding class for dark varieties Mr. Tucker was first with Charming, 9 by 3 feet; and Mr. Wilcox second with the same variety, 7 by 4 feet, only two prizes being offered in these classes.

In reference to such specimens as the above many admirers of the Fuchsia may not unnaturally remark that they have no room for growing similar examples, as their houses are not sufficiently large and lofty. The growers of some of the plants under notice would not admit this as a valid excuse, for the simple and sufficient reason that the best plants were not grown under glass at all, but in the open air. If anyone should smile incredulously that will be conclusive proof that he has something to learn in the cultivation of Fuchsias. They succeed just as well outdoors as Chrysanthemums do, and both are better out than in provided they are rightly treated. The largest plants above alluded to are really "trees" several years old, having trunks as thick as a man's wrist. They are rested, pruned, placed outdoors to break, shaken out, repotted, and grown outdoors, being placed under shelter, not necessarily under glass, during stormy weather after the flowers are expanded. There is nothing surprising about all this when it is considered that if Fuchsias are planted in rich soil in the garden, just as they are starting into growth in May or early June, they will grow far more healthily and flower much more profusely than plants will that are grown in an ordinary greenhouse. The cultivators above mentioned have simply recognised this fact and acted on it. They have read the lesson that Nature has taught them, and deserve great praise for their aptness at learning; especially, perhaps, to Mr. Lye is credit due both as a raiser of superior varieties and a pioneer in this simple path that has led to success.

Now a word on varieties may not be out of place. Let it be remembered that only those of naturally free growth are suitable for making huge specimens in a reasonable time; and also it should not be forgotten that these same varieties are not as a rule the best adapted for growing, as small com-

compact decorative examples in 5-inch pots. Here endeth—what some not very successful grower may possibly term—this "fuss about Fuchsias."

Stove and Greenhouse Plants in Bloom.—Time after time during the season the plants exhibited under this head have been enumerated, and we have no intention now of repeating a string of names that are quite sufficiently familiar to all readers. In the class for nine plants Mr. Cypher was a competitor, and of course first, staging most effective specimens, as the premier exhibitor invariably does. Mr. W. Long, gardener to C. Gardiner, Esq., was a most creditable second, *Ixora Williamsi* being splendid, and most of the others very fine indeed. Miss Ethel Brown secured the third prize; whether this lady was the cultivator or not, or whether she keeps a gardener the card did not denote, but at any rate the grand old autumn plant *Vallota purpurea* was brilliant with its fifty or sixty heads of flowers. Prizes were offered also for six plants, but the small boys who were entrusted to attach the cards were too busy racing and "boxing" to get them placed before we left the tent. Mr. Cypher secured the chief prize in the class for single-specimen stove plants with *Ixora Duffii*, bearing brilliant trusses a foot in diameter—the most effective plant in the classes. Mr. Long followed worthily with an admirable example of *I. Williamsi*. This exhibitor was first in the corresponding class for greenhouse plants with *Lapageria alba*, Mr. Cypher, by way of a change, being placed second with *Phacocoma proliferata Barnesii*.

Ornamental-foliaged Plants.—These were not so striking as we usually see them at large exhibitions. In the class for sixteen varieties Mr. Cypher was prominent, followed by Mr. Mould, gardener to E. G. Bryant, Esq., with fresh, bright, and clean examples which are destined probably to win future honours, as, though not large now, they were in excellent condition, and evidently in good hands. Mr. J. F. Mould, gardener to somebody we presume, secured third honours with a creditable collection. Mr. Shadwell, gardener to J. Chandler, Esq., and Mr. Bloodworth were the representative winners in this class for ten plants, both exhibiting fresh medium-sized healthy specimens. Messrs. Cooling distanced all competitors with *Lilium auratum*. The above plants were arranged in a marquee 200 feet long, and the general effect was highly imposing. The following were arranged in another tent:—

Miscellaneous Classes.—The best six Orchids were staged by Mr. Cypher, these including *Saccolabium Blumcii*, *Cypripedium niveum*, *Odontoglossum Roezlii superba*, and *Cattleya Eldorado*, all in good condition; Mr. W. C. Drummond was second. Mr. Cypher also had the best six Heaths, these including *E. Marnockiana*, *E. tubæformis*, *E. McNabiana*, and *E. ampullacea Barnesii*. Mr. G. Hart, gardener to Mrs. General Studd, had among others good plants of *E. cerinthoides coronata* and *E. Bandoniana*, and was deservedly awarded the second prize. Three Heaths were well shown by Mr. Gardiner and Mrs. West. Mr. W. J. Mould, gardener to E. C. Bryant, Esq., took the lead with six stove and greenhouse plants, among these being well-flowered specimens of *Erica Eweriana*, *Clerodendron Balfourianum*, *Allamanda nobilis*, and *Ixora amabilis*. Mr. Tucker was a very good second, his best specimens being *Bougainvillea glabra*, *Lapageria rosea*, and *Statice profusa*. Mr. H. Jones, gardener to General Doherty, took the third prize, his best plants being *Dipladenia Brearleyana* and *Eucharis amazonica*. In the corresponding class for three plants Mr. Hawkins, gardener to T. Jolly, Esq., was first, among these being a good *Stephanotis floribunda*; the second prize was awarded to Mr. Cole, gardener to Mr. R. B. Cater; the third prize going to Mrs. West, the exhibits in each instance being very creditable. Single-specimen flowering plants were well shown by Messrs. Cypher, Mould, and Long. Several capital groups of Ferns and Lycopods were arranged, the best twenty, staged by Mr. Tucker, including good specimens of *Adiantum concinnum latum*, *A. farleyense*, *A. gracillimum*, *Gymnogramma sulphurea*, and *G. peruviana cristata*. Mr. J. Coke, gardener to A. P. Stancombe, Esq., followed closely, his best plants being *Adiantum rubellum*, *Cibotium Schiedii*, and *Gleichenia spelunca*. The third prize was worthily awarded to Mr. W. C. Drummond. With twelve Ferns and Mosses Mr. E. Smart, gardener to H. Brook, Esq., was a good first, and the remaining prizes were well won by Messrs. L. Carr and F. Mould. Messrs. H. Jones, E. Smart, and J. Lye were the successful exhibitors of Coleuses, as were Messrs. Cooling & Son, T. Jolly, and H. Kemp of *Lilium auratum*; J. Lye and E. Smart of *Petunias*; T. Jolly, *Verbenas*; W. Jordan, T. Jolly, and J. Lye of *Cockscombs*, the exhibits and competition generally being very close and good. Ten good lots of Tuberous-rooted *Begonias* were shown, Mr. H. Hooper taking the lead with fair-sized plants of such fine sorts as *Queen of Yellows*, *Mrs. Laing*, *Sulphur Queen*, *Mr. R. Whyte*, *A. J. Soomes*, and *Mrs. Freeman*. The second-prize group of Mr. H. C. Mayel included good examples of *Prince of Denmark* and *Duchess of Edinburgh*. The third prize was awarded to Mr. W. Clifford. *Geraniums* were well represented. The first-prize six staged by Mr. Tucker were remarkably fine, the varieties being *Lucius*, *Craven Fox*, *Rev. Atkinson*, *President*, *Lizzie Brooks*, and *Jenny Dodds*. Messrs. H. Jones and E. Hall were respectively second and third, both staging creditably. *Variegated Pelargoniums* were well shown by Messrs. J. Lye, C. H. Gabriel, Mrs. Counsell, C. Smart, and E. Hall.

CUT FLOWERS.

A great quantity of these were shown, every class being well filled, and following so soon after storms the quality generally was surprisingly good. Mr. S. Brown had a grand stand of thirty-six spikes of *Gladioli*, and was followed by Messrs. H. Hooper, and A. R. Tanner, who also had many good spikes. Twelve *Gladioli* were creditably shown by Messrs. S. Tottle, W. C. Drummond, and A. R. Tanner, who were awarded the prizes in the order named. The twenty-four *Dahlias* which won Messrs. Keynes & Co. the first prize were particularly good, and Mr. T. Hobbs was a close second; the third prize going to Mr. J. Nation for another good lot. Mr. J. Humphries had the best twelve *Dahlias*, and was followed by Messrs. G. Horsell and J. Nation. Messrs. Keynes & Co., W. Shaw, and G. Humphries were the successful exhibitors of *Fancy Dahlias*. Very attractive and good were the boxes of single *Dahlias* as shown by Messrs. G. Cooling & Son, G. Humphries, and A. A. Walters. They were shown in bunches, and among Messrs. Cooling's premier collection the most conspicuous were *Magenta Queen*, *Paragon*, *Distinction*, *Sir W. Scott*, *Hon. J. T. Boscawen*, and *White Queen*. Single and *Pompon Dahlias* were also extensively shown by Messrs. Keynes & Co. *Roses* were rather the worse for the rough weather experienced, but the first-prize stand of twenty-four bunches put up by Mr. J. Mattock were still most

creditable, and Mr. W. Smith had many good blooms in his second-prize stand. Very good also were the twelve bunches which were shown by Mr. T. Hobbs, Mr. J. P. Budd, and Mr. J. Burgess, who received the awards in the order named. The German and French Asters as usual were very numerous and very fine. The winners with the former were Messrs. H. Hooper, J. Nation, A. A. Walters, and H. Catley, while the latter were best shown by Messrs. G. Cooling, H. Poeock, J. Burgess, and A. A. Walters. Phloxes were well shown by Messrs. W. Luton, H. Hooper, and J. B. Blackmore. Hollyhocks by Messrs. J. Burgess, A. A. Walters, and H. C. Mayall. Cut flowers in twenty-four bunches by Messrs. E. C. Bryant, E. Brown, and H. James. Messrs. J. Cypher, Mark Hookings, and H. James had good floral devices. Messrs. M. Hookings, E. T. Hill, J. Bland, and R. B. Cater, table ornaments, and Messrs. Cypher, Hookings, and A. George hand bouquets; the competition in each instance being very close, and there were several meritorious unplaced exhibits. The stands of named collections of wild flowers were very numerous, and the specimens remarkably well selected and named, the whole with the bouquets and vases of wild flowers forming quite a feature in the varied display.

FRUIT.

As previously observed, there was a falling-off in this section of the Show. No collections of twelve dishes were staged, and it may be assumed that the comparatively few gardeners who could show creditably in such a class would regard the prizes as quite inadequate for so great an effort. Twenty persons can stage six dishes more easily than two can stage twelve. No Pines were exhibited.

Grapes.—In the class for eight bunches of Grapes in four varieties there were three competitors; Mr. Nash, gardener to the Duke of Beaufort, securing first honours with very fine Alicantes, good Black Hamburgs and Lady Downe's, with small Muscats. Mr. Alderman Chaffin was a rather close second with very neat examples of Madresfield Court, Black St. Peter's, Black Hamburg, and Alicantes, but not perfectly ripe. Mr. Jones, gardener to General Doherty, had the remaining prize. There were eight competitors in the class for three bunches of Black Hamburgs, the prizes falling to Mr. Rye, gardener to James Denham Esq.; Mr. Bannister, gardener to H. St. Vincent Ames, Esq.; Mr. Smith, gardener to A. Shipley, Esq.; and Mr. Coles, gardener to Mrs. Smith, for produce of fair average quality and close in order of merit. Of two bunches of the same varieties there were five exhibitors, the produce being better than in the larger class, and the prizes went to Mr. Loosemore, gardener to H. Cooper, Esq.; Mr. Shelton, gardener to T. Waite, Esq.; and Mr. Lintern, gardener to W. Butler, Esq. Only three pairs of Muscats were staged, the prizes going to Messrs. Loosemore, Shelton, and H. Smith, the two former staging fairly good examples. In the Any other white variety class Mr. Loosemore was again to the fore with Foster's Seedling, followed by Mr. Rye and Mr. Cole, gardener to W. Pethick, Esq., with Buckland Sweetwater. This was the worst class in the Show, as the corresponding class for black Grapes was the best, eight lots being staged. Mr. Nash secured first honours with very fine Alicantes, Mr. Coles following with good average bunches of the same variety, Mr. Loosemore having the remaining prize for small bunches of Alicante. Some good Madresfield Court in this class, but by whom staged we know not, must have been passed with great reluctance by the Judges.

Melons.—Twenty-six fruit were staged in the two classes—namely, green-flesh and "any other variety" class; and although many of the fruits were of good appearance their quality was not satisfactory. In the green-fleshed class Mr. Iggulden, gardener to the Earl of Cork, was first with Masterpiece, the best Melon in the Show, Messrs. Tucker, Rye, and Carpenter following; but all the fruits were certainly not correctly named. In the remaining class Mr. Oatbert, gardener to H. Oldland, Esq., was well first with Blenheim Orange, Mr. Smart, gardener to H. Brooke, Esq., following. Other prizes, we presume, were awarded, and if so the "boys" were not successful in attaching the prize cards.

Peaches and Nectarines.—The winning dishes of these were fairly good, six dishes of nine fruits being staged. Mr. Shaw was first with fruit named the Prince of Wales, very pale; Mr. Crothers second with Exquisite; Mr. Gouldsmith third with Goshawk. There were eight dishes of six fruits, the prizes going to Messrs. Nash; King, gardener to W. Leach, Esq., and Iggulden, all staging Barrington. Nectarines were perhaps better than Peaches, and the competition was good. The prizetakers were Messrs. Rye, Bannister, Gouldsmith, Rice, and Shadwell, the varieties Pine Apple, Pitmaston Orange, and Victoria.

Plums.—The competition in these classes was excellent, and the display the best we have seen this year. In the class for twelve dishes of dessert Plums, Green Gage excluded, the first prize was awarded to Mr. H. Smith for Golden Drop, the second to Mr. Clifford for Kirke's, the third to Mr. Cator for Angelina Burdett—a good class. Of culinary Plums, the first and second prizes went to Messrs. Carpenter and Mr. A. T. H. Hall, both with Fonthill or Pond's Seedling, Mr. E. Hall following. A fine class of twenty-one dishes. For Green Gages the prizes went to Messrs. Lye, Weston, J. Hall, and Cole.

Nine dishes of Figs were staged, but as there was evidently some mistake in the awards, inasmuch as the best dishes were without cards, we are unable to indicate the winners. Cherries were very fine from Messrs. Cox and Jones, Filberts good, Apples numerous and excellent, and Pears generally satisfactory. All the most popular varieties of Apples were represented in creditable condition, but we did not obtain the names of the successful competitors.

VEGETABLES.

A remarkably fine lot of vegetables, principally in collections, were shown. As a rule, immense heaps were formed, and the vegetables also were, as a rule, much too coarse. Tomatoes were included in very large quantities, and Cucumbers, Cauliflowers, and Peas were conspicuously good. The winners in the classes for collections of twelve varieties were Messrs. Barnfield, W. Smith, and W. Tylee; of nine varieties, Mr. G. Garraway, Rev. C. C. Layard, and Mr. W. Fisher; of six sorts, Messrs. J. Walter, Shadwell, and W. Ragbourne, the awards going in the order named in each instance. Mr. W. Mead had a fine collection of Gourds, Squashes, and Vegetables Marrows; and seedling Potatoes were shown by Messrs. J. Walters, G. Garraway, and E. C. Laurence. The cottagers also had a great display of very fine vegetables.

At the luncheon, which was presided over by Mr. Alderman Chaffin and Mr. Cater, and which the Mayor of Bath attended, it was easy to perceive that more than ordinary amount of interest is taken in horticultural pursuits by influential personages, and with the support that the directorate richly merit, the Bath Shows will become more widely famed and add materially to the attractions of the beautiful city in which they are held.

ŒNOTHERA RIPARIA.

UNDER the incorrect name of *Œ. prostrata* this pretty dwarf Evening Primrose is now somewhat generally known; and though its flowers are smaller and less showy than those of some other species, we have no doubt that its hardiness, free-flowering habit, and especially the extreme neatness of its foliage, will cause it to rank among the most useful of the tribe. It seems to succeed in any good garden soil.

It is a near ally of the polymorphous species *Œ. fruticosa*, some form of which is to be met with in most gardens, and resembles that species in its inflorescence, but is of weaker habit of growth, and differs in its narrower and more elongated foliage, as well as in the distinctly stalked



Fig. 41.—*Œnothera riparia*.

flowers and seed vessels. Though popularly known as an Evening Primrose its flowers are diurnal, as in the case of many other species of this genus, and remain expanded several days. It is worthy of note that this species is described as biennial by American botanists, though so far as our observation has gone the plant cultivated under this name in England is certainly perennial.

When first introduced it was much recommended by the late Mr. D. Beaton as a yellow bedding plant, its prostrate growth rendering it very suitable for an edging to beds of taller plants; but the duration of its bloom is by no means co-equal with that of the plants usually employed as bedders, and of late years this species has been mostly confined to the mixed border. Though naturally more or less procumbent, it may, if thought desirable, be tied-up, and will then form a bush 1½ to 2 feet high. It is easily propagated by cuttings, division, or by seeds, and when pegged down the shoots root freely.—T.

APPLE MR. GLADSTONE.

AS I have seen the Editor's request for the history of this very fine early dessert Apple has not been responded to, I beg to say that I have for some years tried to find out its history in vain. Our stock first came from Sawbridgeworth and other sources in 1875, and a few years later the same Apple was imported from France as the Scarlet Pippin, while at Messrs. Cranston's I saw it under the name of Jackson's Seedling. I heard that it was grown largely at Evesham and that district, but my inquiries there have led to no results. My own opinion is that it will

prove an ancient but local variety; in the meantime we must keep to the name of Mr. Gladstone.

It is a somewhat weakly grower, but is very prolific, and is by far the earliest good Apple grown—not, perhaps, so early as the old white Joanetting, but a fruit that is fit for any select dessert, not only on account of its rich colour, but for its flavour and quality. It makes a fruitful pyramid on the Paradise stock, and is quite at home on the Crab as well. The Kent growers have noted it, and one East Kent farmer planted some hundreds of trees from here about five or six years since.—GEORGE BUNYARD, *Maidstone*.



ON Tuesday last a meeting of fruit-growers was held at South Kensington in connection with the Fruit Committee of the Royal Horticultural Society, with the object of promoting an EXHIBITION OF APPLES, to be held in the large conservatory at Chiswick early in October. The chair was occupied by Mr. John Lee. There were present Mr. Henry Webb; Mr. R. D. Blackmore; Dr. Hogg; Mr. Philip Crowley; Mr. Killick; Mr. William Paul; Mr. George Paul; Mr. John E. Lane; Mr. Smith, Mentmore; Mr. Roberts, Gunnersbury; Mr. Burnett, The Deepdene; Mr. A. F. Barron; Mr. Goldsmith, Hollenden, and others. It was unanimously resolved that, in consideration of the favourable opportunity which the present abundant crop of Apples affords for bringing together a complete collection of all the varieties that are grown throughout the country with the view of correcting their nomenclature, ascertaining their synonyms, and comparing their relative merits, an effort should be made to procure a representation of all the fruit-growing districts of the country, which shall be exhibited in the great conservatory at Chiswick from the 4th to the 18th of October next. A Committee was appointed, consisting of Mr. John Lee, Dr. Hogg, Mr. Barron, Mr. Killick, Mr. Roberts, and Mr. Woodbridge, to make the necessary arrangements and prepare the details, all of which will be duly announced by circulars and through the medium of the public press. Mr. Barron was appointed Secretary, and all communications are to be addressed to him at the Gardens of the Royal Horticultural Society, Chiswick.

— WE regret to have to announce the death of the REV. HENRY HARPUR CREWE at the age of fifty-four, which happened on the 7th inst. Mr. Crewe's name has been so long associated with horticultural matters, not only as an ardent cultivator of hardy flowers, but as a member of the Council of the Royal Horticultural Society and of the Floral Committee, that we are sure that this intimation will be read with universal regret. He had for a long time suffered from a painful disease of the liver, which, notwithstanding every effort to relieve him, at last proved fatal.

— A CORRESPONDENT informs us that "MR. WILLIAM MOULT, gardener to the Right Hon. Earl Ravensworth, Ravensworth Castle, who has been in his situation for thirty-five years, and has served three Lords Ravensworth, has deemed it necessary to tender his resignation. He is succeeded by his foreman Mr. Lindle, who has been trained under him. Mr. Moulton leaves with the good will and best wishes of his fellow gardeners. He has now retired, and well merits the independence he has gained by his honesty and industry."

— THE NYMPHÆAS AT KEW are just now in excellent condition, They have been growing well during the summer, and are now flowering most freely—indeed, we have never seen them looking better. Their handsome rich green leaves and large brightly coloured flowers remind us of the Nymphæas in the Oxford Botanic Garden, which Mr. Baxter grows so well; but the old Victoria tank at Kew is even more suitable for showing these plants off to the best advantage than the Oxford tank. The collection is now a large one, comprising most of the finest species and varieties in cultivation, one of the latest additions being the rich blue *N. stellata* var. *zanzibarensis*. Unfortunately they can only be seen at their best before noon, as the flowers soon close, so that visitors who are interested in these beautiful aquatics should endeavour to see them as early as possible in the day.

— THE superb VANDA INSIGNIS VAR. SCHROEDERIANA shown at Kensington on Tuesday last by Mr. Ballantine, gardener to Baron

Schröder, The Dell, Egham, is certainly one of the most distinct varieties ever brought before the notice of the Floral Committee, and it well deserved the first-class certificate awarded for it. The flowers are very even in form, the sepals and petals yellow with darker, but scarcely perceptible, dots, while the lip is large and pure white—a most pleasing contrast with the other portion of the flower. The plant shown was only a small one, but an experienced Orchid grower stated that he would willingly give 50 guineas for it as a speculation. It is indeed a valuable addition to what is fast becoming one of the choicest and best grown collections of Orchids around London.

— THE ORNAMENTAL GROUND on the river side of the Palm House at Kew is undergoing some alterations, and is certainly being greatly improved. The large Rhododendrons in the beds have been reduced in size, the Hollies are being restored to their original symmetrical shapes, some shifting and replanting also being necessary to preserve the characters of the ground. According to the original design, which we believe was by Nesfield, it was intended that the portions on each side of the Syon vista should exactly correspond, but this has been lost sight of for some years, and in consequence nothing but severe measures can restore the balance. The appearance has, however, been already greatly improved, and still further good results may be expected.

— MR. J. WILLIAMS, of the Brierley Hill Glass Works, Staffordshire, sends us a sample of his handsome GLASS VASES FOR HYACINTHS, which are admirably adapted for the purpose. The specimen submitted to us is about 8 inches high, and nearly the same in diameter at the mouth, vase-shaped, with small handles, and a leaf moulded on each side resembling one of the undulating forms of *Scolopendrium vulgare*. The glass is slightly tinted with blue, and within it is placed a white-porous earthenware pot to contain the bulbs. It is very artistic in design and well finished.

— THE exhibitor of the ROUSHAM PARK ONION at Kensington on Tuesday last claims that since it was purchased of the raiser, Mr. H. Wingrove, The Gardens, Rousham Park, Oxfordshire, in the spring of 1882, no less than fifty first prizes have been awarded for it at horticultural shows throughout the country. The bulbs shown were extremely fine examples of the Spanish type, the seed having been sown the first week in February, and twelve bulbs pulled and topped on August the 24th weighed 17½ lbs., while twelve others pulled and topped on September the 8th weighed 18 lbs. It is said that the ground had been well dressed with Clay's fertiliser.

— THE FRUIT TRADE OF JAMAICA, Dr. Morris states in the *Colonies and India*, has now become an established industry, which is rapidly being taken up by both European and negro settlers. Nearly the whole of the fruit is shipped to the United States, to the ports of New York, Philadelphia, and Baltimore. Some of the trade is, however, in course of being diverted to New Orleans, which is only within three days of Jamaica, and in close communication with all large centres of industries in the western States. The fruit trade of Jamaica, inasmuch as it fosters and strengthens other and more permanent industries, is deserving of every encouragement; and it is no doubt with this view the Government has promoted facilities for the employment of contract steamers between Jamaica and the United States, so as to find a ready and expeditious market for the produce. As shown when discussing the prospects of Cacao cultivation in Jamaica, the profits arising from the sales of Bananas, for instance, enable planters to establish the land in Cacao, and similarly the same facilities are offered for the cultivation of Liberian Coffee, spices, Indiarubber, and numerous other plants, which would otherwise be beyond the reach of persons possessing small means. The present position of the fruit trade in Jamaica will appear from the following table of exports for the year 1862:—

Bananas	887,370 bunches	£88,737	Value.
Oranges	35,456,978 "	33,684	"
Cocoa Nuts	2,763,655 "	10,225	"
Lime Juice	78,820 gals.	3941	"
Pine Apples.....	8886 doz.	1111	"
Limes	890 bls.	348	"
Mangoes	150,671 "	146	"
Tamarinds	7696 lbs.	96	"
Plantain	20,412 "	57	"
Shaddock	36 bls.	14	"
Total ..	—	£138,359	

The great increase in the value of this trade during the last ten years may be gathered from the fact that in 1873 the export value of fruit shipped from Jamaica was only £8750. That it will still continue to increase, and that ultimately numerous other industries will be pro-

noted by it, is proved by the fact that greater attention is continually being paid to it, and by the increased demand which is arising in the United States and the Dominion of Canada for tropical fruit. These countries possess a prosperous population, nearly double of that of the United Kingdom, and fruit of all kinds forms an important element in their daily food.

— THE same writer observes that the CULTIVATION OF SPICES, such as Nutmegs, Cinnamon, Cloves, black Pepper, and Vanilla, has also been taken up, not only in Jamaica, but also in Trinidad, Grenada, and St. Vincent. Nutmegs especially do well at Grenada; and with regard to other spices, if they are so successfully and so energetically carried on throughout the West Indies as in the islands above mentioned, we shall have them known in the future, not as the sugar islands, but as the spice islands of the west. With regard to the yield from Nutmeg trees in Jamaica, trees at six years old give a return of about 1500 to 2000 nutmegs per annum. With trees, say, 30 feet apart, and allowing one-third to be male or barren trees, this will give a return of 45,000 nutmegs per acre. Taking an average of ninety nutmegs to the pound, the return in cash value would be 500 lbs. of nutmegs at, say, 2s. per lb., equal to £50 per acre. In the Botanic Gardens, Trinidad, the yield per tree, nett, in the market has been over 20 lbs. (at ninety to the pound this would be 1800 nutmegs) with an average price of 2s. 2d. per lb. during the year. The value here per acre is at the rate of £60 per annum. In both the above instances it is only fair to mention that the calculations have been based on a comparatively small number of trees. The average yield over a large area of, say, forty, fifty, or a hundred acres would be correspondingly lower; but even under any circumstances it is evident that where suitable and favourable circumstances exist, as I believe they do in the West Indies, a nutmeg plantation is likely to be a very successful and remunerative undertaking. The Cardamom, a valuable East Indian spice, has lately been introduced to the West Indies with satisfactory results. It is adapted for cultivation in moist shady situations, at elevations ranging from 200 to 3500 feet. The plants have much of the appearance of the "wild Ginger" of the West Indies, and require little cultivation beyond keeping the ground clear of rank-growing weeds. The return per acre is estimated, at the end of three years, at about 170 lbs. of Cardamoms, worth 3s. to 4s. per lb.

— MESSRS. STUART & MEIN, Kelso, have sent us blooms of their strain of STRIPED FRENCH MARIGOLD, which are extensively grown in Scotland and the north of England for exhibition purposes at this season of the year, and command great admiration for their lustrous colours and correct markings. They are very clear and bright.

— GARDENING APPOINTMENTS.—Mr. J. W. Silver succeeds Mr. Clarke as head gardener to Lord Hill Trevor, Brynkinalt, Chirk, Denbighshire. MR. T. Grant, late gardener to W. S. Gillett, Esq., Harefield, Bitterne, Southampton, has been appointed gardener to Major Murray, Ossemsley Manor, Christchurch, Hants.

PEAS AND MILDEW.

WITH respect to the Peas sent to you I ought to say that it was not until the crop was nearly finished that we had a chance of comparing the variety with our latest crops here. On cooking Laxton's Omega we find the latter much more mealy and the colour darker, and the general verdict "not so good" as the old favourite. It is good on the soil here—it is better on a relative's good land. There was no trace of mildew until the last picking took place, and then very little.

President Garfield (from Sutton) sown late in the same plot, is badly mildewed and grows moderately, but the pods are good.

Telephone (from Carter) also mildews here very badly, but both these cases are doubtless aggravated by the lateness of sowing. They are both ripening seed; not a dish has been picked.

Omega, sown between these two, does not mildew except in small patches.

Latest of All (from Sutton) also sown between them, does not mildew, but is now bearing splendidly, the third picking now being ready, and the row showing signs of bearing for another fortnight at least.

Oxford Tom or *British Queen* (from Daniels, Norwich) now over 7 feet high, shows a slight attack of mildew, the first lot of pods being very small, short, curly, and blackened as if cankered. The pods now swelling are clear, although not so large as I remember on good soil fifteen years ago.

Owing to the dry situation I thought it advisable to make narrow trenches for all the Peas, to dig in a little manure, and to give a sprinkling of dissolved bones; the latter may have affected the pods of *Oxford Tom*.

For some unknown reason two rows of *Ne Plus Ultra* were an utter failure, and were dug up. Some seed out of the same packet given to a relative whose ground is good, grew well, and bore a good crop. As you have kindly suggested growing some of our favourites, I mention the above cases to show how Peas do with us.—COLVILLE BROWN, *Swaffham*.

ORNAMENTAL-FOLIAGE PLANTS.

FLOWERS are never so beautiful as when among foliage; indeed, a great glare of colour unrelieved by green, and solid masses of flowers alone, lack that refinement which constitutes the chief charm of nature as seen in the wilds. Glowing Pelargoniums, Azaleas, Fuchsias, and the other plants employed to make the greenhouse gay, lack half their charm unless intermixed with Palms, Dracenas, and Ferns. Owners of great gardens have long recognised this, but amateurs with limited means have too much ignored the fact. Believing that the merits of such plants as have been named need only to be pointed out to be recognised, I seek to say a word in their favour, and to enumerate a very few of the choicer forms which are amenable to ordinary garden treatment.

AGAVE.—There are large numbers of Agaves in cultivation, but one of the best, and that most generally grown, is *A. americana*. Some of the variegated kinds are very beautiful, and as they are of a very distinct habit and will thrive very well out of doors in summer, one or two should be possessed by every owner of a greenhouse. For filling-in vases few plants surpass these for centres. They will thrive in a mixture of loam, and peat, and sand, good drainage, and enough sharp sand to keep the soil porous. It should be repotted in spring, and it may then be propagated by division.

ADIANTUM CUNEATUM.—There are hundreds of beautiful Ferns which thrive in a greenhouse temperature which cannot be mentioned here, but the one named at the head of this is so beautiful and so indispensable that it cannot be passed. For cutting from to enhance the beauty of flowers in glasses or bouquets this is the best Fern ever introduced, and it will grow fairly well in an ordinary greenhouse. The best soil for it is half fibry loam and half fibry peat, with a good dash of sharp sand. If there is a shady corner in the greenhouse, that is the place for it and for any other Ferns which may be possessed; indeed, it may be as well to procure other Ferns than this one for the shadiest part of the house, or if the house is very much shaded Ferns should predominate. Great numbers of Ferns will grow with exactly the same treatment as recommended for this plant.

CHAMEROPS.—This is a genus of Palms which are for the most part very hardy and well fitted for ordinary greenhouse culture. They are very ornamental, and a few in a house improve the appearance greatly. Good fibry loam, and bits of charcoal mixed with it, suit them all. They are very easily cultivated. *C. Fortunei*, *C. humilis*, *C. exeelsa*, and *C. Martiana* are all good.

COLEUS.—Coleuses are tender plants, which will not live in winter in a greenhouse, but which grow satisfactorily there in summer. Cuttings or plants obtained in spring will make fine specimens in a short time. Cuttings may be very easily struck on a dung bed; all that they want is heat and water, with a moderate amount of root space and any light rich soil.

DRACENAS.—No greenhouse is complete without one or two Dracenas. The stove kinds boast colours not possessed by the hardier greenhouse kinds; but under gaslight, surrounded with white cloths, coloured crockery, and sparkling crystal, the green-leaved hardier varieties appear to greater advantage than the more highly coloured tender forms. Those named below are all very easily cultivated, and all make first-rate dinner-table-decoration plants. Loam, leaf soil, and a dash of sharp sand through it suits them as regards soil. Too large pots should not be given. The young tuberous-like knobs which form at the roots, if separated at potting time, placed in small pots, and started on a hotbed, will soon form young plants. The tops may also be removed from the plants and rooted, but this requires appliances which amateurs generally do not possess. Pieces of the stem will form plants if placed into a good bottom heat. It is better to exchange old plants for young ones with a nurseryman or neighbouring gardener, to whom the old stems may be of some value, than to try to propagate them without proper appliances. Given a fair command of bottom and top heat their propagation is an easy and rapid process, otherwise it is unsatisfactory. Sponging the leaves is necessary to keep them clean and free from insects. *D. rubra* is the best for an amateur, and *D. congesta* is next. *D. australis* soon grows to an imposing specimen. *D. Draco*, *D. indivisa*, *D. indivisa Veitchii*, and *D. lineata* are also worth a place.

FICUS ELASTICA.—A very handsome and an indispensable plant. It thrives well in ordinary loam, leaf mould, and sand. The leaves should be occasionally sponged to keep them clean. The tops taken

as cuttings, and treated as such in a good bottom heat such as a dung bed affords, soon make good plants, as indeed will bits of the stems with a leaf attached. The old plants will, if cut to near the pot, spring and form good plants.

FIGUS REPENS.—A very neat little plant, and very valuable for covering the backs or ends of greenhouses. To save trouble it should be planted out beside any bare wall, which it will cover with its miniature Ivy-like growths. It needs no training nor securing. Wherever there is an unsightly damp wall inside a greenhouse this plant should be employed, and it will cover it in a short time with an ornamental coat of green.

LATANIA BORBONICA.—One of the noblest Palms we have, and it will grow and thrive in a greenhouse, although not so well as in the stove. Fibry loam, fibry peat, and some charcoal mixed together will suit it. Overpotting should be avoided. Occasional sponging may be necessary to keep down insects.

PHENIX DACTYLIFERA.—The Date Palm is well worth growing as a greenhouse ornament. Those who have patience may raise it from ordinary Date stones; these should be sown in a good heat in spring, when they will soon start into growth. Stove heat will forward them on into good plants more rapidly than will the heat of a greenhouse, but even in the greenhouse they will soon form handsome plants. Plants of all sizes can be procured from most nurserymen. Ordinary soil and ordinary greenhouse treatment will suit it admirably. *P. reclinata* is similar, and will thrive under the same treatment.

PHORMIUM.—The New Zealand Flax plants are noble-looking, soon making fine specimens in any ordinary greenhouse. If they have a fault at all it is that they soon become unduly large for small greenhouses. *Phormium tenax* is the commonest, but, unless where there is plenty of room, only the variegated form should be grown. *P. Colensoi variegatum* is also very handsome and finer than *P. tenax*. *P. atro-purpureum* and *P. Veitchii* are also worth growing where room exists for their accommodation. Good loam, and sharp gritty sand to keep it open, is all they need in the way of soil. Sponging may be necessary to destroy white scale, which is often rather troublesome. In dry summers red spider is apt to attack them, but syringing will keep it down or dispose of it. A moderate supply of water is necessary at all seasons.

SEAFORTHIA ELEGANS.—This grand Palm is not very well adapted for small greenhouses, but where a few feet of head room can be given a nobler plant cannot be had for the centre. It thrives in an ordinary greenhouse, and is very easily cultivated. Fibry loam and fibry peat in equal parts, with sharp sand, fits it admirably.

THRINAX ELEGANS.—An elegant Palm, which thrives in a greenhouse, and does not take up so much room as many of the others of the order. Loam and peat and a little sharp sand, with good drainage and ordinary greenhouse treatment, suit it well. Scale is apt to attack it, but can be removed with a sponge and soapy water.

YUCCAS.—These are well worth growing by the amateur, because they are ornamental at all times of the year. Those named may either be grown inside or outside during summer, and of course inside during winter. Open gritty soil—say loam and peat, half and half, and broken sandstone a sixth of the whole—will suit them.—
A GARDENER.

THE ROYAL POTTERY, WESTON-SUPER-MARE.

BEING recently at Weston-super-Mare I availed myself of the opportunity of visiting this far-famed pottery, and, though anticipating something of the sort, was yet surprised at the extent and completeness of the manufactory now for years carried on by Mr. John Matthews. There are few horticulturists who have not heard of this pottery, but all are not aware of the extent of the trade there conducted. Immense quantities of pots, vases, &c., are packed almost daily and sent in all directions. This will be better understood when it is stated that within three weeks of the time of my visit nineteen large cratefuls were sent to Australia, thirty-seven to the West Indies, and ten to New Zealand. The foreign trade appears to be increasing rapidly, but this does not interfere with the work of meeting the large demands of noblemen's and gentlemen's establishments, parks, and nurserymen. In spite of the frequent heavy distributions there were yet to be seen immense heaps of pots of all sizes, ranging from 1½ inch to 30 inches in diameter, and many more are being made and burnt.

The whole process of making and burning the pots, as explained to me, was most interesting. The clay, of which Mr. Matthews has an ample supply, is generally dug in the winter, exposed to atmospheric changes, and is subsequently tempered and ground by powerful machinery. It is then passed forward to the "throwing" shops, where the "potters" mould to the required sizes. The pots are then carried to the drying sheds, these being contiguous to burning kilns, which are thus doubly utilised. When sufficiently dry they are "nested"—that is to say, the small are put in the larger pots and turned upside down to burn, so that each pot stands separate, and yet all the space is utilised. In addition,

"bunches" or piles of smaller pots are placed between the larger ones. The closer the pots are packed the better the kiln holds the fire. Besides the ordinary plain pots there are several specialities largely manufactured, such as Orchid pots, Alpine plant pots, "Long Toms" in great demand among nurserymen, the Oxford pot for specimen plants, insect and snail guards, bulb pots, Rhubarb and Seakale pots, pans for propagating, pans and baskets for Orchids, Strawberry tiles, border tiles, and other useful and ornamental articles.

For years the Royal Pottery has been justly noted for the beauty of the various and innumerable works of art which it has produced in terracotta. These comprise a wonderful variety of figures, fountains, vases, pedestals, garden seats, flower and Fern stands, window boxes, rustic pots, stands, and vases. Many of the new designs are of great merit, are perfectly executed, and quite distinct from anything of the sort previously attempted; while the old classical designs are and always will be in great demand, and therefore largely manufactured. Being informed that an elaborate book of designs is to be issued shortly, I shall make no attempt to further describe the new and beautiful specimens I saw at Weston-super-Mare.—W. IGGULDEN.

GLASGOW AUTUMN SHOW.

THE annual autumn flower Show of the Glasgow and West of Scotland Horticultural Society, which was held in the City Hall, Glasgow, on the 5th inst., was one of the most successful held for many years. Although nothing was present of extraordinary merit many excellent exhibits were staged. Many of the rare plants that used to grace the Glasgow Exhibition are no longer seen, but of ordinary plants very creditable examples continue to be shown, and lately in increasing numbers. We note also a great improvement both in quantity and quality of the fruit. Vegetables are hardly what we are accustomed to in the west of Scotland, but the show of cut flowers was never surpassed.

In addition to the trade collections, which, as usual, fill the greater part of the main hall, from Messrs. Thynne and Smith & Simon, Glasgow; John Lamont & Son, Musselburgh; John Craig, Stirling; Messrs. J. & A. P. Currie showed an attractive stand of garden crockery; Mr. Thomson of Spring Grove Gardens, Kilbarchan, exhibited a most ornamental Leek, which, if its progeny come equally good, would make a beautiful decorative plant. Among the more noteworthy exhibits we must class the twenty-four spikes of *Gladiolus*, with which Mr. A. E. Campbell of Cove Gardens, Gourich, gained the first prize in the class for nurserymen. These were quite equal to anything staged in what may be called the palmy days of the *Gladiolus*, which we fear are past in Scotland. The varieties were *Abricote*, *Apollon*, *Dido*, *Dumont d'Urville*, *Elizabeth*, *Horace Vernet*, *Ida*, *Leviathan*, *L'Unique Violet*, *Million*, *Mr. Derry*, *Mrs. Laxton*, *Murillo*, *Ninon de l'Enclos*, *Opale*, *Penelope*, *Pictura*, *President*, *Queen Mary*, *Rossina*, *Shakespeare*, *Tour de Mond*, and a fine salmon seedling. Judging from Messrs. R. B. Laird and Son's of Edinburgh first-prize stand of twenty-four Dahlias one would think that the day of the decline of the double Dahlia is yet far distant, although the new love—the single form, was strong and attracted much attention. The varieties were similar to those exhibited so often in the south and repeatedly named in the Journal. Mr. Sutherland of Lenzie gained first honours for twelve table plants, rather small but very neat and clean. The twelve were *Pandanus Veitchii*; *Dracænas nigro-rubra*, *Goldiana*, *ignea*, and *gracilis*; *Crotons undulatum* and *Chelsoni*, *Aralias Veitchii* and *leptophylla*; *Palms Cocos Weddelliana*, *Geonoma gracilis*, and *Calamus ciliata*. A beautiful and extensive lot were staged in the gardeners' division, the first being gained by Mr. J. Mitchell, The Gardens, Newmains. For four exotic Ferns Mr. Thos. Hogg, Aitkenhead, Cathcart, easily took first with four fine *Gleichenias*—*dichotoma*, *semi-vestita*, *spelunca*, and *Mendeli*, well furnished and over a yard across and high. The three *Ericas* with which Mr. Boyce, Burn Park, Uddingstone, gained first in that class, and also first for the most meritorious-grown plant in the Exhibition—*E. Marnockiana*, were particularly fine, and well deserved their honours.

For twelve dishes of fruit Mr. Robertson, Rossdhu, Luss, and for six Mr. Boyd, Callender Park, Falkirk, were awarded first with fairly good collections, especially Mr. Boyd's, though hardly equal to the collection shown by the same grower a week previously at Falkirk. Grapes were more than ordinarily good, Mr. Boyd's two bunches of *Alicante* especially so. For two bunches of Black Hamburg Mr. George Thomson, Spring Grove, Kilbarchan, gained first with two handsome bunches, fine in bunch and berry, but a little rusty, as were all the Hamburgs staged. Muscats were not quite equal to those of former years, Mr. Mackonichie keeping his ground here as usual. Apples were very numerous represented, few being full-grown, however.

Three collections of vegetables were put up for an equal number of prizes. By some strange judgment Mr. Thomas Hogg was placed first, Mr. N. Glass second, and Mr. D. MacBean, Craigends, third. Mr. Glass's collection was undoubtedly the most, and Mr. Hogg's the least meritorious, of the three. Mr. Glass's Leeks were the finest ever staged perhaps. Among amateur exhibitors Mr. Kilgour of Blair Drummond showed *Gladioli* well, and Mr. Stewart, of Campsie, Pansies; indeed, cut flowers were shown in enormous quantities and of super-excellent quality.

For some reason Glasgow shows have been falling back of late years. Wednesday's Show showed that the old Society has life in it yet. We hope it may go on improving and take the position which such should in "the second city of the Empire."

CEPHALOTAXUS FORTUNEI.

AMONGST the very distinct Chinese and Japanese Conifers which are now cultivated in our gardens the genus *Cephalotaxus* is very notable as the principal and best-known species composing it are distinguished by noble habit of growth, handsome foliage, and often by a profusion of Fig-like fruits. Three species are at present in cultivation—viz., *C. drupacea*, *C. Fortunei*, the subject of the accompanying illus-

tration, and *C. pedunculata*, a variety of the latter of fastigate habit being also known. The two first were both introduced by Mr. Fortune in 1849; but the last-mentioned species has been in this country about twelve years longer, and is now common in many gardens; but the variety *fastigiata* is a great favourite, and is often seen under the names *Podocarpus koraianus* and *Taxus japonica*. *C. Fortunei* has leaves about 3 inches long, very dark green, and handsome in appearance, and

they are exceedingly handsome and useful in imparting a diversity to shrubberies.

ROYAL HORTICULTURAL SOCIETY.

SEPTEMBER 11TH.

DAHLIAS were shown in such numbers and of such good quality generally at this meeting that a visitor might have supposed it was an Exhibition

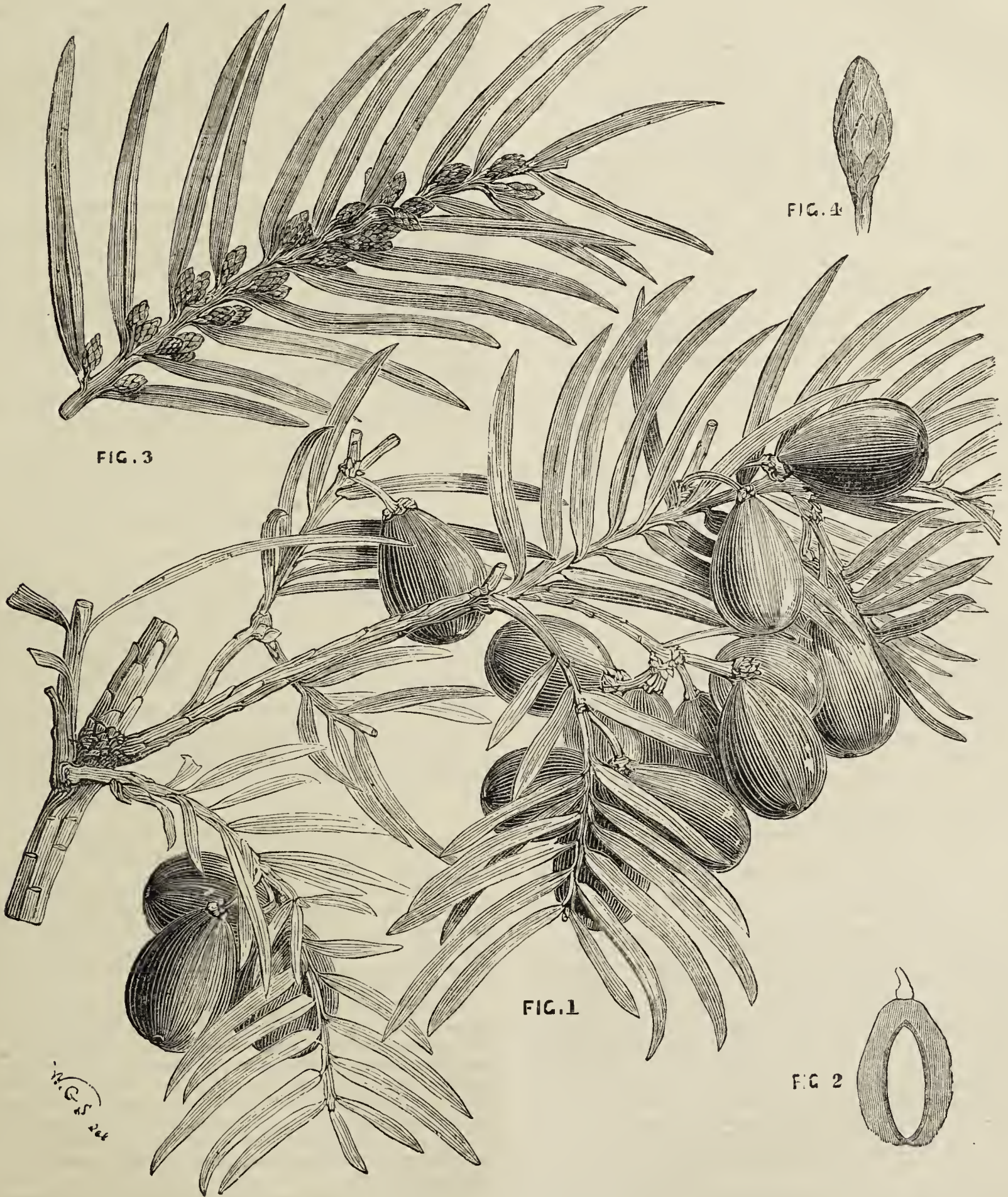


Fig. 42.—*CEPHALOTAXUS FORTUNEI*.

Fig. 1 Female plant with its fleshy drupes. Fig. 2, Section of fruit. Fig. 3, Male plant with its inflorescence in the axils of the leaves. Fig. 4, Male catkin magnified.

they are arranged in a close two-ranked manner on each side of the branches. The fruits when mature have a purplish hue, and as they are produced in great numbers where the plants succeed well they have a most pleasing effect. A moderate shelter is requisite to insure the satisfactory growth of these Conifers, as in exposed positions they frequently lose their leaves and assume a very miserable aspect. The soil, too, should be thoroughly drained, but not too dry, or that will produce a similar undesirable result. When in their best condition

specially devoted to these flowers. Most of the firms that are famed for their Dahlias were represented, and as in several cases much taste was displayed in the arrangement a charming effect was produced. Other exhibits before both Committees also added much to the interest of the meeting.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The following were present:—Dr. Robert Hogg and Messrs. P. Crawley, G. Goldsmith, J. Burnett, J. Willard, G. Paul, L. A. Killick, J. Smith, R. D. Blackburn, Henry Webb, J. E. Lane, J. Roberts, and W. Paul. Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, sent two very handsome Queen Pines, one

weighing 6 lbs. and the other 6 lbs. 2 ozs. They received a cultural commendation. Mr. Horley of Toddington, Beds, sent a seedling Apple and a seedling Pear, neither of which was considered of any merit. Mr. H. Golding of Romford sent a seedling Apple, which proved to be Cellini. Mr. G. Freeman, gardener to W. B. Greenfield, Esq., Beechwood Park, Herts, sent a very large Melon called "The Kaiser, which the Committee could form no judgment of, as it was not to be cut. The Early Milan Turnip from the garden at Chiswick was exhibited along with the Early Munich, both from seed supplied by Messrs. Vilmorin of Paris, and the former was far superior in size and quality to the latter, though both were sown on the same day. A first-class certificate was awarded it last June. Mr. Laxton of Bedford sent an ornamental Crab of high colour, called Dartmouth Crab.

Mr. Ross, The Gardens, Welford Park, Newbury, sent a seedling Melon raised between William Tillery and Dell's Hybrid. It is a large, smooth-skinned, green fruit, with a few traces of netting and a pale flesh. It was over-ripe and had no flavour. Mr. Ross also sent a seedling Grape raised from Black Monukka, being one of five raised from the same source, two being white and three with black fruit. It had suffered much from bad packing, and the berries were all more or less damaged. There were traces of merit in the flavour. The berries are oblong. Mr. Robert Holland of Stanmore Hall sent three bunches of Black Alicante Grapes, admirably grown and carefully finished. They were awarded a cultural commendation.

Messrs. James Carter & Co. sent plants in fruit of a yellow sweet Capsicum called Golden Dawn, for which a letter of thanks was awarded. Mr. King, Aylesbury, sent a seedling Tomato called King's Prolific. Mr. Killick of Langley, near Maidstone, exhibited Duchess of Gloucester and Premier Apples. Mr. Henry Deverill of Banbury sent some dishes of Onions called Rousham Park Hero, a fine large Onion of the White Spanish variety, to which a cultural commendation was awarded. Mr. John Ashby, The Gardens, Boredown, Whitchurch, Oxon, sent what he supposed was a new Celery, but which really was very well-grown Celeri Turc, or Incomparable Dwarf. Mr. John E. Lane of Berkhamstead exhibited a collection of Apples and a great variety of Nuts. Messrs. Veitch & Sons showed a collection of Tomatoes grown out of doors, both exhibitors receiving a letter of thanks.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. The following were present:—J. McIntosh, J. Wills, W. Bealby, S. Hibberd, J. Hudson, H. Ballantine, J. Dominy, W. B. Kellock, J. Cutbush, H. Turner, H. Cannell, and John Fraser.

Mr. C. Turner, Slough, had quite an exhibition of Dahlias, Show, Fancy, Pompon, and single varieties, very tastefully arranged, and constituting the great feature of the meeting. The Show and Fancy varieties, of which about 250 blooms were staged, were arranged on stands in the front of the group, the Pompons and singles being placed in boxes surfaced with moss, and having an informal row of Palms and Aralias behind, and a few small plants between the stands. A charming effect was thus produced, and proved what tasteful displays can be produced with a little care. The most distinct of the Show and Fancy varieties were the following:—J. Green, rich scarlet; Mrs. Harris, white, tipped purple; G. Barnes, bright purple, neat; Muriel, clear bright yellow; J. Standish, dark scarlet; J. Stephen, salmon-scarlet; Lady Gladys Herbert, blush, tipped dark crimson; Flag of Truce, white; Lady Wimborne, bright rosy-pink; Hope, lilac; Prince of Denmark, deep maroon; G. Smith, rich crimson; Grand Sultan, yellow, streaked scarlet; James O'Brien, yellow, numerous scarlet streaks; Mrs. Saunders, sulphur, tipped white; G. Barnes, soft purplish-crimson; W. H. Williams, bright scarlet; and Julia Wyatt, white. Noteworthy amongst the Pompons were White Aster; Lady Blanche, white; Isabel, scarlet; Favourite, deep crimson; Gem, warm scarlet; and Nemesis, maroon, pink centre.

Of the singles the brightest and most distinct were the following:—Helen McGregor, blush pink, yellow centre; Yellow Queen, bright yellow; Alba, white; Mauve Queen, purplish mauve; Beauty of Cambridge, dark scarlet; Firefly, bright scarlet; Duke of Teck, clear purple; and Paragon. The award of a gold medal signified the Council's appreciation of this fine exhibit.

A silver-gilt medal was awarded to Messrs. H. Cannell & Sons, Swanley, who contributed a very handsome collection of Dahlia blooms, representing all the sections, Show, Fancy, Pompons, and singles being shown in large numbers. Very notable were the free-flowering bedding varieties Glare of the Garden, bright scarlet, and Constance, of similar character but pure white. The Show and Fancy varieties were very fine, many being the same as those already named. Amongst the Pompons the following were notable:—Little Dear, white, tipped purple; Rigoletto, maroon; Hindoo, orange buff; Toby, scarlet; Sensation, yellow; Lady Bird, blush, shaded red; Louisa Richter, mauve; Countess Von Sternberg, pale canary yellow; Garnet, scarlet; Little Beauty, dark scarlet; Little Nigger, maroon. Some beautiful singles were also shown, the most noteworthy being Distinction, orange scarlet; Flavia, yellow; Concinna, scarlet, free; Althæa, rich crimson; Brightness, dazzling scarlet; blooms of the white Juarezi and striped Juarezi, the latter orange with a few scarlet streaks. Several stands of fine Zinnia blooms were also staged. A silver Banksian medal was adjudged to Messrs. Keynes & Co., Salisbury, for a number of Show and Fancy Dahlias, representing many fine varieties; the blooms were also of good substance, even, clean, and neat. Messrs. Paul & Son, Cheshunt, contributed a large collection of Dahlias, representing all the chief varieties in the different sections.

A silver-gilt Banksian medal was awarded to Mr. T. S. Ware, Tottenham, for a very handsome collection of single Dahlias, including many new and beautiful varieties. Messrs. Rawlings Bros., Romford, showed about seventy Show and Fancy Dahlia blooms of good size and substance, for which a vote of thanks was accorded. Mr. G. S. P. Harris, Orpington, Kent, showed a stand of Dahlias Baroness (yellow) and Ruby Gem (deep scarlet). A vote of thanks was also accorded to Mr. Glasscock, Bishop's Stortford, for a good collection of Dahlias, comprising many varieties.

A silver-gilt Banksian medal was awarded to Mr. B. S. Williams, Upper Holloway, for a group of healthy Nepenthes bearing a large number of fine pitchers. N. Rafflesiana, N. Hookeriana, N. Henryana, N. Williamsii, N. compacta, N. splendida, N. Mastersiana, N. Dormanniana, N. intermedia, N. superba, N. Khasyana, N. robusta, N. Excelsior, were the chief forms represented, some having pitchers of great size. Mr. T. S. Ware showed

several choice and rare hardy plants, the small but profuse and charming Rose Persian White being very notable. *Milla biflora*, with large white flowers, was also attractive, with the yellow *Cyclobothra flava*, the variegated *Lilium longiflorum*, and flowers of *Lilium speciosum*, roseum, and *Melpomene*. A vote of thanks was accorded.

Mr. C. Bennett, Shepperton, was adjudged a vote of thanks for richly coloured and handsome blooms of seedling Gloxinias. A vote of thanks was accorded to Mr. S. Ford, Crescent Nursery, Brentwood, for blooms of single Dahlias, also to Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, for flowers of *Batemannia Burtii*, *Oncidium plagianthum*, *Miltonia Clowesi grandiflora*, *M. spectabilis lilacina*, and *Cattleya Wallisi*. A cultural commendation was awarded to Mr. Cummins, gardener to A. Smee, Esq., The Grange, Wallington, for a plant of *Miltonia Regnelli superba* with two spikes of about a dozen flowers, a plant of *Warceswiczella Wendlandi* with greenish sepals and petals, and a white violet-blotched lip. Messrs. J. Veitch & Son, Chelsea, exhibited several novelties, including *Pelargonium Archduke Rudolph*, a dwarf free-flowering double zonal variety of a peculiar rosy-scarlet colour, *Torenia rubens*, with deep purplish-blue flowers, and several plants, for which certificates were awarded. Messrs. Hooper & Co., Covent Garden, were adjudged a vote of thanks for a tastefully arranged group of *Næglias*, *Tydæas*, *Gesnerias*, and *Gloxinias*, with Ferns, a central plant of *Nægelia Antinous*—with large velvety purple leaves being very striking.

First-class certificates were awarded for the following plants:—

Vanda insignis var. *Schradleriana* (Ballantyne).—A charmingly distinct variety, the sepals and petals yellow, with rather darker dots, the lip pure white. The plant shown had one spike of five flowers, and was much admired. This is unquestionably one of the finest varieties in cultivation, and is valued very highly.

Miltonia bicolor (Salter).—A pretty Orchid, the flowers of good size; sepals and petals narrow, white, the lip also white, but blotched in the centre with deep purplish crimson. The flowers are borne singly on peduncles arising from the base of the pseudo-bulbs.

Selaginella canaliculata (Veitch).—One of the Indian caulescent species with graceful and finely divided fronds.

Rhododendron Brilliant (Veitch).—One of the greenhouse varieties. Flowers of great size, $2\frac{1}{2}$ to $2\frac{3}{4}$ inches in diameter; the lobes large and round; colour rich scarlet. Head very dense, about fourteen flowers.

Begonia Novelty (Veitch).—A hybrid raised between *B. lineata* and *B. Davisii*, the latter being the seed parent. The leaves are 2 to 3 inches in diameter, dark green, with numerous silvery dots and blotches. Flowers small, bright rose.

Anguloa eburnea (W. White, gardener to C. Dorman, Esq., The Firs, Laurie Park).—A distinct species with large white flowers, very powerfully fragrant.

Dahlia Cetawayo (Ware).—A single variety, very dark maroon, rounded petals, bright yellow centre.

Dahlia Dr. Moffat (Ware).—One of the Paragon type. Flowers large, rich maroon, edged with scarlet. Handsome and effective.

Dahlia Mrs. W. E. Gladstone (Turner).—A handsome flower of the Show type, white, very faintly tinged with pink. Most delicate and beautiful.

Dahlia Duchess of Westminster (Turner).—A single variety; pure white; florets broad and rounded, slightly reflexed at the points.

Pentstemon Cerise Queen (V. Lemoine, Nancy).—Bright reddish scarlet with a white throat.

Pentstemon Purple Queen (V. Lemoine).—Flowers of great size, rich purple; throat white with a few purple streaks.

Begonia The Queen (E. Edwards, Holmside, Leighton Buzzard).—One of the Tuberous section, with enormous double globular flowers; the petals very numerous, white, and yellowish at the base. Very distinct.

THE HERBACEOUS BORDER.

ANEMONE JAPONICA.—Deservedly popular as one of our best autumn-flowering plants. The flowers are a dull red or rose, and are very useful for cutting. It does best in moist soil free from stagnant water, and soon forms a handsome specimen. *A. japonica hybrida*.—This has larger flowers, and the colour is rose, but I have some that are neither *A. japonica* nor *A. japonica alba*, some of the flowers being a very soft rose and others a dull white.

A. JAPONICA ALBA.—One of the best of autumn flowers, especially where large quantities of cut flowers are required. The flowers are pure white inside with a yellow disc, and are very beautiful. It will grow in any soil and open situation, provided water is not stagnant in the subsoil; yet it succeeds best in light rich soil, in which it forms very beautiful specimens, and in the mass few late summer and autumn flowers can equal it. All are readily increased by division or suckers, and should find place in every garden. They started flowering about the middle of August.

FUCHSIA GRACILIS.—Fine in late summer, its graceful habit and depending drops of scarlet and purple are very beautiful, but not so attractive as *F. microphylla*, which has small but lovely magenta flowers, with white pistil and anthers—ruby set in pearl, and is of neat and compact habit. Any light soil suits Fuchsias, and a little mulching over the stools of leaves or litter will make all safe for the winter. Propagation is effected by cuttings under a handlight.

HYACINTHUS CANDICANS.—A bulbous plant with long lanceolate leaves, having a stout erect stem, often 4 feet in height, bearing a score in good examples of large, drooping, bell-shaped, pure white flowers, which open in succession; and

as the flowers are good for cutting, and when mounted useful for bouquets, it is specially valuable, as it blooms in August onwards. Planted 4 to 6 inches deep it is quite hardy with a little mulching over the bulbs in severe weather. It seeds freely, and the seedlings have much more vigour than the parents. The seedlings flower in the second year. A light soil is most suitable.

VERONICA LONGIFOLIA VAR. *SUB-SESSILIS*.—Probably the finest of all the hardy Veronicas. The foliage is ample, and of a deep green colour. It grows about 2 feet in height, bearing its flowers in erect spikes a foot in length, and of a deep blue colour. It is a comparatively recent introduction from Japan, and apparently perfectly hardy.

ACONITUM NAPELLUS BICOLOR.—This flowered at the close of July into August, and were very conspicuous from its blue and white flowers on an erect spike over 3 feet high, the flowers being numerous. Any light and rather moist soil suits it.

ERYNGIUM PANDANIFOLIUM.—This has the appearance of a Pandanus, having leaves fully 3 feet long, beautifully arched, the leaves very spiny, the spines at the base of the leaves being truly formidable, as they are over half an inch in length. In the herbaceous border it has a very distinct appearance, and as a lawn plant is quite equal to any Yucca, whilst for vases in connection with terraces it rivals Agaves. Its flower stems rise to a height of 6 to 10 feet, having a branching head of reddish purple flowers. *E. bromeliæfolium* is smaller in all its parts, the flowers are white on a stem seldom over 4 to 5 feet in height. *E. amethystinum* is also very handsome, having spiny lacinated leaves, and the heads of flowers are of a lovely blue. It is necessary that the soil for these be light or gravelly and well drained. On rockwork they do admirably, and form conspicuous objects.

CHRYSANTHEMUM MAXIMUM.—A vigorous-growing perennial, forming a bush a yard in height, and from August onwards produces an abundance of large flowers about 3 inches across, white with a yellow centre, and may be described as a gigantic Marguerite or Daisy. It does well in any good soil. Cuttings or division.

CHELONE OBLIQUA.—The flowers are rosy purple borne in terminal heads or spikes on erect stems, the plant being free in growth, and attaining to a height of 2½ to 3 feet. Any good soil suits it.

SOLIDAGO VIRGAUREA NANA.—Although the Golden Rods are mostly coarse and only fit for the wild garden or shrubbery, this is fit to take rank with the choicest in the herbaceous border, it having a very large head of bright golden yellow flowers borne on erect stems about 18 inches high, and is very effective. It flowered at the close of August. Division.

SENECIO PULCHER.—Strong in growth and erect, having fleshy and deep green leaves nearly a foot in length, unevenly lobed, the flower stems rising to a height of 3 feet or more, and are terminated by a branching cyme of bright crimson-purple flowers 3 inches or more in diameter, of great substance and endurance. The flowers having a bright yellow disc are very effective. It unquestionably is one of the finest of late summer and autumn flowering plants, and is very vigorous in growth, doing best in a well-drained soil, as it is not one of the hardiest.

RUDBECKIA NEWMANNI.—Free alike in growth and flowering in any open situation, its golden-yellow flowers with a black disc are very showy, and is very useful for cutting, the flowers being produced from August up to a late period, and is one of the best of late summer and autumn flowering plants. Where flowers are in request for filling large vases it should be grown in quantity, and certainly ought to have place in every garden.

SALVIA PATENS.—A well-known half-hardy plant, but in a warm situation and in well-drained soil, with the tubers 4 to 6 inches deep, is quite hardy. Its lovely deep blue flowers from such are produced in late summer up to frost, and is very effective.

LOBELIA FULGENS.—In a moist, yet well-drained border, this yields to none in the brilliancy of its flowers, vermilion scarlet, in late summer, and with a mulch over the crowns in severe weather is perfectly hardy. It attains to a height of 3 feet or more, and is very striking.

SPIGELIA MARYLANDICA.—This is best in moist soil, but it must be well drained. It forms tufts of erect somewhat slender stems, 15 to 18 inches high, terminated by about half a dozen more or less tubular flowers nearly 2 inches in length, crimson externally, and pale yellow inside. It is a very distinct and interesting plant and well worth growing.

PITTYROSPERMUM ACERINUM.—It forms an effective mass from its deep green Accr-like foliage, from which spring in late summer (August onwards) erect stems about 3 feet high, bearing terminal spikes of feathery white Spiræa-like flowers, which form

very effective specimens, and are particularly fine for cutting. It prefers a moist soil. Division.

PENTSTEMON BARBATUS TORREYI.—This attains to a height of 4 feet, bears in panicles very brilliant scarlet flowers, and is very beautiful, and ought to be grown by everyone. A light and not too rich soil suits it best, but reserve plants should be raised each year and wintered in frames, as the Pentstemons are not very hardy.

The herbaceous Phloxes are now very beautiful, and so are Gladioli, and more particularly Carnations, with *Lilium tigrinum*, &c., which along with Sweet Peas, *Tropæolums*, Cornflowers, Sweet Sultan, Dwarf Scabious, Asters, Stocks, and others make a very effective display along with the indispensable single Dahlias.

WALL PLANT—LONICERA HALLI.—This produces its flowers very freely from the axils of the leaves on the current year's growth, clear white, changing to buff, and are deliciously fragrant. It is a desirable climber, and grows freely.—G. ABBEY.

BRIGHTON SHOW.

SEPTEMBER 5TH AND 6TH.

THE Brighton and Sussex Horticultural Society has, during its thirty-one years' existence, done much valuable service in the district, and it is to be hoped will continue to contribute to the improvement of horticulture for many years to come. If, however, the Show is to maintain its prestige in the southern counties it must be better supported by exhibitors than was the case at that held last week, which in paucity of exhibits was one of the least satisfactory held by the Society in recent years. It is difficult to understand the cause of this falling-off, as the prizes in the leading classes are fairly liberal, and the railway companies offer special facilities in the shape of free carriage for exhibits to and from Brighton to any station on their line. This alone might be expected to be sufficient inducement to ensure an extensive display; but such does not appear to be the case, and it is very regrettable that so excellent an Exhibition should be permitted to decline in attractiveness. The general management of the Society's affairs under the care of the Secretary, Mr. Edward Carpenter, continues satisfactory, and the arrangement of the exhibits under the superintendence of Mr. E. Spary of the Queen's Vineries is all that could be desired; and if the Committee is practical and energetic success should be ensured. Much, however, depends upon the last-named gentlemen, and if there is any want of whole-heartedness and willing co-operation it is quite sufficient to account for the deficiency so unpleasantly apparent.

The Royal Pavilion was, as usual, the favoured site, and a more suitable one could not be selected, as the magnificent apartments which are devoted to the fruit, cut flowers, and choicer exhibits generally, are in themselves no inconsiderable attraction both to the townsfolk and strangers. In the garden adjoining a large marquee was devoted to the large specimen plants and groups; but, as in other classes, the competition was weak there, and some difficulty was experienced in avoiding the thinness that would have been too noticeable had not a skilful and judicious arrangement been adopted. The groups of miscellaneous plants and the Ferns were, however, superb, and, as noted below, they constituted the great features of the Show, and afforded an example in style and taste that it is desirable should be followed at many other exhibitions.

PLANTS.

The most important open class in this section was that for a group of twelve plants—six Ferns and six fine-foliage plants—the first prize being the Ashbury cup, value ten guineas, which is presented by the Vice-President, James Ashbury, Esq., and the second and third prizes are £5 and £2 respectively. Only one collection, however, was staged—namely, that from Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, Sussex, for which the cup was deservedly awarded; and though won thus easily, any competitor would have had a most difficult task to show a dozen finer and more healthy specimens. The Handcross plants have so frequently figured conspicuously at exhibitions in the south of England that they have gained considerable fame for the vigorous health usually distinguishing them, proving how well their requirements are understood by Mr. Rann and his able foreman Mr. Sjoquist. On several previous occasions the Ashbury cup has been won by Mr. Warren's valuable specimens, but each time the honour has been well merited. At the Show under notice the most remarkable plants were *Crotons Andreanus*, *undulatus*, and *Hendersoni* beautifully coloured; *Latania borbonica*, very large and finely proportioned; *Areca sapida*, a majestic specimen; *Davallia Mooreana*, fresh and healthy; *Cycas revoluta* of great size, and *Cyathea Smithi* very handsome. In the county class for four fine-foliage plants Mr. Rann was again in the first position with good examples of *Crotons albicans* and *Warneri*, but the latter was especially well coloured. The other prizes were obtained by Mr. Turner, gardener to Major Wray, Wick Hall, and Mr. Meachen, gardener to C. Armstrong, Esq., Withdeane, who both showed plants of moderate size but well grown. Mr. Meachen was the premier exhibitor of eight stove and greenhouse plants in the open class, having a beautiful profusely flowered specimen of *Erica cernithoides*, *Rondeletia speciosa* large and fairly well flowered; a *Stephanotis*, *Bougainvillea*, *Allamanda*, and *Pimelea decussata* were similarly noteworthy. In the county class for four stove and greenhouse plants Mr. Meachen scored another triumph, taking the lead with *Erica Eweriana* 5 feet in diameter and flowering freely, *Rondeletia speciosa* major, *Statice imbricata*, and *Allamanda nobilis*. Mr. Rann was an extremely close second with *Allamanda Wardleyana* over 5 feet in diameter, *Erica Faireana*, *E. ampullacea elegans*, and *Stephanotis floribunda*, all evenly trained, healthy, and well-flowered specimens. Mr. Townshend, gardener to Captain Thompson, Withdeane, followed; but several of his plants were extremely weak.

The entries in the above classes were arranged to form a central bank in the marquee, at each end being placed the Zonal Pelargoniums and Fuchsias

contributed by Messrs. Balchin, Townshend, Gilbert, Meachen, Fluck, gardener to J. O. Smith, Esq., Richmond Villa, and others. The Pelargoniums were particularly bright, and furnished some much-needed colour. The groups of Fuchsias arranged for effect were good, but a similar group of Colenses with which Mr. T. Martin, gardener to J. G. Langham, Esq., Eastbourne, secured the premier award, was even more meritorious, the plants being admirably coloured and tastefully arranged.

GROUPS.

Foremost amongst these were the groups of Ferns arranged for effect in a space not exceeding 200 square feet, this class being open to all exhibitors. Two groups were staged, which in taste of design and beauty of effect we have never seen surpassed, and if a similar class could be introduced into some of the schedules of the metropolitan horticultural societies it would prove a most welcome novelty to many visitors. There was, indeed, no portion of the Brighton Show which attracted so much and such well-deserved admiration as this; and though the first and second prizes were £6 and £4 respectively, these were sufficient to adequately compensate the exhibitors for the value of the plants employed, and the time and skill required to arrange them so artistically. The premier award should have been £10 at least. Mr. W. Miles, West Brighton, secured the leading position with a most elaborate, well-finished, and tasteful arrangement, in which the chief features were as follows:—The ground consisted of small Ferns, principally Adiantums, *A. cuneatum* predominating; at the back was a mound covered with *A. cuneatum*, from which arose taller plants of *Gymnogrammas*, *A. farleyense*, and *A. macrophyllum*. This mound formed a small arch in the centre with a recess, at the base of which were some fine *Todeas*, a constant dripping of water from the mound keeping them bright and fresh. Towards the fore part of the group were columnar mounds of Ferns 2 or 3 feet high, also covered with Adiantums, and having a large central specimen at the top, an example of *Neprolepis davallioides furcans* being very fine. The margin of the group was well rounded, small boxes of seedling Adiantums being employed, so that the plants sloped most gradually to the turf. The group was practically perfect, and reflects the greatest credit upon Mr. George Miles, who arranged it. Mr. Vincent, gardener to J. Hart, Esq., Keymer, was placed second with a charming group, containing a number of very handsome Adiantums and other Ferns, the ground being formed similar to the other, but with a back mound that had a bad centre—a plant of *Neottopteris*, which was rather too deeply bedded amongst the other Ferns, and was quite unsuited for its position. There were other points in which the group was slightly defective—namely, in the want of finish, especially near the margin, where the pots were unpleasantly prominent, but, taking its general effect, it was highly praiseworthy. A similar county class was also provided, the groups not to exceed 75 square feet. Mr. Turner and Mr. Meachen were the prizetakers with neat and graceful arrangements, but much less elaborate than the preceding.

Groups of miscellaneous plants were well represented in the open class, in which a space of 150 square feet was allowed. Mr. W. Miles was again the most successful competitor, and contributed not only by far the best group there, but certainly one of the most distinct, tasteful, and effective arrangements ever shown in public. In the centre at the back was an informal mound composed of fine-foliage plants, Crotons, Palms, Ferns, and variegated Zeas. The last-named were, however, a little too rigidly placed, and would have had a better effect projecting slightly towards the front of the group. The foundation was composed of Adiantum, from which arose a few taller Palms, such as *Areca lutescens* and several Ferns. To break the uniformity a number of Eucharises and *Lilium speciosum* were arranged in irregular bands next the mound, whilst a most decidedly telling feature was formed by the plants of *Lobelia cardinalis*, appropriately introduced with Disas, Ericas, Begonias, Bouvardias, Diplacis, Asparagus, &c. The margin consisted of small Crotons, Gloxinias, Coleuses, *Panicum variegatum*, and the dwarf well-berried examples of *Solanum the Gem*. This, like the Fern group, was also arranged by Mr. George Miles. Mr. Vincent and Mr. Meachen followed, the first-named with a very formal group, but containing plants of excellent quality. In the county class Mr. Turner was the chief exhibitor, taking first place with a collection of Coleuses, Crotons, Begonias, Palms, and similar plants.

CUT FLOWERS.

A large number of collections in the various classes devoted to these imparted much interest to the Exhibition. Dahlias, Gladioli, Roses, Asters, and miscellaneous stove and greenhouse flowers were all staged in good condition. Messrs. Keynes & Co., Salisbury, were the premier exhibitors of Dahlias, having superb blooms in their stands of forty-eight and twenty-four, in both of which classes they obtained the chief prizes. Messrs. Scale and Cheal were the other principal competitors in the open classes, while amongst the amateurs Mr. Boothroyd, Rev. C. Hale, and E. Mawley, Esq., were the prizetakers. Two beautiful boxes of single Dahlias were shown by Messrs. Keynes & Co. and Cheal, who were placed equal first, the collections in both cases containing brightly coloured and varied blooms. Asters were also well shown, French tasselled and German quilled especially so: the blooms fine, and exhibiting a refinement that is too seldom seen in these flowers. The principal stands were from Messrs. Fowler, Morgan, gardener to Major Scott, Reigate, and W. Archer, gardener to Mrs. Gibson, Saffron Walden. Gladioluses were well shown by Messrs. Balchin and Rann; Roses by Rev. R. C. Hales, A. Slaughter, Esq., Steyning, Messrs. Balchin, Scale, and Mrs. Woolard. The competition was good in the class for a collection of miscellaneous cut flowers, some handsome examples being staged. Mr. Balchin took the lead, followed closely by Messrs. Archer, Gilbert of Hastings, and Morse of Epsom, while in a smaller class Mr. Ford was the chief exhibitor.

Table decorations, bouquets, wreaths, and buttonholes occupied considerable space, and some tasteful designs and combinations were contributed. For three stands of flowers and for a table set for dessert Mr. W. Miles won premier honours. Bouquets and buttonholes were well shown by Mr. Brown of Richmond, and Mr. Chard of Clapham Common.

FRUIT.

Strangely enough there was no entry in the class for twelve dishes of fruits, and in the majority of the other classes the exhibits were not nearly

so creditable as is usually the case at this Show. Grapes were, however, shown in good numbers and fair condition, the black Grapes being particularly good. For three bunches of Black Hamburg Mr. Jordan, gardener to Birket Foster, Esq., Witley, took the lead in a class of nine exhibitors, showing large and well-coloured bunches. Mr. Moorhouse, gardener to J. W. Temple, Esq., Tyswood, Groomsbridge, was second, the berries being rather smaller than in the first; Mr. Warren, gardener to Mrs. Hankey, Balcombe Park, taking the third position. Eight lots of three bunches of Muscat of Alexandria were staged, Mr. Herridge, Havant, winning chief honours with bunches of good size and excellent colour. Mr. Johnston, The Gardens, Bayham Abbey, Tunbridge Wells, followed very closely with well-ripened samples, and Mr. Cbatfield, The Gardens, East Houthley, was third. Five collections of six bunches of black were entered, Mr. Moorhouse leading with admirably coloured bunches; Mr. Knight, Adelaide Lodge, Keymer, and Messrs. A. & D. Hart, Dyke Road, being respectively second and third. For the same number of bunches of Muscats there were six lots, Mr. Johnston securing the chief position with large and handsome bunches finely coloured. Mr. Herridge followed closely, the berries being of great size. Mr. Chatfield was third, and an extra prize was adjudged to Messrs. Webster & Co., Worthing. Peaches and Nectarines were well shown by Messrs. Inglis, gardener to T. Lester, Esq., Cuckfield; Dixon, gardener to Sir S. Wilson, Bart., Hitchin; and Hyde, gardener to R. Bacon, Esq., Keymer. Pears and Apples were chiefly shown by Messrs. W. & A. Apter, Broadwater, Ford, McLeod, Townshend, and Jupp; Plums and Figs being also fairly represented. In the county classes most of the above competed, together with Messrs. Spottiswood, Jenner, Butler, and Meachen.

MISCELLANEOUS.

As usual these not-for-competition collections were numerous and attractive, extra prizes being awarded to the following exhibitors:—Mr. W. Balchin, for collections of Apples, Grapes, plants, and flowers; Mr. C. Forbes, gardener to E. B. Foster, Esq., Trumpington, for examples of Lady Downe's and Alicante Grapes; Messrs. J. Cheal & Son, Crawley, for collections of hardy flowers, Dahlias, Pears, Apples, and Melons; Messrs. W. Wood & Son, Maresfield, for Roses; Mrs. Woolard, Cooksbridge, for Roses; and to Messrs. J. Laing & Co., Forest Hill, for Tuberos Begonias. A first-class certificate was awarded to Messrs. Cheal & Son for

Dahlia Lady of the Lake.—A single variety with fine flowers, the petals broad and rounded, white at the base, and tipped with rosy purple.

THE BEECH AT NEWBATTLE ABBEY, &c.

REFERENCE was recently made in the *Journal of Horticulture* to the gigantic Beech at Newbattle Abbey, the residence of the Marquis of Lothian in Midlothian, near Dalkeith, and about eight miles east from Edinburgh. The tree is the largest of its kind in "the land o'cakes," aye, and far beyond its borders. I had the pleasure of inspecting this remarkable Beech upwards of forty years ago. It was then in autumn. The branches of the tree reached all round to the ground, with the exception of an opening being left at one place for an entrance under its leafy shade. Under its majestic arms a dim light only peered through the leaves, and in this natural umbrageous saloon suitable rustic furniture was provided—tables, chairs, &c., to accommodate a small party. At the time I visited Newbattle Abbey Mr. Goodall, the raiser of two Dahlias that long held prominent positions in the floral world, was the head gardener. The Dahlias I refer to were "The Marquis of Lothian" and "The Marchioness of Lothian," the former a red and the latter a light-coloured variety. Both, but particularly the former, were champions in all prize stands in their days. Many old florists must remember of these, and in the lists of nurserymen in days gone by they stood prominently forward. During one of her visits to Scotland Queen Victoria visited this venerable Beech, which I learn is still in a healthy state, although it must be many hundred years old.—THOMAS NICOL, *Balgownie*.

A VILLAGE SHOW.

WHETHER the establishment of annual exhibitions of garden produce at which cottagers are encouraged to exhibit have all the success that is claimed for them in the way of making better citizens many doubt, but there cannot be a doubt of the fact that better cultivated gardens and much finer produce is the result, if the great improvement in cottagers' vegetables apparent at this year's annual Show in Bonnybridge over the two preceding ones may be taken as a fair example of others through the country. This Society was only started in 1881; and though the first exhibition was encouraging, the produce which then carried off the prizes would not now be tabled. In the matter of Leeks, for instance, a valued vegetable in Scotland, anyone present at the last Show would have more than made all the first-prize six at the first. Indeed, many of the vegetables, especially in the collections, would have done credit to exhibitors of twenty years' standing, and in more favourable climates than the exposed Stirlingshire village. Specially worthy of note were the Leeks of Messrs. Cram and Gifford, and the former's collection of vegetables. Mr. J. S. Ritchie, Denny, showed Pansies in the best form, and monstrous stems of Stott's Monarch Rhubarb, but he is a veteran, and can hold his own at the large shows. Mr. D. Cram's Victoria Rhubarb was also very fine.

Among the gardeners' exhibits a beautifully fresh plant of *Begonia semperiflora grandiflora* (illustrated some time ago in the *Journal*) from seed kindly furnished by Mr. Iggulden to the then gardener at Hope Park gained the first prize for greenhouse plants, and was admired by the visitors very much for the denseness of flowering and spotless white of its flowers. The plant was about 3 feet high and as much in diameter, and was exhibited by Mr. P. Walker, gardener to G. R. Ure, Esq. The same exhibitor showed a pair of Mrs. Marshall Fuchsias in a form very seldom seen. The plants, though hardly so good as last year, were over 8 feet high, well flowered, and furnished. Mr. Walker also showed bouquets much better made up than they usually are in the north, and the same may be said of those exhibited

by Mr. Charles Reid, who, though only a working man cottager, beat the gardeners on their own ground.

A GLANCE AT THE RED ROSE VINERIES.

A WELL-KNOWN scientific agriculturist in this district says that no farming, however good, is complete unless it pays. The mere fact of having heavy crops and highly cultivated land does not, according to our authority, constitute the alpha and omega of good farming; it must pay to be an unqualified success. So with fruit-growing; where it is gone into as a commercial enterprise, quantity and quality, however essential they may be towards attaining the desired end, do not necessarily constitute everything. There must be a sound business system underlying the management of the concern, and there must also be a thorough practical knowledge of the subjects which are treated; and in the case of Red Rose Vineries it can scarcely be denied that the proprietor, Mr. Joseph Witherspoon, has mastered both the essential principles of success. He is a thoroughly practical business man, and has evidently mastered whatever secrets may exist in the cultivation of Grapes.

Having an hour to spare when at Chester-le-Street on the 3rd of September, I spent it in a hurried glance over Mr. Witherspoon's vineries and orchard. The place has so often been described here, that it would be a work of supererogation on my part to go over the ground again. Suffice it to say that all the Vines are carrying a heavier crop than ever, the prophecies of failure notwithstanding. The quality of the Grapes is equal to the quantity, and betokens the consummation of the great desideratum, "pay." In such a hasty look as I had it was impossible to take in more than generalities, but I saw sufficient to justify me in saying that Alnwick Seedling is a perfect success here, an impregnated bunch hanging unthinned a perfect cluster of berries. Gros Colman is evidently the favourite market Grape, its noble and commanding appearance dwarfing all other varieties into insignificance, the only exception, perhaps, being Gros Maroc, which is quite unique as a black Grape. This variety, if it can be generally grown as it is at Red Rose, has a great future in store for it. Lady Downe's, as I mentioned in these pages some years since, is not a success here in the same sense as such Grapes as Gros Colman and Gros Maroc, and is being weeded out. In a house of Tomatoes Conqueror is the best variety, President Garfield the worst. Cucumbers are grown best alongside the Tomato, and both as luxuriant and fruitful as can be wished for.

At the starting of the place Mr. Witherspoon planted an almost endless variety of Pears and Apples. He is now reaping the success of his experiment by being able after a term of probation to select some sorts that are admirably suited to his soil and situation. Among Apples he prefers Lord Suffield, Pott's Seedling, Ecklinville Seedling, Melon, and Early Harvest as being amongst the most reliable. In Pears he adheres to his first love, Marie Louise d'Uccle. A favourite Strawberry is Duke of Edinburgh, of which he is very proud.

A new boiler is also under consideration here, and may possibly be heard of to advantage at some future, and not very distant, date. Many other things of interest to the horticulturist may be seen and heard of at Red Rose, and no gardener who can should miss seeing the place. The crop of Grapes must be seen to be understood and appreciated. No descriptive writing can show them as they are.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth.*

NOTES AT THE DUBLIN AUTUMN FLOWER SHOW.

THE weather, although not so warm and genial as could be desired, was fine, and an unusually large number of visitors was present when His Excellency the Lord Lieutenant and Countess Spencer were announced. The Show was held in the spacious gardens attached to the residence of Cecil Guinness, Esq., D.L., and the exhibits were principally staged in a number of large marquees. There is a number of Orchid collections around Dublin, but none had entered. This may be due to the risk of transit and to the limited number of showy Orchids now in bloom, but more especially to the dangers from the unavoidable exposure and draughts. Dahlias, Show and Fancy, were really fine; but the bouquet section was not equally good, and the first prize was withheld. As on last year, F. W. Leland, Esq. (Mr. Short, gardener), Drogheda, was first for both the two dozen and one of distinct varieties; Rev. F. Tymons, M.A., being second, and with splendid blooms. These Shows are noted for Dahlias. Crowds were all day gathered around the stands of single Dahlias, and to many Avalanche, Paragon, Harlequin, and Lutea were quite new. An adjoining stand of the Cactus Dahlia was much admired. As in several other instances, the Rev. Mr. Tymons was first for single Dahlias, and Major Fitzgerald of the Phoenix Park Military School second. The best herbaceous collection was also staged by the former. Here I would draw attention to the difficulty of effectively staging and keeping for any length of time in a presentable condition hardy perennial and border herbaceous plants—for instance, Colonel Nugent, D.L., Killucan, had first prize for a stand of herbaceous Phloxes, all different, yet they had flagged and lost their beauty before the Judges had concluded. Mr. Tymons also had a collection of good hardy flowers.

Those of your readers who have been at former flower shows here will remember the splendid specimens of British Ferns shown by Phineas Riall, D.L., Bray; exotic Ferns by L. G. Watson, Esq., Blackrock; Palms and Cycads by His Excellency the Lord Lieutenant and Chief Secretary, Viscount Powerscourt, and Mr. Jameson Montrose, Mr. Watson already referred to, and others, need only be told that their efficient gardeners have once again maintained their reputations, while a few like Mr. Bracken seemed missed, their places being taken by other aspirants to gardening fame. Well-coloured and brilliant specimens of the newer Coleuses were

shown by Henry McComas, Esq., Dundrum (Mr. Toole, gardener), who deservedly obtained first place. Admirable specimen Zonal Pelargoniums came from Mrs. R. Millner, Phineas Riall, D.L., Alexander Comyns, and George McMaster, Esqs. There were some fine Roses for the time of year, but, on the whole, inferior to last year's, though Mr. Ennis, from Lord Portarlington's, Emo Park, won first prize with many beauties brought from near Tullamore.

The fruit was decidedly good, especially Grapes and Peaches, among the rest those shown by Lady Emily Bury, His Excellency the Lord Lieutenant, and Mr. Pollock, a new exhibitor from Lismany, Ballinasloe. The Veitch memorial medal went to the former lady.

The vegetable exhibits were not what one might expect at Dublin, and certainly behind what I have noticed before, though, of course, many were well grown. As to Gladioli, the cup, as on last year, went to J. F. Lombard, Esq., South Hill, Rathmins, for a stand of thirty-six, of great excellence, being hard pressed by the Rev. F. Tymons; while in the stand of twelve Mr. S. H. Bolton, Grove House, Rathmins, took precedence of Mr. Lombard. The winning cup stand were from almost exclusively English-raised, and were procured from Mr. Kelway, Langport. For contrast there was beside them a large stand sent from France by Vilmorin, Andrieux, and Co., and exhibited by Messrs. Drummond of this city. They could certainly not compare in size or beauty to either Messrs. Tymon's or Lombard's. Some seedlings raised and shown by the Rev. Mr. Tymons were as good as any exhibited. Very fine were Penelope and Mr. George Rundle. In the stand from Southill conspicuous were Henry Irving; Rhaumes, excellent; Mrs. J. Eyton, fine white; Captain Boyton, Samuel Jennings, and Mrs. Burley. One of Souchet's, the best of the yellows of French origin, was Reine d'Or. I have little space left to refer to the several stands of Begonias, tuberous-rooted, around which crowds gathered all day. The feature of those were a stand of twenty-four doubles from W. E. Gumbleton, Esq., Belgrove, Queenstown, which I saw a few days ago, grown in the open air, injured in the travelling, but still grand, not for competition. In size the singles of the Rev. Mr. Tymons and Captain Riall left little to be desired. These I hope to refer to another time.—W. J. MURPHY.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

No. 7.

FEW of those who are frequently in gardens, small or large, will have failed to notice that there are some insects, occurring every season, which seem as if they had acquired a right to remain almost unmolested. This may be because they are generally distributed upon plants, shrubs, and trees, or because they are very difficult to deal with, rather than from the circumstance that the gardener does not object to their presence, for some to which we are referring are at least annoying, if not excessively injurious. The cuckoo spit, *Cercopis*, or *Aphrophora spumaria* (fig. 43), is one of those pests that is seldom

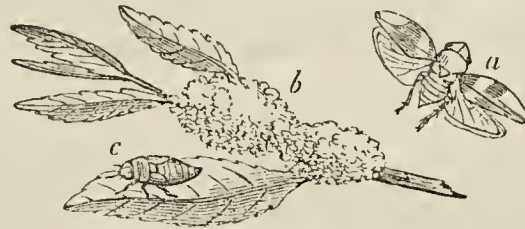


Fig. 43.—Cuckoo-spit insect, *Cercopis spumaria*. a, Mature insect. b, Larva in froth. c, Larva exposed.

assailed by any of the cunningly devised compounds, which have proved so fatal to insect life and so serviceable to horticulture; and its removal by picking off infected leaves is only a partial remedy, since the insect often gets into positions where it cannot be laid hold of. It is not merely the harm done by the insect to vegetation that is matter of complaint, it is very unpleasant in passing along the paths to receive portions of its secretion upon one's clothes. To that, however, we are exposed in a country ramble as well as in a garden, for the species is common everywhere during May and June. This *Aphrophora spumaria* is nearly related to our aphid foes; it belongs, as they do, to the order Hemiptera, but unlike them, in the perfect state the insect has the power of leaping, possessed also by some others in the bug tribe, hence it is popularly called the "frog-hopper;" and many of those who know it by that name as a summer or autumn insect fail to connect it with the "cuckoo-spit" they had noticed early in the season. Warburton, commenting upon a line of Alexander Pope's, which he thinks is an allusion to this species, remarks that he found the country folk called these patches of froth "toadspits," the toad being popularly believed to spit a sort of venom. Such a name was even more absurd than that which gave the cuckoo the repute of producing them, for they are often to be seen where no toad could possibly climb.

The froth is given forth so plentifully by these pests in some states of the weather that it may be seen to fall drop by drop from the leaves upon which the insects are resting; and as this exudation is first drawn from the plant, it is evident that when they are numerous their attacks upon the juices must have an exhausting or weakening effect. De Geer, the Swedish naturalist, watching these little creatures

many years ago, noticed with what rapidity they pump up the sap by means of the rostrum or sucker, and then eject it at the abdomen. Abundance of moisture is as essential to their existence as it is to the well-being of a frog, and the secretion serves to protect them from the sun's warmth; also, we may reasonably infer, it guards them from other insects that are predatory, and from spiders. If we remove this froth carefully we discover under it a soft-bodied grub, green above and yellow beneath, with conspicuous, but minute, black eyes. The same covering serves *A. spumaria* for a protection when it enters upon the pupal stage of life. By some means the full-grown grub forms a hollow under a thickish film of the exudation, which dries in the air, and hides the insect till it is ready to emerge as a "frog-hopper." It is now brown or greenish, dotted over with fine spots, and having two oblong white spots on the wing cases. For the species in its mature state possesses wings though it seldom flies, preferring to run or leap; the males, indeed, are able to spring through the air a distance of several feet, the females are less agile. Fig. 44, shows the insects magnified.



Fig. 44.—Cuckoo-spit insect, magnified.

We have introduced *A. spumaria* here because the Raspberry, whose insect enemies we are about to enumerate, is one of those plants that are frequently disfigured by its frothy envelope; it is also common upon other species of *Rubus* wild and cultivated. In the case of some young shoots of various plants the mischief done by "cuckoo-spit" is so marked that it is advisable to operate upon it. Syringing with plain water does good, but more beneficial results are obtained by the use of a solution of softsoap flavoured with tobacco, or a decoction of quassia; and of course all "frog-hoppers" that can be caught in summer and autumn should be killed.

The Raspberry is visited by more than one species of those weevils that infest our fruit trees, both in the open air and under glass. Of these its principal enemy appears to be the clay-coloured weevil, *Otiorhynchus picipes* (fig. 45), which has been called the Raspberry



Fig. 45.—*Otiorhynchus picipes*, magnified.



Fig. 46.—*Byturus tomentosus*.

weevil, and also the Vine weevil, since it attacks that plant in hot-houses; but *O. sulcatus* is a greater enemy to the Vine than is its relative. These weevils give trouble in two ways. The mature beetles swarm upon leaves and buds, or they will even gnaw the bark of shoots and branches; while the grubs or larvæ by burrowing at the roots weaken shrubs, and so infest young plants as to stop their growth. *O. picipes* resembles others of the group in having a beak that is developed on each side into a kind of ear; the thorax is rounded and granulated, the wing cases light brown covered densely with scales, under which are a series of circular markings and dots; it is, however, unable to fly. During May the Raspberry weevil is usually observed in greatest abundance, the insects emerging about that time from the pupæ, which lie underground through the winter. It is the habit of the species to conceal itself in the daylight. They creep just beneath the earth, or hide in parties amongst the crevices of walls and under loose bark, and come forth in the shades of evening. Even then they drop from the plants at the least sound or the approach of a light. The approved method, therefore, of catching them by cloths spread at night under the bushes and boughs, and shaking briskly, requires much care or many of them escape. Where they attack trees against walls it has been found they enter the soil close to the base of the wall, hence there is advantage in clearing off the top of this, or in applying to it a weak solution of petroleum. Miss Ormerod

suggests that if a band of a mixture of tar and oil were to be run round the stem of standards at a suitable height the beetles could not possibly ascend the trees. As yet the larvæ of *O. picipes* has not been much noticed in gardens, but it feeds, like others of its genus, upon the roots of fruit trees and vegetables through the autumn and winter months. This might be dealt with by any of those remedies commonly applied to check the ravages of the wireworm, the crane-fly maggot, and other subterranean feeders.

Another beetle that is associated with the Raspberry is of a different family, rather less in size than the weevil just described. *Byturus tomentosus* (fig. 46) is a slim little creature, with wing cases of yellowish brown and short antennæ; it is often to be seen in the corollas of various flowers, seeking them presumably for the honey they contain. Kirby and Spence, in their work on entomology, accused this species of biting through the flower stalks of the Raspberry, but I have not had recent proofs that such is its propensity. We suffer most from the larvæ, which is too commonly found in the fruit during July. It is rather slender for a beetle larva, with a flattened head, and two dark spots at the tail, and it lives and grows in its snug concealment, being generally picked with the fruit; if undisturbed it descends from this to the earth when it is adult, I believe, to enter the pupa state. Few suggestions have been made of any value as to methods of preventing the deposition of the eggs.

A small caterpillar of a scarlet colour spotted with black, and having a black head, does some damage to the buds of the Raspberry. This insect, which produces the moth called *Tinea corticella* or *variella*, is found lurking in the buds from the middle of April to the end of May. About the beginning of June the caterpillar spins a web among the leaves it has damaged, and the moth soon emerges. It is a pretty little creature, with glossy brownish fore wings, upon which are some gold-coloured spots; the hind wings are a darker brown. That the caterpillars are hatched in autumn is certain, but we do not know at present where they hide during the winter months. Birds can discover them in the spring quicker than we can, hence their researches amongst the buds of the Raspberry.

Blotches are occasionally observable upon Raspberry leaves about July, which, if opened, are seen to be tenanted by a dingy green grub or pseudo-caterpillar with numerous minute legs. At the beginning of August this is transformed into a four-winged fly, one of the sawflies, and named *Fenusa pumila*. It is a quarter of an inch across the wings, which are black; the body is also black, the legs are pale brown. The Raspberry does not entirely escape aphid visitations; its special enemy is *Siphonophora Chelidonii*, also found frequently on the Celandine, and which somewhat resembles the common aphid of the Cabbage.—ENTOMOLOGIST.

GARDEN CHEMISTRY.

VALUE OF MANURES.

FEW know how to value manures. We pay £80, or, in some instances, as much as £200 per ton for manure which we know to be effective; but whether the same effect could be gained for less, or what materials are necessary, hardly any of us know anything. Every manure in the market depends for its value, first on the nitrogen it contains, and secondly for its phosphates. Some few contain the nitrogen in the form of nitrate of potash, which is more valuable than nitrate of soda, especially for pot plants; but if we allow for the nitrogen and the potash both, it matters not in what form either are if both are immediately available. The value of a manure, then, depends first on what is in the manure, and secondly the state in which it is in. For instance, nitrogen in the form of ammonia or nitrates is available almost at once for the use of the plant; but in the form of rape dust, bones, horn shavings, or farmyard manure it is not immediately available, and is therefore allowed a lower value. Phosphoric acid, again, when soluble is worth more than in the form of bone dust, and in bone dust than in ground coprolites.

In order to know what the value of a manure is we must know of what it is composed. If wholly of sulphate of ammonia it may be worth £25 a ton, if of sal-ammoniac £31 at least. These are the most valuable manures in the market. If of phosphates, for soluble bone phosphate nearly £20 would be allowed for a ton for the soluble and £12 for the insoluble; for soluble mineral phosphate £15, and insoluble mineral £7 10s at the manufactory. Standard values have been fixed upon for each of the necessary elements or compounds in manure, which of course vary from time to time as the market price rises or falls, but which form a guide whereby an analyst can state the approximate value of any manure after ascertaining its composition. Thus, if nitrogen be worth £100 per ton, sulphate of ammonia containing 20 per cent. of nitrogen would be allowed £20 as its value; nitrate of soda yielding 15.5 per cent. would

be worth £15 10s.; sal-ammoniac (ammonic chloride) with 31.7 per cent. worth £31 17s. 6d.; bones with 3.6 per cent. over £3 for that one item in addition to what would be allowed for the phosphate.

Phosphates are valued according to their source and solubility. Soluble bone phosphate was recently allowed a money value of £19 5s. per ton, but that from bone ash only £15, and from mineral phosphates £14 4s. There is something arbitrary in this, as soluble—that is, monocalcic, phosphate is of equal value, no matter whence its source. There is more meaning in allowing £11 10s. for the insoluble phosphate in bonemeal, £8 15s. for those in bone ash, and £7 10s. for insoluble phosphates derived from mineral sources; but even in such instances the values are only approximate, as a good deal depends on the mechanical division of the particles. Potash as sulphate is allowed a money value of 2s. 6d. per unit.

To make the subject quite clear we will take a sample of ordinary manure and calculate its value according to the unit system.

Farmyard Manure.

Water	71.0
* Organic Matters	24.6
† Ash	4.4
* Containing Nitrogen equal to Ammonia	0.54
† Containing Potash	0.52
" Phosphate (monocalcic)	0.50

As nothing else is valued, but yet are of value in farmyard manure, full value should be allowed for those that are calculated, even although much of them may not be immediately available. Valued in this way the above may be summed up thus—

Nitrogen	£	s.	d.
Phosphate	0	9	6
Potash	0	1	11
	0	1	3
	£0 12 8		

which is more than is usually given or allowed by chemists for similar samples. Farmyard manure is, however, not often so rich as the above, especially when straw is very plentifully used. As seaweed often contains as much nitrogen and phosphoric acid as farmyard manure and often four times as much potash, its real value is seen to be greater. Urine which contains

Urea	3.1
Potash	1.2

is certainly worth £2 per ton. Only pure horse urine is as rich as that, however. It is generally largely diluted, but even though containing an addition of three parts of pure water to one of the liquid, it still equals in value ordinary manure. Cow urine is worth about the half of that from the horse.

Perhaps we cannot illustrate this part of our subject better than by reproducing a table submitted to the Scottish Horticultural Association in 1879 by W. Ivison Macadam, F.C.S., Edinburgh, when reading an essay on the food of plants.

ASSOCIATION STANDARDS FOR THE VALUATION OF MANURES—
SEASON 1879.

	Per Ton.	Per Unit.
	£ s. d.	£ s. d.
<i>Genuine Vitriolated Bones—</i>		
Soluble Phosphates	19 2 4	0 3 10
Insoluble do.	11 13 4	0 2 4
Ammonia	80 0 0	0 16 0
<i>Other Dissolved Bones—</i>		
Soluble Phosphates	17 0 0	0 3 6
Insoluble do.	10 0 0	0 2 0
Ammonia	80 0 0	0 16 0
<i>Dissolved Bone Ash—</i>		
Soluble Phosphates	15 0 0	0 3 0
Insoluble do.	8 15 0	0 1 9
<i>Mineral Superphosphate—</i>		
Soluble Phosphates	14 3 4	0 2 10
Insoluble do.	7 10 0	0 1 6
<i>Bonemeal—</i>		
Phosphates	10 0 0	0 2 0
Ammonia	70 0 0	0 14 0
<i>High-class Guano—</i>		
Soluble and Alkaline Phosphates	19 3 4	0 3 10
Insoluble do. do.	11 13 4	0 2 4
Ammonia	90 0 0	0 18 0
Potash as Sulphate	12 10 0	0 2 6

	Per Ton.	Per Unit.
	£ s. d.	£ s. d.
<i>Guano Superphosphate—</i>		
Soluble and Alkaline Phosphates	15 0 0	0 3 0
Insoluble do. do. £8 15 0 to	10 0 0	0 1 9 to 2s.
Ammonia	80 0 0	0 16 0
Potash as Sulphate	12 10 0	0 2 6
<i>Nitrate of Soda—</i>		
Nitrogen as Ammonia	70 0 0	0 14 0
<i>Sulphate of Potash—</i>		
Potash as Sulphate	12 10 0	0 2 6

There is a manure in the market, and it is only one of a class, "for Roses, Vines, and orchard trees." The following is its composition—

Moisture	5.56
Organic Matter and Ammonia Salts	41.33
(containing Nitrogen equal to Ammonia)	(9.96)
Soluble Phosphoric Acid	1.02
(equal to Phosphate of Lime)	(2.23)
Insoluble Phosphoric Acid	13.03
(equal to Phosphate of Lime)	(28.44)
Lime	16.54
Potash	0.56
Nitrate of Soda	11.98
Sand, &c.	6.98
	100.00

As sold this costs retail about £88 per ton. Of course tins have to be paid for; wholesale and retail dealers have each to get profit after paying assistants' wages and storage, carriage, &c., while the "inventor" expects something. Yet what is this manure? A mixture of ammonia salts, nitrate of soda, phosphates, and some other articles of little value. When once gardeners, amateur and professional, know exactly what plants want, the forms of food best suited to them, and the sources, much more artificial manure will be used than now, yet much less money spent.—SINGLE-HANDED.

TOMATOES v. WASPS.—Is it true that wasps will not enter a vinery or fruit house if a few Tomato plants are grown in it? I am informed that this is the case, and it accords with my own experience of this year. We were greatly troubled outside, but have very few inside the houses.—J. P., *Dublin.*



KITCHEN GARDEN.

Autumn Cabbage.—The seed sown some time ago has now produced plants large enough to transfer from the beds to the main quarters, and as this crop is a very important one, the best attention should be given it. Good Cabbages are never produced at any season on poor land, and to grow them of the highest excellence they must be very liberally treated. Where a piece of ground was heavily manured for a previous crop more need not be added before planting Cabbages, but otherwise a good dressing should be dug in before planting. The situation selected should be very open. Plants tenderly reared in autumn never pass through a severe winter well. Drills about 3 inches deep and 18 inches apart should be drawn, and into these the plants should be dibbled 18 inches apart. These drills help greatly to protect the young plants while small, and by-and-by the soil can be levelled up to their stems, when they will remain secure for the winter. For planting now only the largest should be drawn out of the seed rows, and the smaller may be left to remain throughout the winter, or be planted out as a succession in a fortnight's time.

Winter Cucumbers.—These are now making satisfactory progress, and they cannot be too much exposed to the light or robustly grown. The best way of training them is to take the main stem up 4 feet or so before stopping, then train a few shoots from each side. These must not on any account be crowded, as success all depends on their making free, clean, and robust growth, and this they never will do if too much crowded. Liquid manure should not be given until after they are in full bearing. Old plants now showing signs of decaying should have the dying leaves removed, all superfluous fruits cut off, and a little extra bottom beat and liquid manure applied, when the result will be a stimulus to the crop, which will maintain the supply until November or longer.

Tomatoes.—This season has not been one of the best for outdoor Tomatoes. Some of our plants in the most sunny positions have formed large quantities of fruit and ripened a few, but we have not gathered

them by the bushel or hundredweight, as we have done in some years. The cold nights we are now experiencing are not favourable to their developing or maturing, and in many instances the fruit may show signs of decay. When this is the case the best way to save them is to cut the best off and hang them up in bundles in a warm room or glass house to ripen. When treated in this way they are not so good for salad, but they do very well for cooking or sauce.

Mustard and Cress.—Throughout the summer and until now these have grown very well in the open, but now to insure a supply it is best to sow the seed in a frame and under handlights.

Harvesting Onions.—All spring-sown Onions are showing signs of ripening, and the whole of them should be lifted from the ground. Dry weather is always best for this, but the most has often to be made of them in the wet. The first operation should be to draw them out of the soil and lay them down on the surface of the ground. Here they may remain for a week or so to dry a little, and then they should be taken away and spread out in an open airy shed or on a dry pathway, and remain there until the stems are quite withered, when they may be cleaned and stored. In cleaning them the greater part of the stem should be twisted off, and the rough skins which may be quite loose about them may also be rubbed away. The soundest of the bulbs should be put together for keeping, and the others may be kept hack for present and immediate use.

Asparagus Plants.—Recent storms have blown these plants about very much, and this is always injurious to them, as it breaks many of the growths off by the bottom and damages the crowns. Where the stems have run up to a height of 8 feet or so they take a long time to mature in autumn, and to give them every advantage they should be kept staked and tied. Cleaning the surface over the roots should have every attention at this time, as when the ground is overgrown with weeds it is impossible that the crowns can ripen. The present work should be to prevent all stems from being damaged by the wind and making the surface as clean and open as possible.

Sowing Cauliflower.—The seed of Early London and Veitch's Autumn Giant Cauliflowers should be sown at once to produce plants which will be wintered in frames and planted out in spring to head before the spring-sown plants. The seed should be sown on a south border where the soil is good, and the rows may be from 9 inches to 1 foot apart. Care must be taken that the snails do not destroy the young plants just when they are coming through the soil, as they are very apt to do this with young plants at this season.

Wet-weather Work.—Rainy days are now prevalent, and when they occur indoor work should be pushed forward. At such times seed Peas, Beans, &c., may be examined, cleaned, and stored in boxes or bags. Look over Potatoes to remove decaying tubers, and have sheds cleaned out and leaf soil or sand prepared to cover over Carrots, Beetroots, &c., when they are brought in.

FRUIT-FORCING.

VINES.—Pruning and Top-dressing.—The Vines which are to be started in November should be pruned without delay. Vines in good condition may be spurred-in to a couple of buds, as the breaks from these usually show medium-sized compact bunches, which set and swell off finer berries than bunches on shoots starting from strong young wood, which often gives loose bunches and an undesirable number of stoneless berries. If, however, young wood has been encouraged to displace spurs that have become weak and elongated, such should be cut back to plump eyes on well-ripened wood, and the breaks from these will be satisfactory providing means be adopted to insure the breaking of the eyes at the base of such growth by depressing the upper part when forcing is commenced. The Vines should only have the loose bark removed, and should then be washed with soapy water, 8 ozs. soft soap to a gallon of water, and the woodwork washed with soap and water, and the glass thoroughly cleansed with water both inside and out. If painting be necessary it should be done at once—not upon a dirty but a clean-washed surface; and if there has been any scale or mealy bug, thoroughly syringe the Vines and all woodwork and walls with paraffin, a wineglassful to 3 gallons of water, adding the same quantity in bulk of soft soap previously dissolved in hot water. Keep it thoroughly mixed by sharp stirring with a stick whilst the petroleum solution is being applied, and repeat as soon as the Vines become dry. The Vines should have the solution applied to them with a brush so as to reach every crevice, the solution being kept stirred constantly whilst it is being applied. If the house has long been infested with mealy bug have the whole of the woodwork painted with spirits of turpentine, applying it well to every angle and crevice. The trellis should also be dressed with the same, and the walls also. Remove the surface soil, supplying fresh. If the roots do not require more than an ordinary top-dressing all loose mulchings should be removed after pruning, using in its place rich compost with a liberal admixture of bonedust pressed firmly, and complete with a couple of inches thickness of fresh horse droppings. Keep the house cool and dry until the time arrives for starting.

Covering Outside Borders.—Those hitherto exposed to the influence of the weather should now be protected from heavy rain by covering with lights if they are obtainable, or shutters raised a foot or so above the surface, with a good fall to the front to throw off water.

Vines in Pots for Early Forcing.—Cut these back to plump eyes on well-ripened growth, and dress the cuts with Thomson's styptic or patent knotting, keeping in a cool dry place until wanted for forcing. If

wanted to produce ripe Grapes in March or early April they should be started not later than the 1st November—better a fortnight earlier, as they thrive best when brought on gently in the early stages of growth.

Midseason or Succession Houses.—Any alterations or additions to the borders in these houses should be concluded as soon as possible. If the roots required lifting it should be done whilst the leaves are on the Vines, leaving any spray a little longer as an incentive to root-action; but where lifting is not necessary remove every particle of young growths as a means of plumping the buds and insuring the thorough maturation of the wood. Prune as soon as the leaves part freely from the wood, as a complete and long rest is highly beneficial. Later houses should have laterals and extensions shortened back to effect the plumping of the pruning buds, and to admit of the free admission of light and air. Free ventilation is essential on fine days with a little fire heat, if there be any doubt about the maturity of the wood, using it in the daytime only. It is no use expecting first-class Grapes from unripened wood.

Late Grapes.—Grapes intended to keep through the winter must be ripe by the end of the month, or they will certainly shrivel in a short time after the fall of the leaves. If there be any doubt as to this employ fire heat steadily in the daytime, applying most on fine days, and shut it off on all but cold nights, when a little heat may be needed to keep the temperature from falling below 60°. A high night temperature weakens the Vines, as they require as much rest as can possibly be given them. Admit a little air constantly, and ventilate freely on all favourable occasions. Late houses of Hamburgs will colour well even in October; but the Grapes, ripened as they must be by a greater extent of fire heat than is necessary if at all in September, do not keep nearly so well as those ripened when the sun has more power, as the skins are not only thinner, but the saccharine matter is not so highly developed.

Young Vines.—Those that were planted in the spring or early summer months may be allowed to make all the growth they are disposed with a view to extend the root-action and increase the vigour of the canes for some time longer; but any that are intended to fruit next season, and have been allowed to make long rambling shoots, should have these gradually shortened with a view to plump the eyes on the canes, and conduce to the ripening of the wood by a free admission of light and air. If the wood is not ripening kindly apply fire heat by day, with a free circulation of air. Keep the large or principal leaves free from insects, as it is essential that they be preserved in health until they fall naturally.

STRAWBERRIES IN POTS.—Autumn Fruiters.—Plants that are intended to fruit early next month will have set their fruit, and should now have them thinned and the plants placed near the glass or shelves, and be fed liberally with liquid manure. Plants to come in later ought now or soon to be in flower. The chief thing to aim at is to get the fruit set whilst the weather is favourable, after which they can be advanced as they are required.

Spring-fruiting Plants.—Remove all runners as they show, keeping the pots free from weeds and worms. Afford more space as the foliage expands, and keep a sharp look-out for the Strawberry maggot, which hides on the under side of the leaves, and ought to be destroyed, as it not only perforates the leaves now, but later on will perforate and feed on the flower buds, and render the plants blind.

PLANT HOUSES.

Hyacinths.—Where these are wanted to flower early they should be ordered at once, if not already done, potted as soon as they arrive, and treated as directed in a former issue. To maintain a succession a number of bulbs should be potted at intervals of a few weeks. Pots 5 and 6 inches in diameter are ample for single bulbs, but they can be grown very successfully in a smaller size. Where larger pots are in request place three bulbs in 7-inch pots. For purposes of decoration many of the cheaper varieties are the best. In addition to Homerus, single red, and La Tour d'Auvergne, double white, recommended for early forcing, the following will be found good, cheap, and useful. Single whites—Albertine, Grande Vidette, Alba Maxima, Madame Van der Hoop, and Mont Blanc. The two first are admirable for early forcing, and can be brought into flower easier and earlier than any other single white varieties. Grande Vidette is remarkably dwarf, has a grand pyramidal spike which possesses very large pure white bells. Blush whites—Lord Wellington, Gigantea, and Grandeur à Merveille will be found three very good varieties. The first-named is the earliest, and can be brought into flower a few days before the two whites recommended above if potted at the same time. Amongst single reds Von Schiller, Robert Steiger, and Macaulay are good, but none of these is so early as Homerus. To succeed, or even to flower with the second hatch of that variety, a few bulbs of L'Ami du Cœur may be grown. It is early and bright, but the spike is small and puny in comparison to others. Light blues—Charles Dickens, Grand Lilas, and Grande Vidette are amongst the most serviceable. The former is the earliest of the Hyacinths, and one of the best and most useful that can be grown. It scarcely ever fails to produce an immense spike, and often as many as three. The last-named of the three is in the style of Grand Lilas, but has larger bells. Amongst dark blues Argus is the earliest, followed by that free and best of all Hyacinths for decorative purposes, Baron Van Tuyl. General Havelock, deep purple shaded black, is also good, and well worth a place. The yellow varieties are not very serviceable, and a few bulbs only should be grown in comparison to other varieties enumerated. Bird of Paradise and Duc de

Malakoff are two of the best. Double kinds we do not advise to be grown in large numbers, the singles are much more useful. In addition to the white variety mentioned, Lord Wellington and Waterloo, the former blush and the latter deep red, are very good.

Tulips.—In addition to the few varieties mentioned on page 148 for early forcing others should be potted as early as they can be obtained to succeed them, as Tulips are amongst the cheapest of bulbs, and are capable of making a most brilliant display over a lengthened period of time. All intended to be forced into bloom from the middle of January to the end of the season should be potted in 5 or 6-inch pots, placing five bulbs in each pot. In potting the bulbs should be entirely covered with soil, and then placed under ashes outside, the same as the Hyacinths, until the pots are full of roots. The following are good:—Chrysolora, yellow; Vermillion Brilliant, scarlet; Cottage Maid, rose pink shaded white, not good for early forcing, but flowers freely and well after February 1st; Keizers Kroon, scarlet and yellow, a very bold and showy kind; Proserpine, dark rose; Wouverman, purplish-violet. The only white we grow is White Pottebakker. Double varieties are very useful and showy, and do equally as well as the single varieties in pots. A few bulbs of Duc Van Thol may be grown for early flowering in 4-inch pots. Duke of York, Emperor Rubrorum, La Candeur, Gloria Solis, Tournesol (red and yellow), and the yellow variety are amongst the kinds most worthy of pot cultivation; the last two being superb, last well, and are amongst the most striking double Tulips.

Narcissus.—In addition to the Polyanthus Narcissus for pot cultivation, some of the border varieties, when well grown in pots, are most conspicuous in the conservatory amongst other flowering plants. The Hoop Petticoat Narciss (Bulbocodium) is charming when well grown in 4-inch pots, but undue forcing must not be resorted to, or failure is sure to follow. *N. moschatus* does well in 5 or 6-inch pots, and if growing in the open borders should be lifted and potted without delay; place about five strong bulbs in the size pots mentioned. *N. Horsfieldi* and *Emperor* are grand, especially the former, which is very dwarf and flowers freely. The most successful plan with these varieties is to lift them early, before they commence to root afresh if possible, and then pot them moderately deep, and place them in a cold frame, and then cover them with coconut fibre or coal ashes, having about 1 inch over the pots. They should be left in this condition until they grow through the plunging material, and afterwards be brought forward in gentle heat as required.

THE BEE-KEEPER.

THE STINGS OF BEES.

SEVERAL deaths—I think four—from the stings of bees and wasps have been reported in the newspapers this season; a number unusually large and sufficient to excite attention if not alarm. The death of a person from bee or wasp-stinging has been heard of every few years, but the record of four fatalities in a few months from the same cause is not pleasant reading, and may cause unnecessary alarm. A medical practitioner has, I believe, lately and publicly stated that the sting of a bee—meaning thereby the venom of the sting, cannot kill anybody, that when death results it is from an excess of fright. I did not see the doctor's letter, but I believe his views and statements are correct. The record of the deaths which happened lately states that a lady in her kitchen was stung by a wasp on the neck, "swooned away and died in twenty minutes." Another is that of a lady near Harlow, who died within half an hour of a wasp stinging the little finger of her right hand. She had been stung several times before, and was very nervous about it. The pain of a sting in most cases is very severe for a short time, but soon passes away without doing injury if borne in the absence of fear. Neither the venom nor the pain of a sting could destroy life in a person who is not alarmed. We have seen many persons frightened nearly to death on being stung, but on being assured that no fatal consequences would follow bore their sufferings with composure. Though I have been stung thousands of times, probably oftener than any other living person, I am frequently told that bees know me, and therefore do not sting me. The question of bees knowing their masters is a difficult one to discuss, but we may take it up at a future time. At present I wish readers generally to know that I am not exempt from stinging. But stings do not cause swelling on me, or any inconvenience beyond the pain which does not last a minute. I could bear twenty stings in a minute without fear of injury, beyond the momentary pain. This statement is not made in bravado, but to lessen the fear of timid people. I keep many hives, or have done so for many years. I move amongst them gently without fear, turn them up and examine them, put them through all possible and known manipulations, and the bees through all possible exercises without fear; and in all this work I have

never used a protecting veil of any kind for hand or face. Bees can be made accustomed to all such work and practices. If gently handled they will bear a great deal; if kept among the haunts of men or in busy places they become domesticated, and bees once domesticated do not readily become savage or ill-natured again. Bees that are born in unfrequented places are in a sense untamed and untrained, and when visited by human beings and cattle they naturally dread molestation and defend their hives, or mean to do so, by first attacking the unwelcome visitors.

The venom of a bee sting is so instantaneous in its action that we think no cure for it can ever be applied in time. The sting of the honey bee is well barbed, and when inserted in the skin it draws the venom bag with it, which is connected with a self-acting machinery which has the power of injecting venom through the sting into the flesh for some time after separation from the body of the bee. Instantaneous withdrawal from the part stung is in our opinion the best cure for a bee sting. I have not been often stung by wasps, and know little about them, but I believe their stings are as painful as those of bees. The sting of a wasp is not barbed, and therefore is not lost to the insect on being used, but can be used again and again, and is therefore more formidable than that of the honey bee, which sticks wherever inserted, and the loss of the sting is death to the bee.

Wasps' nests are unusually plentiful this season, and as every nest contains many queens they should be destroyed before the queens find warm corners for the winter.—A. PETTIGREW.

GREAT HONEY CROP.—The honey flow here has been unprecedented and unlooked for. My best colony has given over 600 lbs. of honey, up to date—over 100 lbs. being comb honey, and I expect to get upwards of 700 lbs. from it. The colony spoken of carried in from 20 to 28 lbs. of honey per day for nearly a week. I think there are upwards of 100,000 bees in the hive; it is a two-storey one.—E. F. SMITH, *Smyrna, N.Y.* (in *American Bee Journal*).

TRADE CATALOGUES RECEIVED.

- Ernest de Schampheleer, Welteren, Belgium.—*Catalogue of Fruit Trees and Roses.*
 W. P. Laird & Sinclair, Dundee.—*Catalogue of Bulbs.*
 Hogg & Wood, Coldstream and Dunse, N.B.—*Catalogue of Bulbs.*
 J. Jefferies & Sons, Cirencester.—*Catalogue of Bulbs.*
 Barr & Son, 12, King Street, Covent Garden.—*Catalogue of Bulbs.*
 E. G. Henderson & Son, Maida Vale, London, W.—*Catalogue of Bulbs.*
 William Bull, Chelsea.—*List of Bulbs.*
 G. Cooling & Son, Bath.—*Catalogue of Bulbs.*
 J. Carter & Co., High Holborn.—*Catalogue of Bulbs and Spring Flowers.*
 Goldsmith & Co., 118, York Road, Westminster Bridge Road.—*Catalogue of Bulbs.*
 C. Turner, Slough.—*Catalogue of Bulbs.*
 Dobie & Mason, 66, Deansgate, Manchester.—*Catalogue of Bulbs.*
 Waite, Nash, Huggins, & Co., 79, Southwark Street, London.—*Catalogue of Bulbs.*
 G. Bunyard & Co., Maidstone.—*Catalogue of Fruit Trees and List of Bulbs.*



TO CORRESPONDENTS

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

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

List of Colonial Seedsmen (*J. C.*).—You will find the names of the principal seedsmen at the places mentioned in the "Horticultural Directory," published at this office, price 1s.

Exhibiting Flowers (*Major B.*).—We could have decided the question you submit to us more readily if the names of the "four sorts of stove flowers" show by T had been given, and in the absence of that information

it is impossible to determine whether the awards were in accordance with the terms of the schedule. The wording ("best collection of cut flowers, twelve bunches, distinct varieties") is clear enough—that is, any collection in that class must consist of twelve bunches of flowers and twelve varieties, and if the "four sorts" shown by T were species and not varieties, his collection, according to the strictly botanical meaning of the word "variety," could not be admitted. On the other hand, if they were varieties of one or more species, and in other respects the collection was superior to those staged by B and E, he was undoubtedly entitled to the first prize. Employing the word "varieties" has evidently been misleading, and it might have been advantageously omitted. B, again, had more than twelve varieties, and would therefore not be within the terms of the schedule, while E seems to be the only one who has exactly complied with the stipulation.

Fuchsia procumbens (H. J. G.).—This pretty species grows, flowers, and usually fruits freely enough in a cool house, and as you do not state where the plant is growing we can only conclude that you have it in an unsuitable position. Undoubtedly the fact of fruit not setting is due to inefficient fertilisation, but in the absence of definite particulars it is difficult to assign a reason for this defect. Perhaps the plants have been kept too warm or too damp.

Gardener Leaving his Situation (J. S.).—We are not aware that the precise question you submit has been decided in a court of law. Under the circumstances you name the gardener would act wisely by giving a month's notice; but whether he could be legally dismissed with less notice is a point on which a solicitor should be consulted if necessary.

Vines Unsatisfactory (G. E.).—It is not at all unlikely that the inside border has been too dry, and that, in connection with a moist and rather close atmosphere and low temperature, would have a tendency to cause the leaves to shrivel under the bright sun of the past month. It is certain, too, considering the condition of the foliage, that the Muscat Vine is overcropped, and probably the others are also. You had better examine the border and roots. If the soil is at all dry water it thoroughly, and if active surface roots are not plentiful remove a portion of the old and add fresh soil, making it moderately firm and keeping it constantly moist.

Roses for Wall (N. P.).—As you name Lamarque we presume your situation is favourable, but many districts are too cold for this Rose. Where it will flourish so also will Maréchal Niel and Climbing Devonensis. To these we should add Reine Marie Henriette, Cheshunt Hybrid, and Gloire de Dijon. Those we have named will flourish in a position even more shaded than that indicated in your letter.

Potato Disease Records (Pen and Ink).—We doubt if you will find anything more suitable for your purpose than the illustrated articles in the back numbers of this Journal—namely, Nos. 603, 604, and 747, the issues of October 17th and 24th, 1872, and July 22nd, 1875. These numbers can be had from the publisher for 3½d. each. You might also with advantage procure Mr. Bravender's work, "The Potato Disease, and how to Prevent It," published at 81, Great Queen Street, London. We do not remember the price, but it is not more than two or three shillings.

Judging Culinary Apples (Dublin Subscriber).—All the Apples you name are equally eligible for competition, and none of them could properly be disqualified on the plea of their not being ripe, unless ripeness is especially enjoined in the schedule, which is not usual in connection with culinary fruit.

Hexagonal Netting (A. F. M.).—The netting of which you have sent a sample is obviously of no use for excluding wasps, being too coarse. An article of much closer manufacture is essential, and most good nurserymen, seed merchants, or dealers in horticultural requisites can send samples of different sizes, and these are usually obtained before a quantity is purchased. There is plenty of this netting manufactured through which wasps cannot pass, and it is only by using such and fixing it securely that the pests can be excluded. Ask the firm that supplied you if they cannot send you finer—that is, much more closely woven samples.

Twin Dahlia (Mrs. V.).—Such monstrosities as that you sent frequently occur in Dahlias and other plants, but it is impossible to determine the cause where it does not arise from injury to the flower-bud when young. In the case of the flower sent it appears more like fasciation than absolute deformity, as the two peduncles can be distinctly traced up to the point where they separate and form two heads. It would seem as if two flower-buds were so closely placed together that as they advanced in growth the tissue united and continued to develop in that way until the flowering stage was reached, when the growth of the heads forced them asunder again.

Liliums not Expanding (H. N.).—We have grown Liliums both with peat and without it, and have found it a valuable addition to some soils, while others it has not materially improved. Whether it is required in your soil we have no means of judging; but with good turfy loam not too heavy, decayed vegetable refuse, gritty matter, such as coarse sand or crushed charcoal, Liliums ought to grow and flower well if they are properly treated. Many failures occur from late potting or planting, as if the bulbs are too much dried they are apt to produce stem roots only, few or none issuing from the bulb. In this case, unless the stem roots are top-dressed and the plants are carefully watered, neither the growth nor flowers would be satisfactory. You do not say whether your plants are in pots or planted out, or whether the bulbs were newly imported or grown in your garden. Late-imported and much-dried bulbs often fail.

"Black Blight" on Plants (George Pether).—The "black blight" on the leaves of your plants is caused by the excretion of insects, of which a fungus takes possession. The insects most likely to cause the "black" on the leaves of such plants as Pelargoniums, Heliotropes, and Fuchsias are aphides, and these are best destroyed by fumigation with tobacco paper, the foliage to be afterwards cleansed with water. When the cause is removed the black will not appear. The Fern is no doubt infested with scale, than for which we know of no better cure than syringing with a solution of petroleum—a wineglassful to three gallons of water. The oil should be kept thoroughly mixed by filling the syringe and forcing it sharply a few times into the watering pot, and then applying every alternate squirt into the liquid and the other over the plant, which should be laid on its side and

turned round, so as to keep the petroleum from the roots and insure the wetting of the plant in every part.

Stephanotis Fruiting (Idem).—It is not by any means a rare occurrence for Stephanotis to set and have fruit pods in this country. The pod will become ripe in due course, when the seeds should be separated from the pulp. They may be sown in sandy peat and placed in a stove temperature; if there be bottom heat it will more speedily effect the germination of the seeds. When the plants appear place them near the glass, pot off when large enough, and shift into larger pots as required. In about three years the plants will be strong enough to flower.

Size of Vine and Fruit Borders (R. C.).—As a rule a border of the same width of the house is more than ample, and this may be made in sections, adding a width of 2 or 3 feet yearly. With good soil and management excellent fruit, such as Peaches, Nectarines, Apricots, and Pears, may be grown in borders half the width that the trees are in height; or, in other words, if a wall is 10 feet high, a border 5 feet wide properly made and attended to is quite large enough for the trees in question. There is no Primula of the name you quote; have you not made a mistake in reading the label?

Sub-laterals of Vines Bearing (Sigma).—This is a good sign rather than otherwise, as the fruit denotes healthy Vines and matured wood. You had, however, better remove the bunches, as they will be of no use, yet exhaust the Vines needlessly. We are glad to hear of the great improvement in your Vines. It is a good plan to permit a free extension of lateral growth, but the principal leaves should not be shaded. It will be well probably to top the laterals where the Grapes are ripe, not, however, removing any great quantity of growth, as the chief point to attend to now is the maturation of the wood.

Alicante Grapes Shankd (J. W. Hill).—The berries you sent us are much shanked. Shankd is a result of defective root-action, which may be caused by the roots being in a cold, wet, and consequently badly constructed or constituted border, or from defective drainage; but it very often arises from a deficiency of foliage, and the deprecatory practice of allowing so much to be made in the early stages as to necessitate the removal of a large quantity when the Grapes are in the last stages of swelling. It also sometimes results from the want of calcareous matter in the soil, which may be rectified by giving a good dressing of quicklime and forking it into the border—a bushel per rod not being too much. If it arise from a badly constructed and imperfectly drained border the best remedy would be to lift the Vines and make the drainage efficient. The proper time to do this is so soon as the leaves give indications of being mature. If the Grapes are as badly coloured as those sent they certainly will not keep for any length of time, and are probably in their present defective colour from overcropping. See our remarks on late Grapes in this week's "Work."

Mentha Pulegium gibraltarica (X.).—This valuable green carpet-bedding plant is hardy, yet it not infrequently suffers by excessive wet during winter and spring, especially if it is planted in large masses. A good mode of wintering it is to plant very small tufts of it now on a dry south border, placing two or three rooted sprays together and about 3 inches apart in rows 6 inches asunder, or at such other distance that a small hoe can be run through the ground between them as required. The tufts should not be more than half an inch across in November. If much larger many of the plants are almost certain to damp off. In very wet soils and districts the plants should be conveniently disposed for receiving the shelter of spare sashes, frame lights, or handlights.

Winter's Bark (W. W. L.).—This is the produce of a small tree (*Drymis Winteri*) allied to the *Maguolias*, and is occasionally seen in botanic gardens or choice collections of plants in this country. The bark is a stimulant aromatic tonic, and may be used for similar purposes as cinnamon and *Canella alba*, for the latter of which it is sometimes substituted. Its odour is that of pepper and basil, and its flavour of a burning acidity adhering to the throat. It is said to be good in scurvy, vomiting, and paralysis, and it is also used for tanning. It was first brought to England from the Straits of Magellan in 1579 by Captain Winter, who went out with Sir Francis Drake in his voyage round the world. He found it very useful to his ship's crew both as a substitute for other spices and as a cure for scurvy. The leaves with other herbs are said to have been used successfully in fomentations, and half a drachm of the bark boiled with some carminative seeds promoted perspiration and relieved those suffering from scurvy. Other species of *Drymis*, as *granatensis* and *axillaris*, possess the same properties, and the fruit of *Tasmania aromatica* is used as pepper by the settlers of Australia.

The Pear Tree Slug (G. P.).—The best remedy for this troublesome pest is to dust the trees frequently with quicklime; perhaps the cause of your non-success is not using sufficient at a dressing. You will find figures of the larvæ and perfect insect in the Journal, page 22, July 6th, 1882. In reference to this insect, Curtis—under the head of "*Tenthredo adumbrata*"—says, "Arboriculturists are familiar with a slimy black larva like a little leech which appears as if glued to the leaves of Pear trees, and which is of very common occurrence in fruit gardens in September and October. From its form and appearance Réaumur called it the slug-worm. At the end of autumn, when it has attained its full size, it somewhat resembles a small tadpole. It has twenty feet, which, however, cannot be seen without dislodging it from the leaf. It does not begin at the edges of the Pear leaf, but gnaws away the parenchyma in the middle, leaving the smallest veins and the epidermis of the under side untouched, so that the leaves attacked are left like the finest lace. After four times casting its skin it changes to an orange-yellow colour, comes down from the tree, and forms a cocoon from particles of soil bound together by a few silken threads. The perfect insect, according to Hartig, is 2½ lines long, smooth, black, and shining, with the horns almost as long as the abdomen; the legs are black, the joints and thighs reddish-brown, the wings obscure." The grub is frequently very destructive to wall trees. It appears on Pear trees when the fruit are from one-half to two-thirds of their full size, and by destroying the parenchyma of the leaves it prevents the elaboration of the sap, brings growth to a standstill, and the Pears, instead of swelling, drop. Some authors consider that the slug-worm of Réaumur produces the *Tenthredo Cerasi* of Linnæus; others consider it to belong to the *Tenthredo Æthiops* of Fabricius. The

investigations of Gorsky, Westwood, and M. Delacour have set the question at rest. They have shown that there are several slug-like grubs which are developed into insects belonging to distinct species, and that the *T. Cerasi* of Linnæus does not form its cocoon in the ground, but amongst the leaves of the Cherry.

Ivies for Wall (S. S.).—We doubt if there is a better and quicker-growing form better suited to your high wall than the old Irish Ivy, *Hedera helix hibernica*, sometimes also called *canariensis* and *grandifolia*; but if you covet something less common plant *H. Rægneriana*, which has beautiful dark, glossy, heart-shaped leaves, but the growths do not cling to the wall quite so closely as the other. *H. dentata* is the largest-leaved Ivy in cultivation, its huge foliage being very effective; this you may have a suitable place for somewhere. *H. latifolia maculata* is free-growing and effective, having marbled foliage. Good smaller-leaved sorts are the following:—*H. pedata*.—Leaves hastate, small, sharply lobed, green with distinct silvery-grey veins; a good grower and climber; suitable for walls, pots, and almost all purposes of decoration. One of the most useful. *H. lobata major*.—Leaves medium-sized, bluntly lobed; a cheerful green with clearly marked veins. A very useful free-growing variety. *H. minor maculata*.—Leaves very small, perfectly mottled; habit close; plant of free growth. *H. sublutea*.—Leaves small, irregular, not lobed; centre green, edged and flaked with white and yellow. Distinct but not vigorous. *H. rhomboidea*.—Leaves medium, almost oval; very rich green with clear veins. A good grower, very distinct, and effective. *H. marginata grandis*.—Leaves medium-sized, rich green, broadly margined with ivory white. A very free grower, and valuable for pots, walls, or edgings. *H. marginata rubra*.—Leaves small, two shades of green, broadly edged with white and flaked with pink. *H. marginata major*.—Leaves slightly lobed, deep green, mottled with light green and margined with creamy white; veins clear. Effective and a good grower. *H. chrysophylla*.—Medium grower; leaves green, some of them mottled with yellow, others entirely yellow. Very distinct and effective.

Names of Fruits (E. M.).—1, Barrington; 2, Royal George; 3, specimen not sufficiently matured. The Apricot is Moorpark and the Nectarine Stanwick Elruge. (*J. M., Chester*).—Minehall Crab. (*J. W.*).—Searlet Nonpareil. (*R. I. L.*).—1, Cellini; 2, Irish Peach. (*C. & Co.*).—1, Small's Admirable; 2, Bedfordshire Foundling; 3, Sugarloaf Pippin. (*T. Kennedy & Co.*).—1 and 2, Ecklinville; 3, Keswick Codlin. (*Colville Brown*).—1, Golden Winter Pearmain; 2, Chaptal, a stewing Pear; 4, Orange Bergamot; 5, Early Nonpareil. (*R. P. Williams*).—1, Lemon Pippin; 3, Devonshire Quarrenden.

Names of Plants (T. M. G.).—*Tradescantia zebrina*. (*J. H. C.*).—1, *Lysimachia vulgaris*; 2, *Dracocephalum Ruyschianum*; 3, *Abutilon vitifolium*. (*Dr. S.*).—The specimen is insufficient; cannot you send one with flowers? (*W. N.*).—The *Spiræas* have been mislaid; other samples shall, however, receive our prompt attention. (*R. T.*).—1, *Adiantum macrophyllum*; 2, *Pteris serrulata cristata*; 3, *Davallia Mooreana*.

COVENT GARDEN MARKET.—SEPTEMBER 12TH.

THE state of trade is still dull. A good supply of home-grown Apples arriving, but realising low prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	1 0 to 2 6		Grapes	1 0 to 3 0	
"	0 0 to 0 0		Lemons	10 0 to 20 0	
Apricots	0 0 to 0 0		Melons	2 0 to 3 0	
Cherries	0 0 to 0 0		Nectarines	2 0 to 6 0	
Chestnuts	0 0 to 0 0		Oranges	100 6 to 10 0	
Currants, Black ..	0 0 to 0 0		Peaches	2 0 to 6 0	
" Red	0 0 to 0 0		Pears, kitchen ..	0 0 to 0 0	
Figs	1 0 to 2 0		" dessert	1 0 to 3 0	
Filberts	1 0 to 0 0		Pine Apples, English	2 0 to 3 0	
Cobs	1 0 to 0 0		Raspberries	0 0 to 0 0	
Gooseberries	0 0 to 0 0		Strawberries	0 0 to 0 0	

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	2 0 to 4 0		Mushrooms	1 0 to 1 6	
Asparagus, English	0 0 to 0 0		Mustard and Cress	0 2 to 0 3	
Asparagus, French	0 0 to 0 0		Onions	0 0 to 0 4	
Beans, Kidney	0 3 to 0 4		Parsley	3 0 to 4 0	
Beet, Red	1 0 to 2 0		Parsnips	1 0 to 2 0	
Broccoli	0 9 to 1 0		Peas	0 9 to 0 0	
Cabbage	0 6 to 1 0		Potatoes	4 0 to 5 0	
Capsicums	1 6 to 2 0		" Kidney	4 0 to 5 0	
Carrots	0 4 to 0 0		Radishes	1 0 to 0 0	
Cauliflowers	2 0 to 3 0		Rhubarb	0 4 to 0 0	
Celery	1 6 to 2 0		Salsafy	1 0 to 0 0	
Coleworts	2 0 to 4 0		Scorzoneria	1 6 to 0 0	
Cucumbers	0 4 to 0 6		Seakale	0 0 to 0 0	
Endive	1 0 to 2 0		Shallots	0 3 to 0 0	
Fennel	0 3 to 0 0		Spinach	2 6 to 3 0	
Herbs	0 2 to 0 0		Tomatoes	0 6 to 0 0	
Leeks	0 3 to 0 4		Turnips	0 0 to 0 4	
Lettuce	1 0 to 1 6				

as the sheep of the higher mountains, and the other as the soft-woolled sheep. The former breed is a very small animal, seldom weighing more than 5 lbs. per quarter. Both sexes possess horns resembling the goat as to their length and position, and whose habits in various respects it much resembles. The tail is of the ordinary length, and there is a hair-like ridge on the back, throat, and dewlap, the fleece being of varied colours—black, grey, and brown. These animals are very wild and active, preferring the highest spots and the aromatic plants growing thereon to richer herbage. They are more frequently found in South Wales. It is stated with doubtful authority that, like those of Orkney and Zetland, the rams often attack the ewes when in lamb, and thereby diminish their numbers as if for the object of repressing their too great increase. They have black hair on the face and legs, a peculiarity which continues even when they are transferred to the richer valleys for better feeding, and in some respects resemble the Radnor sheep, a superior variety of the same race, but enlarged by feeding on the better pasturage. We think these sheep may be much improved; in fact, this idea is beginning to be recognised by various owners by crossing with either South Downs or the Cheviot; probably their hardier characteristics would render the latter the most suitable to the purpose.

The soft-woolled sheep may be fairly considered as the most general and distinct breed of Wales, and are distinguished from other varieties by the whiteness of the nose and face. The fabric known as Welsh flannel is derived from the wool of these sheep, and the carcass is quite celebrated in the estimation of purveyors and consumers under the well-known term of Welsh mutton. Animals of this breed are small, seldom exceeding 8 lbs. per quarter when fat. They are to be found throughout the whole of Wales, but they delight in lofty situations. Like nearly every class of mountain sheep their habits are exceedingly active, and if attempt is made to enclose them few fences can confine them, and frequently make their escape and regain their native mountains when required to feed enclosed pastures. Their form in some measure corresponds with their habits, being slender throughout, and their hind quarters long like those of the deer. The males have their horns curved backwards, but the females do not possess any. The neck is thin, and arched backwards like the deer in a greater degree than any other sheep. Their fleece contains a certain mixture of hair, though less than other mountain breeds, and this is particularly noticeable on the throat, where it appears like a beard. The fleece seldom exceeds 1 or 2 lbs., but partakes of the long-woolled character, and is well adapted for flannels or hose, but not for cloths. It is often the custom to clip off the wool of the neck and face before winter, for if left it frequently comes off and is lost. These sheep, however, are often found in the island of Anglesea, where they from having better pasturage generally become larger and of better form.

Another breed of sheep found in Wales is called the Radnor sheep, of which there are two specimens, one possessing some of the characteristics of the long-woolled variety, but still resemble to some extent the higher mountain sheep, but of a larger size and better form, fattening to 8 or 9 lbs. per quarter. The others have been more recently crossed with the Shropshire and other breeds with favourable results.

The mountain sheep of Ireland are of various breeds, the chief of which are the Wicklow and the Kerry. The Wicklow, the more valuable but less numerous, are chiefly confined to the Wicklow mountains on the east coast of Ireland, an elevated district, but possessing a moist atmosphere. These sheep resemble in various respects those of the Welsh mountains. They are very wild and small animals, without horns, and with white faces and legs. There is, however, a tendency to become black, which is proved by the number of black lambs that are yeaned. They are larger animals when bred nearer the base of the mountains where pasturage is more nutritious. Towards the summit of the mountains, the ground being boggy and the pasturage scanty, the sheep are smaller, the wool is less fine and more mixed with hair, which appears in ridges along the spine and neck, thus causing the rain to shoot off the back; and this provision against the evils of their position is still further secured by the lambs having a kind of hairy covering on those parts which come in contact with the damp ground. The proximity of the city of Dublin occasions a great demand for early lambs, and these sheep are adapted for this object to a great extent. The mountain sheep are purchased by the farmers of lower and better soils, and the rams put to the ewes in June, the lambs fall about December. They are frequently brought up in pens, somewhat similar to the house lambs raised for the metropolitan market from the Dorset ewes, being separated from the dams in the course of a fortnight, and are much forced by



MOUNTAIN BREEDS OF SHEEP.

(Continued from page 219.)

THE sheep of Wales are of two distinct varieties, the one

sucking those ewes whose lambs have died or have been killed, as well as their own dams. To this afterwards is added cow's milk, so that they are fit for market in the course of about six or seven weeks. The disposition to take the ram so early, the quality of the mutton, and the circumstance of the ewes being very good nurses, gives a special value to this breed, and by thoughtful men it is much regretted that it has not been still more improved by judicious selection and management.

The Kerry breed may be considered as the type of the various mountain breeds which are found chiefly in the west of Ireland. They are something larger than the sheep of the Wicklow and Welsh mountains. They are, however, a hardy, but at the same time an unthrifty race, feeding slowly, and a long while arriving at maturity. Their fat accumulates in the inside, and the animals exhibit no rotundity of form externally. They have small crooked horns, which are usually wanting in the female. They much resemble in their general appearance the antelope races. They pick up their subsistence amidst the peat bogs, occasionally taking provender clandestinely from the neighbouring farms. The only redeeming point in this class of sheep is the excellence of the mutton.

The forest and mountain breeds of sheep in the west of England are the Exmoor and Dartmoor varieties. These are located in the higher situations of Devonshire and Cornwall, and are a hardy race adapted to the poverty of the pasturage which the forests of Dartmoor and Exmoor afford. The Exmoors are rather smaller sheep than the Dartmoor, and are spread over the purely hill districts, but since the "Commons Enclosure Act" many farmers have crossed them with the Leicester, and larger sheep has been secured, but at the expense of stamina and numbers. The original Exmoors are better nurses than the improved or crossed stock, and bring a large proportion of doublets at lambing time. The ewes are always brought down to the vale lands to lamb and get a few roots and oats. The ewes are put to the ram at two years old, and are drafted for sale after three crops of lambs. The best points in the breed are a very strong constitution, which will bear being buried in a snowdrift for several days, with a fine curly horn, a broad square loin, round ribs, drum-like and not a square carcass on short legs, and close set fleece, with wool well up to the cheeks. Wether lambs are usually kept on the hills and feed on the Heather except in the winter months, and are retained until they are three or four years old. Dealers buy the wethers at the farms and send them by rail on to Bristol, Salisbury, Southampton, and other south-coast towns. We have noticed splendid specimens taking the prize at the Christmas Cattle Show in London, particularly those exhibited by Mr. Merson years ago, also those bred by Messrs. Quartly, which have averaged 29 lbs. per quarter as four-year-olds off the hill. Frequently this breed has done wonders; Mr. Tapps' prize pen at Christmas have reached 42 lbs. per quarter. This, of course, only applies to very well fed flocks in an exceptional season, but for their size there are no sheep go the scale so well, nor more perfect in form. In referring to the Dartmoor breed, although they have derived their name from a certain district, they are very small, having soft wool, white faces and legs. They thrive slowly, averaging when fat about 10 lbs. per quarter. Though bred on the heath they are fattened in the plains, and their mutton is considered excellent by the epicure as well as the purveyor, and it commands a ready sale. Wethers of this breed at four years old have been occasionally, by high feeding made to weigh from 25 lbs. to 30 lbs. per quarter, with a large proportion of lean flesh, which makes them very much in request by the metropolitan and coast-town purveyors.

WORK ON THE HOME FARM.

Horse Labour in most districts is still partially or entirely employed in work connected with the harvest. In some of the early counties many farmers have completed the corn and second-growth hay harvest, the remaining work being only the Beans and pulse crops. It is now a good time to employ steam power for cultivating the corn stubbles, as in many cases they are foul with couch and weeds owing to the wet seasons which have prevailed, but especially this is found to be the case on the mixed soils farmed under the four-course rotation. The steam power should be hired where it does not form part of the implements of the farm; the work may then be contracted for. We like to cultivate about as deep as the plough goes, but not deeper, and if this is done both lengthways and crossways the land will be well stirred and lie rough if the work has been carefully done and no spaces missed by the tackle. The horses may after a few days or a week be set to work on the steam-cultivated land by dragging with Howard's self-lifting drag or harrow, as it is the best implement for the purpose; and the longer the couch can be kept on the surface exposed to the weather the better, as the land not only becomes aerated, but also mellow and kind for working fine enough to remove the couch, after which the land will be ready for the seeding of catch crops,

such as Rye, winter Tares, winter Barley, and Trifolium. The latter should be first seeded for, because as the nights get longer and the dews heavier the small white slugs, the greatest enemy to Trifolium, are sure to be busily engaged in feeding on the first leaves of the young plant, therefore early seeding is the surest way of obtaining a full plant. Sowing a full quantity of seed when rather late is, however, important, and from this time not less than 25 lbs. per acre should be sown. Horses will still be required on those fallows which are not finished for every opportunity when the land is dry. Working the land fine and removing any remaining couch and weed should be completed, so that the land may get stale on the surface before the last or ridge-ploughing takes place, which on strong land should not be later than the 1st of October. With regard to the question of manuring land for Wheat with farmyard manure, we recommend that on strong soil situated at some considerable distance may be dressed with artificial manures, applying 4 cwt. of bone superphosphate at the time of sowing, and using nitrate of soda in the spring, as much as may be required according to the season and appearance of the young Wheat plants the first week in April. The farmyard dung, however, may be applied upon lea ground lying nearest to the homestead, and in a busy time the laying it out may be deferred until October, and then spread and ploughed in and sown as fast as ploughed. This plan is, however, only recommended in case of pressure of work on the farm, for as a rule it is better to lay the dung out early in September and plough early, so that the land may have time to settle and get stale and mellow before the seed time.

Hand Labour.—The hedges and borders should now be trimmed close, and the border growth of coarse grass may be retained for use in the covering of Mangolds and other roots, for which it answers a good purpose when stored in heaps. The men will now be required in filling and spreading yard manure as fast as laid out. There are, however, such jobs as turning the dung in the farmyard for the purpose of mixing and equalising the value of it before laying out to be attended to. Any earth heaps also which may have been turned in the summer will again require to be turned over, taking care to bury any weeds or other vegetation which will decay and enhance its value for application on pasture land.

Live Stock.—The grazing bullocks will now require to be looked over, and those which are fit for the butcher sold before the ruck of cattle usually thrown on the market in October takes place; those not now fit for the shambles may be fed with a little extra cake and meal, mixed with a few early Turnips cut with Gardner's cutter, and placed in troughs or skeps on their pasture in order that they may become accustomed to root and meal feeding before they enter the boxes for the fattening, commencing in October. The dairy cows should now be allowed some few pounds of cotton cake per day at the stalls night and morning at milking time. As, however, those in full milk cannot be too well fed, yet those in calf and gone dry should be herded or fed separately and not fed so highly, otherwise it may be found that they have laid on fat internally, which may seriously injure their well-doing at calving time. Young stock cattle may well replace the fattening bullocks when sold, and if required to be sold at an early period, the sooner they get a fair allowance of cake the better, as the days are shortening. The early-lambing Dorset and Somerset horned ewes will now be forward in lamb, and instead of the ewes being sent to fairs for sale, we prefer to buy them of their breeders and send them direct by road to their new home. We dislike very much the practice of sending these ewes heavy in lamb either to fairs or to the farm of the purchaser by railway, as we have known serious losses of lambs occur through being overcrowded into trucks on the railroad. When driven by short stages on the high roads they seldom suffer injury or losses at lambing time. Having kept this kind of stock for more than thirty years, rearing lambs for the metropolitan or other markets, we have found them more advantageous than other stock where the soil and climate is favourable, for foreign importations do not affect the lamb sales at the earliest period.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
September.											
Sunday	2	28.902	60.9	56.2	S.W.	60.8	63.5	55.9	91.3	53.3	0.188
Monday	3	29.404	58.1	53.0	S.W.	60.2	66.7	54.3	112.8	52.4	—
Tuesday	4	29.737	57.2	51.0	N.W.	59.2	66.3	47.8	120.7	44.3	0.288
Wednesday ..	5	29.822	51.6	50.3	N.	58.7	64.2	47.4	110.6	45.7	—
Thursday	6	30.016	51.7	50.9	S.W.	57.5	59.3	42.0	77.3	39.4	—
Friday	7	29.904	57.4	52.6	S.W.	56.6	62.3	46.7	101.7	41.8	0.072
Saturday	8	29.866	55.8	55.2	S.W.	56.5	65.7	49.8	112.3	45.3	0.032
		29.664	56.1	52.6		58.5	64.0	49.1	103.8	46.0	0.580

REMARKS.

2nd.—Strong S.W. gale all night, very stormy day with rain.
 3rd.—Gale in night, fine day with gusty wind, calm in evening.
 4th.—Fine, slight showers latter part of day.
 5th.—Wet early, fine bright day.
 6th.—Fog early; overcast, dull day, and cold.
 7th.—Fine, but dull.
 8th.—Wet morning, clear about 11 A.M., rest of day remarkably clear and bright.
 A remarkably strong gale for the time of year occurred on Sunday September 2nd, after which the temperature fell considerably, so that the week has been colder than the average.—G. J. SYMONS.



20	TH	
21	F	
22	S	
23	SUN	18TH SUNDAY AFTER TRINITY.
24	M	
25	TU	Paris Show (five days).
26	W	Sale of Nursery Stock at Eaton, Norwich.

HISTORY OF THE POTATO.

THE annual International Potato Exhibition at the Crystal Palace which was held last week invariably attracts much public attention to the familiar tuber; and as the memories of the abundant and diverse varieties there shown are still fresh in the minds of visitors, the present time is not unsuitable to briefly review the history of this indispensable vegetable. Very gradual has been its progress in public favour, and never until within the last ten or twelve years has so much attention been given to the production of new varieties or the improvement of previously existing forms. The Potato trade is now, however, one of the most important departments of many large seed-houses, while some firms devote themselves specially to it. Varieties of standard excellence are being continually added to those of which the merits have been already proved, and it is generally admitted that this is the only way in which the constitution of the Potato can be preserved. That some of the "novelties" fail to satisfy the requirements of experienced horticulturists must be expected; but the general benefit due to these persevering raisers is undeniably great, and it is to be hoped that they will continue their efforts in the same direction.

There is every reason to believe that Chili, and especially the neighbourhood of Quito, is the native country of the Potato. It is there now found in a wild state; its slightly bitter tubers have been thence imported of late years; and cultivation has gradually raised from those tubers plants now producing crops of excellent Potatoes. We learn, also, from Peter Cieca and Molina that when the Spanish navigators first visited Chili and Peru, their inhabitants cultivated and ate a tuberous-rooted plant which they called *papas*. Molina says there are two kinds—the wild, having small bitter tubers, and the other, improved by culture, so as to have tubers grateful to the palate.

The Spaniards first visited South America in the year 1492, and there is no rational doubt of this being the earliest period in which the Potato became known to Europeans. Clusius and some others have surmised that the *arachidna* described by Theophrastus was the same plant, although the suggestion does not appear with a single reason to sustain it; but it seems to us that the *arachidna* is identical with the *aracidna* of Pliny ("Hist." lib. xxi., cap. 20), and this appears to have been synonymous with our Truffle. Pliny says it was a root having no leaf, or stem, or any other part above ground. Cortucius had a similarly groundless opinion as to the identity of the Potato with the *picnocomus* of Dioscorides. This certainly was not the Potato, for it is described as growing wild in southern Europe in stony places, as having acrid leaves, and seeds narcotic, producing heavy disturbed sleep.

The Spaniards imported the Potato into Spain, where it was called *battata*, from the resemblance the tubers bore to those of the Sweet Potato (*Convolvulus battata*), and from thence it was communicated to Italy. This was at the close of the fifteenth or early in the sixteenth century; yet at the

latter period the Potato was so little known, even to botanists, that Lobel, in his "Plantarum seu Stirpium Historia," published at Antwerp in 1576, has no mention of it, though he describes and figures the Sweet Potato. Gerarde in England, however, and Caspar Bauhin at Basel, both in the year 1526, gave notices of their acquaintance with it, yet still evidently as a rarity.

Caspar Bauhin, in his "Phytopinax seu Enumeratio Plantarum," published at Basel in 1596, first bestowed upon it the botanical names it still retains—*Solanum tuberosum*; and his description is also the first occurring that is full as well as accurate. Some of the particulars intimate a knowledge of the consequences of certain modes of treatment that we have been lately and, it would seem, mistakenly, considering of recent discovery. The root, he says, is round, but not completely so, of a tawny or dark reddish colour, and is usually dug out of the earth in the winter, being replanted in the spring. "Nevertheless, if left in the soil it will again vegetate in the spring. Very often the root becomes rotten after it has put forth the stem." It was known as the Spanish or Indian pappar, and endured without difficulty the climate of Europe, for he had seen it in the open gardens of some physicians in the Netherlands.

In his "Prodromus," published in 1671, Bauhin gives a drawing of the Potato, showing the tubers as both round and oblong, and enters still more fully into its description. He says it was first brought from Virginia to England, was thence exported to France, and from the latter country was distributed to other parts of Europe. In Virginia it is called *openawek*, as is stated by Peter Cieca, and in Gomara's History of the Indies. About Quito it was called *papas*, and thence it was sometimes called the Indian or Spanish *papas*, and in Germany *grubblingbaum*—that is, the tuber-bearing shrub. Bauhin says that he first delineated it in 1590 from a specimen in the garden of Dr. Scholtz, who probably received it from Clusius.

Peter de Sivry, Lord of Walhain, had the Potato in 1587 from a friend of the Pope's legate in Flanders. It was brought from Italy under the name of *tortufole*, a name applied to all underground tubers by the Italians. The Lord of Walhain gave two of the tubers to Clusius in 1588.—("Clusius Historia Plant.")

Our countryman, Gerarde, in 1596, specifies the Potato under the title of *Papus hispanicus*, in the catalogue of plants cultivated by him in his garden in Holborn. In his "Herball," published the year following, he describes the Potato accurately. After particularising the Sweet Potato, which he calls "Sisarum Peruvianum, sine Batata Hispanarum, Potatus or Potatoes," he proceeds to the consideration of the common Potato, under the title of "Potatoes of Virginia, Battata Virginiana sive Virginianorum et Pappus." The woodcut and the description demonstrate that the plant he had before him was our common Potato; and he proceeds to observe that "it groweth naturally in America, where it was discovered, as reporteth C. Clusius; since which time I have received roots thereof from Virginia, otherwise called Norembega, which grow and prosper in my garden as in their own native country." At the end of the preface is a portrait of Gerarde, and it deserves notice that he holds in his hand a sprig of the Potato—leaves, flowers, and fruit—as if he considered it one of the most remarkable novelties of his time. After stating the time of its blooming, &c., Gerarde adds, "The Indians call it *papus* (meaning the roots), by which name the common Potatoes (Sweet) are known to them. We have the name proper unto it mentioned in the title, because it hath not only the shape and proportion of Potatoes, but also the pleasant taste and virtues of the same; so we may call it in English Potatoes of America or Virginia. Being likewise a food, as also a meat for pleasure, either roasted in the embers, or boiled, and eaten with oil, vinegar, and pepper, or dressed any other way by the hand of some cunning in cookery."

In 1633 "Thomas Johnson, citizen and apothecary,"

published a new edition of Gerarde's Herbal, and it is very apparent that the Potato had then improved under cultivation, for the tubers there represented by him are large, and in form resembling the Julys now cultivated; whereas those portrayed by Gerarde are small and globular, like those produced by the plant in its wild state.

The positive testimony of Gerarde proves that the Potato was forwarded to him from Virginia; and how they reached that province of North America will be made to appear probable by the suggestions of Humboldt, which we will presently mention. Gerarde, we may conclude, received the tubers from some of the settlers in Virginia, who emigrated thither about twelve years previously, in 1584, under a patent granted by Queen Elizabeth to Sir Walter Raleigh. And thus much is certain, that in 1693 Sir Robert Southwell, President of the Royal Society, communicated to that learned body the fact that his grandfather first cultivated the Potato in Ireland, and that he obtained it from Raleigh. Tradition states further that Sir Walter himself also had the root planted on his estate near Youghall in the south of Ireland, and that he gave them to his gardener as a desirable fruit from America. When the berries were ripe in September the gardener brought them to his master, with the inquiry of disappointment, "Sir, are these the fine American fruit?" Sir Walter, either really or pretendingly ignorant of the Potato's habit, desired them to be dug up as weeds, and thrown away; but in doing this the tubers were revealed, and found to be the available produce.

Humboldt rationally concludes that the Virginian colonists obtained the Potato from the Spanish settlements, for it is quite clear that it is not a native of Virginia, nor even of intervening Mexico, and that it was cultivated in Spain and Italy before it was made known in England from Virginia.

Although the Potato was known to English botanists in 1596, yet horticulture was too ignorantly practised in this country to permit its rapid introduction among our cultivated crops. In 1619 Potatoes were here a desired yet expensive luxury; for in that year of James I.'s reign a small dish of them provided for his Queen's table cost 1s. per lb., when money was at least twice as valuable as it is now.

Potato cultivation spreads rapidly in Ireland, and it became established, it is said, in Lancashire and that portion of our northern coast still celebrated for its culture, owing to some being on board a vessel wrecked upon its shore. Yet the value of the root was not generally known at a still later period; for in a time of scarcity—namely, in the March of 1663—it required to be recommended as a crop of national importance in a letter addressed to the Royal Society. The writer of this letter was Mr. Buckland, a Somersetshire gentleman, and the recommendation was referred for consideration to a Committee of the Society. The report of that Committee was favourable, and the Society not only urged its cultivation to landed proprietors, but requested Mr. Evelyn to enforce the Society's opinions in his "Sylva," then publishing under its auspices, although it was no favourite with him, for in 1664 in his "Kalendarium Hortense," he says, "Plant Potatoes in February in your worst ground." Before the "Sylva" appeared—namely, in 1664—was published a pamphlet, the first devoted to the subject of cultivating the Potato, and bearing this prolix title—"England's happiness increased, or a sure and easy remedy against all succeeding dear years, by a plantation of the roots called Potatoes, whereof (with the addition of wheat flour) excellent, good, and wholesome bread may be made every year, eight or nine months together, for half the charges as formerly. Also, by the planting of these roots, 10,000 men in England and Wales who know not how to live, or what to do to get a maintenance for their families, may of one acre of ground make £30 per annum. Invented and published for the good of the poorer sorts by John Forster, Gent., of Harslop, in Buckinghamshire."

He says that the Potatoes he recommends for general cultivation "are the Irish Potatoes, little differing from those

of Virginia, save only in the colour of their white flowers. These roots, although they came at first from the Indies, yet prosper well in Ireland, where there are whole fields of them, from whence they have been brought into Wales and the north parts of England, where they likewise prosper and increase exceedingly." He recommends a dry well-drained soil for them, to be enriched with dung if necessary. Planting in March, with tubers cut into quarters or halves, to be buried 6 inches deep and 8 inches asunder. The roots, he says, may be begun to be taken up in September, and as wanted until March; so that even then it was known to the cultivators that the colds of winter would not destroy the tubers; and Mr. Forster further adds that the very small roots must be left in the ground to produce a crop the next year. In conclusion, he gives directions for making Potato bread, Potato biscuits, Potato pudding, Potato custards, and Potato cheese-cakes. The produce from good ground was three or four heaped bushels per rod. No one, he says, will grudge for them a shilling per bushel. Mr. Forster then considers the growth of Potatoes as a political question, and recommends the King (Charles II.) to order an importation of the root from Ireland; and that every man in every parish shall grow an acre or two; and that out of every £30 worth grown in a parish £5 shall be paid to the King! He concludes by stating how the Potato may be raised from seed instead of from the root.

Notwithstanding the widely disseminated opinions of the Royal Society, and these published appeals to the public, the introduction of the Potato as an object of cultivation was extremely slow.

Worldidge, in 1687, although he remarked that the Potato was then common in some parts of the Continent, merely suggests that they may be useful for swine or other cattle.

Houghton, writing in 1699, says they were then very common in Lancashire, being introduced from Ireland, and that they begin to spread over England. The roots were boiled or roasted, and eaten with butter and sugar!—"Collections" ii., 468.)

Sharrock, Ray, Lisle, Bradley, Mortimer, &c., writing at the close of the seventeenth, and early in the eighteenth century, make most slighting mention of the Potato; and even Miller in the 4th edition of his Dictionary, published as late as 1771, only mentions the same two varieties, the red and the white tubered, which had been noticed by writers a century his predecessors.

Salmon, who wrote in 1711, speaks of the Virginian and the English or Irish Potato as distinct kinds, though his description shows their identity—the only difference being that the colour of the skin of the tubers of the first was dirty white, and of the second red. "They are only nursed up in gardens in England and Ireland, where they flourish and come to perfection, prodigiously increasing to a vast plenty. The roots are boiled, baked, or roasted."—(*Salmon's Herbal*, 905.)

London and Wise, in the seventh edition of their "Compleat Gardener," published in 1719, do not even mention the Potato; but it must be remembered that this is only an abridged translation of M. Quintinye's work, published some years previously. However, even as late as about 1770, the Potato was not known generally in the south-western counties. Knight, writing in 1831, when he was seventy-two years of age, says—"I can just recollect the time when the Potato was unknown to the peasantry of Herefordshire, whose gardens were then almost exclusively occupied by different varieties of the Cabbage. Their food, at that period, chiefly consisted of bread and cheese, with the produce of their garden, and tea was unknown to them. About sixty years ago, before the Potato was introduced into their gardens, agues had been so extremely prevalent that the periods in which they or their families had been afflicted with that disorder were the eras to which I usually heard them refer in speaking of past events; and I recollect being cautioned by them frequently not to stand exposed to the sun in May lest I should get an ague.

“The Potato was then cultivated in small quantities in the gardens of gentlemen, but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities.

“The prejudices of all parties, however, disappeared so rapidly, that within ten years the Potato had almost wholly driven the Cabbage from the garden of the cottagers.”

Mortimer’s “Whole Art of Husbandry” was published in 1707, and a sixth edition in 1761, and in these the Potato is dismissed after a brief notice of ten lines, about half of which are occupied with these observations:—“The root is very near the nature of the Jerusalem Artichoke, but not so good or wholesome. These are planted either of roots or seeds, and may probably be propagated in great quantities, and prove good food for swine!”

One reason certainly that the plant remained so long in disrepute was the defective mode of its culture. This and ignorance of the proper mode of cooking the tubers would make them certainly anything but a tempting article of food. The following anecdote illustrates this:—“A person who had been invited to taste the first Potato planted in his own county of Forfar, N.B., about the year 1730, related that the roots had been merely heated, and that they adhered to the teeth like glue, while their flavour was far from agreeable. The food was thus about to be condemned, when the accidental arrival of a gentleman who had tasted a Potato in Lancashire caused the rejected roots to be remanded back to the hot turf ashes till they became as dainty as they had before been nauseous.”

According to the old statistical account of Scotland Potatoes were first cultivated in the field there in the year 1739 in the county of Stirling, and Dr. Walker assures us that they were not known in the Highlands and Isles till 1743. It is stated in the General Report of Scotland (vol. ii., p. 3) as a well-ascertained fact that in the years 1725-6 the few Potato plants then existing in gardens about Edinburgh were left in the same spot of ground from year to year as recommended by Evelyn; a few tubers were perhaps removed for use in the autumn, and the parent plants well covered with litter to save them from the winter’s frost. Notwithstanding the success that after this period attended the culture of the Potato among the cottagers, its progress among the higher classes in Scotland was retarded by the opinions of different writers on agricultural subjects already mentioned, and also, what is not a little singular, a mistaken zeal in religious matters made some of the Scotch folks hostile to the innovation. “Potatoes,” said they, “are not mentioned in the Bible!” and this was deemed a quite sufficient reason for rejecting them. Famine at last gave the great impulse to the cultivation of this root, and during the latter part of the eighteenth century its excellent qualities became generally understood.”

Such is the early history of the Potato—the most important of all root crops, and it is most gratifying to observe that the efforts that have been made in raising new varieties have been markedly successful. The degenerating theory is vanishing, and varieties are now raised that are better able to resist the attacks of the disease than at any time during the past thirty-five years.

SHOW AND FANCY DAHLIAS AT THE NATIONAL DAHLIA SHOW.

WITH a view to ascertain what are considered by the best growers to be the most reliable Show and Fancy Dahlias for exhibition purposes, I took down, with the kind assistance of a friend, the names of all the double flowers shown at the recent Exhibition of the National Dahlia Society. After tabulating the results thus obtained I found that about 700 Show and 300 Fancy Dahlias had been altogether exhibited, the former in 163 and the latter in seventy varieties.

Taking first the leading Show Dahlias, it will appear from the following list how many times out of a possible forty-two they were to be seen in the Exhibition stands. And to show how satisfactory, so far as they go, are the figures which precede the different names, it may be mentioned that although my friend and I wrote down the

names in alternate boxes throughout the Exhibition, yet we found on comparing results that in nearly every case we had entered each variety in our note books either the same or a very similar number of times:—

No. of times shown.	Name.	When sent out.	Raiser's Name.	Colour.
21	Hon. Mrs. P. Wyndham	1881	Keynes & Co.	yellow and purple
19	Henry Walton.....	1873	Keynes	yellow and scarlet
18	James Cocker	1871	Keynes	purple
18	James Vick	1881	Keynes & Co.	maroon
16	Goldfinder.....	1881	Fellowes ...	yellow and red
16	Prince Bismarck	1879	Fellowes	puce
15	Joseph Ashby	1879	Turner	orange
15	William Rawlings	1881	Rawlings	purple
14	Alexander Cramond ...	1872	Keynes	maroon
14	Ethel Britten	1880	Keynes & Co.	white and purple
13	Shirley Hibberd	1881	Rawlings ...	crimson
12	John W. Lord	1877	Keynes	buff
12	Mrs. Harris	1873	Harris	white and lilac
12	Vicc-President.....	—	Keynes	orange
11	John N. Keynes	1871	Keynes	yellow
10	Flag of Truce	1868	Wheeler	white and lilac
10	John Bennett	1875	Rawlings ...	yellow and scarlet
10	Julia Wyatt.....	—	Keynes	white
10	Royal Queen.....	—	Eekford	cream and crimson
9	George Smith	1879	Rawlings ...	magenta
9	Mrs. Dodds	1881	Keynes & Co.	white and lilac
9	Prince of Denmark.....	1881	Fellowes	maroon & crimson
8	Emily Edwards	1879	Keynes	white
8	Pioneer	1882	Fellowes	black
8	Walter H. Williams ...	1881	Keynes & Co.	scarlet
7	George Rawlings.....	1882	Rawlings ..	maroon
7	Annie Neville	—	Keynes	white
7	Clara	1879	Rawlings ...	peach
7	Duke of Connaught.....	1879	Keynes	crimson
7	Mrs. Shirley Hibberd..	1877	Rawlings ...	cream and pink
7	Ovid	1874	Turner.....	purple
7	Rev. J. Goodday	1879	Rawlings ...	maroon & purple
6	Burgundy	1877	Turner.....	puce and purple
6	Criterion	—	Edwards	rose
6	John Wyatt	1877	Keynes	scarlet
6	Joseph Green	1881	Keynes & Co.	crimson
6	Lord Chelmsford	1880	Keynes & Co.	maroon
6	Thomas Goodwin	—	Goodwin	maroon
5	George Dickson	1882	Keynes & Co.	chestnut
5	Joseph B. Service	1882	Keynes & Co.	yellow
5	Artiste	1877	Fellowes	yellow & carmine
5	Champion Rollo	1881	Keynes & Co.	orange
5	Constancy	1878	Harris	yellow and lake
5	H. W. Ward	1881	Keynes & Co.	yellow & crimson
5	John Standish	—	Turner.....	crimson
5	Modesty.....	1881	Fellowes	blush
5	Mr. Harris.....	1881	Rawlings ...	scarlet
5	Revival	1881	Fellowes	crimson
5	Rosy Morn	1879	Keynes	rose

Turning now to the Fancy Dahlias and treating them in the same way as the “Shows,” the principal varieties come out as follows. It should, however, be stated that in this case the greatest number of times which any one variety could be exhibited was twenty-one:—

No. of times shown.	Name	When sent out.	Raiser's Name.	Colour.
16	Gaiety	1879	Keynes	yellow, red, & white
15	Mrs. Saunders	—	Turner	yellow and white
14	George Barnes	1878	Keynes	lilac and crimson
12	John Forbes	1882	Keynes & Co.	fawn and maroon
11	Fanny Start	—	Pope.....	red and white
11	Oracle	1877	Fellowes	yellow & crimson
11	Henry Glasscock.....	1875	Keynes	buff and crimson
10	Jessie McIntosh	1880	Keynes & Co.	red and white
10	Miss Browning.....	1880	Keynes & Co.	yellow and white
10	Mrs. N. Halls	1881	Rawlings.....	scarlet and white
9	Rev. J. B. M. Canm ...	—	Keynes	yellow and red
8	Professor Fawcett	1881	Keynes & Co.	lilac and brown
7	Chorister	1881	Keynes & Co.	fawn and crimson
7	Egyptian Prince	—	Keynes	orange and red
7	Hercules	1877	Keynes	yellow & crimson
6	Flora Wyatt.....	—	Keynes	orange and red
6	Parrott	1873	Keynes	yellow & crimson
5	Annie Pritchard	1881	Keynes & Co.	white and lilac
5	Florence Stark.....	1879	Keynes	white and purple
5	Hugh Austin	1881	Keynes & Co.	orange and red
5	Miss Lilly Large	1876	Keynes	yellow & crimson

Messrs. Keynes & Co., to whom I am indebted for nearly all the dates given above, recommend the addition of the following—viz., to the Show varieties, 4, Canary; 4, Herbert Turner; 3, Henry Bond; 2, Lizzie Leicester; 3, Miss Cannell; 3, Mrs. Stancombe; 3, Mr. J. C. Reid; 2, Mr. Spofforth; and 2, Triumphant. And to the Fancies, 3, James O'Brien.

When glancing down the dates one cannot help being struck with the prominent position occupied by Dahlias of recent introduction, more than half the varieties named in the two lists having been sent out during the last four years, thus showing how rapidly both the Show and Fancy flowers are being improved. If we may judge by this one Exhibition alone the least constant of the best Fancy Dahlias appear to be—

Charles Wyatt, exhibited	four times as a Show	and	four as a Fancy.
Flora Wyatt	six	"	six
Frederick Smith	three	"	once
George Barnes	eleven	"	nine
Hugh Austin	five	"	five
James O'Brien	five	"	three

As many as thirty-eight Fancy flowers were in all staged in the Show classes against seventeen Show varieties in the Fancy division.

It is by no means claimed that the precise position given to the different varieties in the above lists is such as they would occupy in an extensive *Dahlia* election. In the absence, however, of any such election I have thought that the foregoing particulars, imperfect in some respects though they necessarily be, may at least prove of service to those of your readers who, like myself (and that principally through the lead given us by the National Dahlia Society), are beginning to take an interest in the cultivation of this grand autumn flower.—E. M., *Croydon*.

MR. GLADSTONE APPLE.

I HAVE been from home for some weeks, and in looking back over the Journal have met with an inquiry as to the origin of the Mr. Gladstone Apple. I had mine from a nurseryman named Jackson, of, I think, the Blakedown Nurseries, Kidderminster. I am not sure about the address, but I know his name was Jackson. I must have had mine about 1869, and I am not sure about the price at which the trees were advertised, but 10s. to 15s. each, or some such a price. I know it was very high because I hesitated about giving so much. Mr. Bunyard says it is weak-growing, yet it is a most healthy grower with me.—GEORGE LEE, *Clevedon*.

THE PHYLLOXERA.

HAVING had to battle with the phylloxera on a large scale two years in succession in a new range of vineries in these gardens a few years since, I heartily sympathise with Mr. Austen or any other gardener who may have to contend with this formidable Vine pest, knowing, as I do, the labour, thought, and anxiety as to the ultimate result of the treatment necessarily attending such an important and laborious proceeding. My experience of the phylloxera goes to show that it is in scores of vineries in this country unknown to the gardeners in charge of them, and, who, if asked if they had the phylloxera, would at once answer in the negative, as I have done more than once, in blissful ignorance of it being at the time in the vineries under my charge; and I may state that the ninety-two one-year-old Vines planted in the four new vineries here in the spring of 1879 were home-grown. A few days after making the discovery of the phylloxera being in all my new vineries, and in one of the old ones too, I paid a visit to a large neighbouring garden; and so convinced was I by the appearance of the Vines in some of the many vineries there of their being affected with the dreaded disease, that when I returned I communicated with the gardener, who happened to be from home that day. The result was his visit to me in the course of a day or two, and was made acquainted, not only with my fears respecting his Vines being attacked with the phylloxera, but also with the personal appearance of the insect itself in various stages of development. My friend was horrified with what he had seen—viz., thousands of the Vine-louse busy with the work of destruction on small pieces of fleshy Vine roots under a small microscope. The same autumn—a few weeks after his visit to me—he had to destroy the Vines in several of his houses in consequence of phylloxera being discovered on them. I mention these facts merely to show that gardeners who are unfortunate enough to get phylloxera in their vineries should, as soon as they make the discovery, disclose the fact to their employers and neighbouring gardeners, giving both microscopic views of the insects at work on the Vine roots with a view to the latter being able to recognise the disease should the condition of their Vines be such as to render an investigation of the roots for a cause necessary,

and to enable the former the better to understand the nature and magnitude of the work involved in the process of eradicating the most formidable insect enemy that Vine-growers at home and abroad have to contend with.

Notwithstanding my Vines being affected with phylloxera in 1879-80, they made good growth in the new borders and houses, but their habit of flagging in the presence of sunshine, together with the circumstance of yellow blotches appearing on the leaves, puzzled me not a little, until I made the discovery four or five months after planting, August 27th, that they had phylloxera. And here it may be interesting to note that the disease, in the gall as well as in the tubercle form, first showed itself on the only American (Strawberry) variety which we then had on the place, a fact which proves conclusively that the American varieties are not phylloxera-proof. Having tried various experiments and recorded the results with the Vine louse, my experience goes to prove that the only safe method of eradicating the phylloxera is the "stamping-out system"—viz., burning the Vines, removing the soil, and thoroughly disinfecting the house by washing the woodwork with soft soap and warm water, the brickwork several times with hot lime, and placing over the drainage (keeping close to the walls and piers) an inch thick of common garden salt, which will kill any affected or other roots existing among the latter. This operation should be proceeded with as soon as the phylloxera has been detected and permission obtained. Vine eyes having been secured from some good Grape-growing establishment, and heeled-in out of doors until the following January, they should be washed in warm water and then inserted singly in the ordinary way in 3-inch pots. The young Vines will be ready for planting in the newly-made borders in April, they having been transferred to larger pots during the interval, their roots and general condition being keenly and suspiciously observed during the process of potting and transplanting.

Experience also goes to show that if Vine borders could be completely submerged for a couple of weeks together in July, August, or the early part of September, when the phylloxera is in various stages of development—the young ones just hatched, full of activity and life—the extirpation of the pest would be effected. I am led to this conclusion by experiments made with the insects by immersing pieces of roots badly affected with the following results:—The insects which had been immersed for two days in clean water disappeared altogether, whereas those which had been placed in saucers of soot water (except the young ones) though drowned, had not vanished, but were rendered more transparent, from a yellow brown to a transparent and viscid colour, showing their lines and spots more plainly than before they were immersed and viewed through the same microscope. Experiments with Vines in pots also show that whatever liquid may be applied to a Vine border with the object of killing the phylloxera must have instantaneous effect—that is to say, it must be strong enough to kill the insects in passing through the soil without at the same time producing a similar effect on the Vines; and, in my opinion, that which shall succeed in doing the former will also accomplish the latter. Having in August, 1880, obtained that which I was refused the previous year—viz., permission to adopt the "stamping-out system," I immediately set to work as above described, striking and planting my Vines in 1881, and fruiting them the following year, their condition then and now being such as to justify the assumption of our having dissolved partnership, for ever, let us hope, with the phylloxera, which for two years had been to us an extra source of deep thought, labour, and anxiety.—H. W. WARD.

NOTES ON THE CHRYSANTHEMUM.

"A GROWER AND EXHIBITOR'S" seasonable note on the Chrysanthemum reminds me of a promise I made some time ago to note the result of Chrysanthemums cut down the last week in June and first week in July, as recommended by you on page 538, last volume. This was strange news, no doubt, to many who believed it impossible to obtain exhibition blooms from dwarf plants, the general idea being never to check the plants. Those who had the courage to adopt your advice will, if the plants have received attention, be rewarded with sturdy specimens from 3 to 4 feet high. They who have not as yet obtained the flower buds must not blame the system, but attribute their failure to starvation. Far north the buds will be now showing. I was doubtful at the time about cutting down some varieties, fearing that the buds would not form or be very late, but I am perfectly satisfied with the result up to the present time; for plants so treated began to show buds, the earliest varieties the second week in August, the remainder up to the first week in the present month. It is impossible to say yet what the flowers will be, but if stout wood and plump buds afford any criterion to judge by they ought to be fine. The only varieties that did not break well with me this

season are Prince of Wales, Nil Desperandum, and Jardin des Plantes.
—C. WARING.

MONTBRETIAS.

THE genus *Montbretia*, though small, consists of very showy bulbous plants, which are oftener placed in the greenhouse or bulb pit than out of doors; yet most of them are hardy, and with a little care in choosing a sunny situation, with light soil, they will stand our severest winters. The following are a few of the best.

Montbretia Pottsii, Baker.—The subject of the woodcut (fig. 47),



Fig. 47.—*Montbretia Pottsii*.

was introduced by Mr. G. H. Potts of Lasswade, Edinburgh, and is one of the most valuable additions of late years to our hardy Cape bulbs. It possesses the habit of *Irids* with a combination of the small scariose spathe valves of *Ixia*, and the irregular funnel-shaped perianth and parallel unilateral stamens of the *Gladiolus*. It is unusually large for a *Montbretia*, being between 3 and 4 feet high; leaves four, in a rosette at the base of the stem. The flowers, of which there are from twelve to twenty on each of the five or six spikes, being of a very bright reddish crimson, give the plant a very pleasing effect, especially when in clumps. It flowers from August to September, and should find a place in every collection of hardy bulbs.

M. rosea, Baker.—Similar in habit to above, but having bright rose-coloured flowers with longer tube and larger segments. Very desirable.

M. crocosmaeflora (Belg. Hort. t. 14, 1881) is a hybrid between *Tritonia aurea*, which it much resembles, and *M. Pottsii*, raised by

M. Victor Lemoine. It has the habit of a *Gladiolus*, with an erect many-flowered panicle arranged in a zigzag fashion. Flowers large, orange scarlet, funnel-shaped, tube slightly curved, with three deflexed stamens. A plant that should have a place in every garden.

M. securigera, D.C.—Named from a supposed resemblance of the three projecting lamina or thin plates contained in the flower to a hatchet. Introduced more than a century ago by Mr. Masson. The flowers are of a beautiful copper colour borne on a more or less branched stalk; outer valve of spathe three-toothed; leaves smooth. Flowers in May and June.

M. flava, Klatt.—Introduced first by Colonel Paterson in 1780, is closely allied to the above, but differing in having the bracts acuminate, the whole corolla intensely yellow, and broader leaves. The spots from which the three prominences of the corolla arise have been designated "nectarostigmata." This is a very pretty dwarf species, with large flowers and flat lanceolate leaves. Flowers March and April.

M. lineata, Baker.—Larger than any of the preceding. The flowers, which are of a delicate straw colour, are curiously pencilled with dark lines, which make it as much an object of admiration as brilliancy of colour does in the others. It grows about 2 feet high; leaves well marked by a prominent midrib. A very desirable plant.—D.

PROPOSED INTERNATIONAL EXHIBITION OF VEGETABLE PRODUCTS.

AN announcement having been made, and apparently official, that an International Horticultural and Forestry Exhibition would be held at South Kensington next year, letters on the subject have appeared in the press appealing for support in the undertaking. These letters have been followed by other announcements; and when we see two in the same issue of one journal, one asserting that the Exhibition will undoubtedly be held next year, the other that it has been postponed till 1885, it is at the least conceivable that the public mind is becoming somewhat perplexed on the subject. Although we do not pretend to speak with an authority that cannot be questioned relative to what will be done in the matter of an International Horticultural and Forestry Exhibition, we think we may venture to predict that no such Show will be held next year, and that when an Exhibition is held it will be on a much larger scale and be much wider in its scope, far more varied, interesting, and instructive than any mere display of flowers could be, even if supplemented with everything that pertains to horticulture and forestry.

There has been a lingering feeling for some years past throughout the country that there ought to be a repetition of the Great International Horticultural Show which was held at South Kensington in 1866. The success which attended that undertaking was so great that many felt assured that there wanted but the needful effort to secure an equally successful result; but those who were engaged in the former knew too well the risks that were run, and the narrow escape from its being a failure, to run heedlessly into such another adventure. There is no question that the resources of this country are sufficient to produce a grand exhibition, but whether a display of plants and flowers on a scale of great magnitude can be maintained for six months is quite another matter. Past experience on this point is not encouraging. We cannot forget, nor would it be prudent to endeavour to do so, the extreme difficulty that was experienced in inducing exhibitors at the great Show just alluded to, to permit their valuable productions to remain for a few days beyond the prescribed time to avert a crushing financial failure. If there was a nearly insuperable difficulty, as there undoubtedly was, in maintaining a magnificent show for a fortnight, would the difficulty not be increased in supporting an exhibition worthy of the nation over a period of half a year? A protracted horticultural exhibition on a large scale cannot be held without an enormous outlay of money and great risk of loss. The public of this country have been familiar with flower shows of every extent and variety for many years, and to expect that one on a scale however extensive would be an attraction for any length of time would, we fear, be disappointing. If, however, a horticultural exhibition on an extended scale were to be associated with some kindred objects we see no reason why it might not be carried out to a successful issue.

For examples of exhibitions of plants and flowers stretching over a season we must go to the European continent and to America. Has any one such exhibition been maintained in anything approaching the manner that would meet the expectations of horticulturists and the public in this country? Has there been any one of those efforts that in itself would have been even half self-sustaining? From time to time we willingly concede an imposing spectacle has been produced at home and abroad, but it was transient in comparison with the project alluded to. On the occasions referred to horticulture was represented with other arts, not independent of them. It may be said that the Exhibition announced is to be held in conjunction with forestry. Great as the result might be, we are convinced it would fall short of public expectations, and it would not be worthy of the opportunity that is now presented of having, what has never yet been seen, an exhibition of the vegetable products of all the world. The Fisheries Exhibition is great and wonderful in its

diversity, but far greater and even more wonderful and important would be an exhibition of vegetable products, with illustrations as far as practicable of the methods of preparation and manufacture. We cannot conceive of any combination that would make a more interesting, instructive, and a more attractive exhibition. The buildings that are now at South Kensington would be admirably adapted for such a purpose, and if the Committee of the Fisheries were to undertake it with the same energy and intelligence with which they have worked the Fisheries Exhibition, there can be no doubt whatever that it would be a grand success.

What we propose, then, is that there should be an exhibition of horticulture, forestry, and vegetable products. The main body of the exhibition would consist of the two latter. In forestry we should have not only illustrations of the subject as it is practised in this country and the other countries of Europe for the supply of timber for commercial purposes, but that it should embrace representations of all the woods of the natural forests of the United States of America, our own colonies, India, China, Japan, and of the governments of South America; specimens of the timber cut and polished, and transverse sections of the trees. Living trees of the forests of temperate regions might be planted in the open grounds of the garden, the seeds and fruits could be shown in the galleries along with the woods, and the living plants of tropical trees could be shown in a house specially set apart for them. Every manufactured product of these trees might also be illustrated.

Then there are the plants cultivated for their fibre—Hemp, Flax, Cotton, Jute, China Grass. There might be not only illustrations of the plants in all their stages, but also of the industrial element. What more interesting than to see an Indian at his loom weaving Dacca muslins; the various processes for the preparation of cotton from the pod to the spinning jenny; the hemp industry; a rope walk, and the making of twine; straw plaiting, and the employment of straw, esparto, and other fibres in the great paper-making industry; food products, such as cereals, and their methods of preparation from the mill to the oven; pulse, and their products of herbage and forage; plants for supplying beverages, and methods of preparation—tea, coffee, cocoa, wines, hops, beer; starch, and its preparation from Rice, Potatoes, Wheat, &c.; also arrowroot, cornflour, and articles of this nature in use by the million, but of their origin and preparation the million are practically ignorant; plants furnishing the materia medica, with specimens of the drugs, and information relative to the sources from which they are drawn and how obtained; tobacco—the manufacture of cigars in operation; sugar—with examples where practicable of preparation from Cane and Beetroot; preserves and pickles—the various methods of preparing fruits and vegetables could be fully represented, and the magnitude of this industry exemplified; plants cultivated for their uses in the arts—caoutchouc, gutta percha, with the manufacture of water-proofs represented; also plants cultivated for their oils, dyes, perfumes, and tanning, with examples of obtaining and applying their products.

This is a hurried outline sketch of our project, but we believe it is sufficient to show that it will form a strong and sure basis for an exhibition of far-reaching interest and importance. Add to this the appliances in connection with forestry and horticulture, tools, machinery, structures, methods of heating, and every adjunct in connection with woods and gardens, models of roots and fruits, cones, seeds, also zoological museums of beasts, birds, and insects as friends or enemies of the cultivator. Nor would we overlook the curiosities of vegetation. From the museums in this country, and with examples from foreign lands, we feel sure that a collection of objects of a very extraordinary nature could be arranged that would be a source of great attraction to visitors.

With the same agency that has worked so effectively in producing the present Exhibition at South Kensington, at least equally great results might be achieved in carrying out this project. Through the Colonial and Foreign Offices every country would be reached, and every country would be ready to represent its staple industry obtained from vegetable products, while each having its court and native workers, would powerfully attract attention to its own industry, the vast area of buildings would be filled without difficulty, and an exhibition of extraordinary interest and irresistible attractiveness would be produced.

Nor would all this in the slightest degree detract from the extent or beauty of the exhibition or exhibitions of plants and flowers already proposed. We can see no obstacle whatever to holding, say, monthly exhibitions throughout the year, and one of them, say in May, to be as rich and on as large a scale as that of 1866, provided sufficient inducements are provided to bring the best examples of culture together at a given time. Besides and between these shows nurserymen might presumably occupy space with Clematises, Pelargoniums, Rhododendrons, Roses, fruit, &c., and thus in some measure a continuous display would be produced to brighten, what if well carried out, would be the most complete exemplification of the resources and importance of the vegetable kingdom ever seen in any country.

As at the present Exhibition, where cheap fish dinners are provided for the masses, so in the one contemplated the Vegetarian Society would no doubt be glad to provide at the least equally cheap dinners, nutritious and toothsome, composed wholly of vegetable food; and it will be conceded that instruction on the best methods of preparing vegetables and fruit for culinary purposes is as much needed as the popularisation of fish as an article of diet. This aspect of the case demands, and will no doubt receive, particular consideration.

It will be manifest, however, to most who fully consider the matter, that such an exhibition as the one indicated could not possibly be carried out next year. Even a purely horticultural and forestry

exhibition, especially the latter, could not be satisfactorily arranged so soon; and we have reason to believe that the more comprehensive and immeasurably more important project having been favourably entertained by the official authorities of the "Fisheries," has led to the announcement that a great Exhibition will be held in 1885, this having been decided at a preliminary meeting of the authorities held at South Kensington on the 12th inst. There is good hope that the greater Exhibition contemplated will be held, and we have only to add that the sooner a decision is arrived at, and the necessary machinery is put in motion, the better. The undertaking will be a gigantic one, but the same energy that has been displayed in preparing for and providing the great Exhibition of the present year will be fully equal to the task of providing another exhibition, essentially different, equally great, and certainly of not less public importance in 1885.

[Since the above was in type we have received a letter written by Mr. E. Cunliffe Owen, by request of Mr. Birkbeck, to Mr. Wills, requesting him "to use his influence to notify that an International Horticultural and Forestry Exhibition will be held in the spring, summer, and autumn of 1885," and desiring that the trade should be informed of the fact as early as possible.]

NARCISSI.

THE pleasure derivable from these plants is very great, and it will be increased as fresh additions are made to those already known, mainly, perhaps, through the selection of seedlings and cross-breeding. Perhaps there will not be a much larger accession of species or natural varieties made to the already large series under cultivation. The large number of varietal forms now within reach of all fanciers materially assist to render a collection of Narcissi even more attractive. Undoubtedly there is a sameness about many of the incomparable section under various names, the authors of which would most likely experience some difficulty in defining the points of difference between some of them. Under my care is a collection of these bulbs, numbering about 220 forms, and after closely comparing several alluded to last season these were reasonably reduced, or some discarded as named kinds, and planted in the borders as mixtures because they are all beautiful. We may not expect much additional merit from the Peerless section of Narcissi, but without doubt many fresh and improved forms will be obtained from the Trumpet section, and in my opinion these are the most desirable, being more effective as garden ornaments and more graceful. My desire is to get all the Trumpet forms available and make the most of them.

But my object in making these remarks is not to discuss their merits, for they are already determined, but to draw attention to the fact that it is time the bulbs were planted for next spring's display. Nothing is more prejudicial to good flowering than late planting; therefore those who intend growing them should without any delay make their selection and plant, or, if the bulbs require raising and dividing, this should also be effected, as they are now, or will be speedily, in full root-action again, which it is, of course, unreasonable to disturb. I never allow bulbs to remain in the same position more than three or four years. Thus some were raised last season which had been planted four years, and another batch has been lifted this season. A large number of small bulbs we found by that period, which form a dense mass, and as a result smaller flowers are produced than is the case when the bulbs have ample space for development. Well, now, as the arrangement to be followed wherever practicable, it is best to have all the kinds planted in one bed or border, so as to have the entire collection together—an advantage which will be appreciated, as it not only affords facilities for comparing the varieties, but the effect is much better. This plan is objected to by many for the reason that there is a bare bed during the greater part of the summer months; but this need not be, for it can be furnished with a host of annuals or bedders—*e.g.*, one of my beds is now well covered with Mignonette, which is invaluable for cutting as well as affording rich perfume. Numerous annuals may be planted between the lines of Daffodils without injuring them in the least, and thus a longer succession of flower may be had than if no bulbs were planted. Many growers arrange them in clumps in the mixed border—a plan, too, which has its advantages, especially if the collection is limited, as the flowers are extremely beautiful interspersed with a multitude of other spring flowers. Wherever this plan is adopted each patch should be labelled or marked in some way, or the chances are they will be very much disturbed, if not destroyed, by someone, who could not even be blamed for doing so; besides, in all successful garden operations there must be a thorough system of working.

There are two points of culture, the observance of which I find materially beneficial—*viz.*, deep digging, and a copious supply of good manure. The bulbs send roots straight down into the soil, so to be of special good the manure should be buried deeply in the first planting; and every year after the first planting it is advisable to give them a mulching of manure in early autumn, which is best effected by removing the soil nearly to the bulbs, put the manure in

the opening, and cover again with the soil; the maximum of advantage is thus secured. This method of planting is easily accomplished if all the varieties are arranged in one bed or border, but in the mixed border it is different. It will be necessary to dig holes a foot or more deep, arrange the manure in the bottom, placing some soil over it, upon which plant the bulbs—say about 4 inches below the surface. A few species are benefited if some sand is placed about the bulbs, especially if the latter are inclined to decay at the base; this effects drainage, and is helpful in other ways, but the majority do not require such attention. It is remarkable the length of time some kinds will lay dormant after being imported; especially is this the case with the North African species—*e.g.*, bulbs of the rare *N. Broussonettii* were spotted three years before they showed signs of foliar development, and during the spring and early this year it produced leaves 30 inches long, and I hope to see flowers of it next year; and the little bulbs of *N. monophyllus* remain dormant for a year or two, or even longer sometimes after being imported. This little gem does well in a few places outside, but in most it requires the protection of a frame or handlight.

Below is a list of species and varieties all worthy the space in however select a garden they may be planted, and to which many might be added, but these will serve as a good nucleus to a more extended collection:—

SECTION 1.—THE TRUMPET DAFFODILS.

N. bicolor.—The typical form is later in flowering than most of the varieties here enumerated—very desirable on that account. I noticed they flowered with me in the following order:—Horsfieldi, Empress, Albidus, Sulphurescens, Major, and the type. Such a series lasting a considerable time; indeed, they formed the most attractive group during the season. Horsfieldi is dwarf and very free, with white perianth and deep golden yellow trumpet. Empress is very similar in flower, but there are points of distinction, but is a more vigorous grower, and one of the finest of all Daffodils. Albidus and Sulphurescens are two very desirable kinds, the trumpets yellow and the perianths sulphur, very large bold flowers. Major is in the same way, but with very fine stout flowers, extremely vigorous, and late flowering. I have also J. B. M. Camm, and one named in honour of Mrs. Camm, but as my bulbs were small they only produced moderate flowers this year, but they are very promising varieties, and will most likely hold their own.

The *Silver Daffodils* (*N. cernuus* and *moschatus*) are both very charming kinds, the perianths and trumpets of a pale straw colour, very silvery in *cernuus*, and they are sweetly scented, especially *moschatus*. *Cernuus pulcher* is a very handsome form, with a larger trumpet than the type, while the double variety is charming but unfortunately very rare. I know of one place where a good bed of it has existed for years undisturbed.

N. lorifolius is a free and showy species; perianth sulphur, trumpet yellow; but a variety of it under the name of Emperor is vastly superior as a decorative kind. The flowers are larger and with more substance in them—a fitting companion for Empress.

N. pseudo-Narcissus (the common Lent Lily) is by no means a despicable plant—on the other hand, very desirable. The variety *pallidus* is extremely pretty, the perianth and trumpet pale sulphur, flowering early. *Plenus* is extremely pretty and scarce, the segments bright yellow and sulphur, evenly arranged and sweetly scented. I prefer this to any other double Daffodil under cultivation.

N. minor.—The true variety is very distinct from *nanus*; it is deep yellow, whereas *nanus* is much paler, and the trumpet is longer and more deeply frilled round the margin. *N. minimus* is a minute fac-simile of *minor*, the flowers little more than half an inch across and not much longer. It is very rare.

N. princeps.—A very noble Daffodil; the perianth pale sulphur, trumpet deep yellow, very long and heavily frilled, rather late in flowering, and certainly one of the finest though not much known—more is the pity, as it can be purchased at a low price.

N. maximus.—Undoubtedly the finest yellow Trumpet. What a sea of gold is a large bed of it! The perianth and trumpet are intense golden yellow, the latter dilated and deeply frilled at the mouth. Indispensable in every collection. Major, a less double kind, is frequently palmed off for it, but it is not nearly so good.

The *Tenby Daffodil* (*N. obvallaris*).—A deep yellow, almost a self; one of the best. A form of it named *maximus* is also good.

N. lobularis.—A grand Daffodil, dwarfish, with a sulphur perianth and yellow trumpet. A duplex variety of this named *grandiplenus* produces dwarf very double flowers, very showy, and is frequently sent out under the name *nanus plenus*, but a double form of *nanus* does not exist, as far as I know.

SECTION 2.—N. POETICUS.

The *Poet's Narcissus* (*N. poeticus*).—Well known and admired, with large, flat, pure white perianth and small orange-coloured

corona; highly esteemed for its purity of colour and perfume. There are several varieties of *poeticus*, which are so far distinct that they flower at different periods, without considering the slight floral differentiations, thus forming a beautiful successional series—flowering, if my notes do not misguide me, in the following order:—*angustifolius*, flowers rather smaller than those of the type; perianth flat, segments narrower, light red cup. *Ornatus*, flowers larger than the last; cup lemon edge with orange-red; very fine. *Flore-plenus*, flowers large, very double, and—Gardenia-like—sweetly scented; one of the most valuable for cutting. *Grandiflorus*, flowers larger than all, flat, pure white with crimson cup; a very fine form. *Recurvus*, perianth white with the divisions recurved, with a pale orange-red cup.

N. gracilis.—A slender-growing charming species with umbels of flowers; perianth about 1½ inch across, yellow; the cup small, rather lighter in colour; flowering with the Poet's Narciss. *N. biflorus*, the common Twin-flowering Narciss, very free-growing and hardy, increasing rapidly, forming dense clusters of umbels; the flowers white and yellow. This is a native species, and can be purchased very cheaply.

N. Burbidgei.—This is but a sub-species, originated among Mr. Barr's great collection, and I class it with this series. What may be regarded as the type of this group produces flowers with flat white perianth and cinnabar-red cups, the latter small but rather larger than those of *poeticus*. From the numerous forms of *Burbidgei* I select the following as being the best:—*Delicatus*, large flowers; perianth light sulphur, cup yellow, very clear; a very charming variety. *Grandiflorus*, perianth white, cup deep red edged with orange; flowers large and very showy. *Marginatus*, perianth white, cup lemon margined with deep orange. This is extremely pretty, and, in my opinion, the best of the series. *Primulinus*, perianth light primrose, cup deep cinnabar red; a very attractive variety. But I must not occupy more space in describing other varieties, but it is really difficult to stop where all are good, and we must not forget that the sub-species is named in honour of Mr. F. W. Burbidge, the "Daffodil's artist."

SECTION 3.—MEDIUM-CROWNED, INCLUDING THE PEERLESS, MONARCH, AND MOCK NARCISSUS.

The *Peerless Narcissus* (*N. incomparabile*) produces umbels of yellow and sulphur-coloured flowers, with large flat perianths. There are now, however, such a multitude of varieties that it is difficult to select the best without taking into consideration all the sub-species which have been made, and these appear ever to be on the increase. But how slight are the variations upon which they are based! Thus we have *Barri*, *Leedsi*, *Nelsoni*, and *Vincenti*, and around these are arranged a series of varieties, but I am at a loss to discover the points of difference between the types, saying nothing of the distinctions between many of the forms. Of the *incomparabilis* section proper I may mention the following:—*Albidus*, perianth pale sulphur, very large and regular, cup clear yellow; *aurantius*, perianth sulphur, cup deep orange red, very showy; *albus*, perianth white, cup deep yellow; *albus aureo-tinctus*, perianth white, cup lemon-coloured, margined and tinged with orange; *Crawfordi*, perianth white, cup large, clear yellow; *magnificus*, perianth pale sulphur-white, cup very large, deep yellow, very showy; *plenus aurantius* (Orange Phoenix, "Butter and Eggs"), large double flowers, primrose and deep orange; *pl. sulphureus* (Sulphur Kroon, "Codlings and Cream"), very large double flowers, white and primrose, very showy; *sulphureus*, perianth sulphur, cup large, deep yellow.

N. Barri, perianth pale primrose, cup clear yellow, very pretty; *albidus*, perianth nearly pure white, flat, large, cup deep lemon; *aurantium grandiflorus*, perianth very large, pure white, cup deep orange crimson; this I considered the showiest of all this section. *Stellatus albus*, perianth white, the divisions slightly stellate, cup sulphur; *sulphureus*, perianth pale sulphur, cup deep yellow; this is, perhaps the second best of the series.

N. Leedsi, perianth white, very ample, cup of nearly the same colour or very pale lemon; *amabilis*, perianth pale yellow, cup lemon, very delicate and beautiful; *Gem*, perianth large, pure white, cup lemon; this is one of the best of this group. *Superbus*, perianth silvery white, very even, cup very pale straw colour or quite white; truly a superb variety.

THE JONQUILS.—*N. odoratus*.—These belong to this section, and are almost indispensable for the borders or pot culture. The common single and Campenelle varieties are much esteemed for the deep yellow sweetly scented flowers; minor produces very small rich-coloured flowers. The Silver Jonquil is *N. tenuior*, and a charming little kind it is with its small silvery white flowers. The double form of this is called "Queen Anne's Double Jonquil." The flowers are very double, creamy white, sweetly scented. All these are very easily grown, and none are expensive, so there is no reason why they should not be much more abundant in our gardens than they now are.

N. triandrus.—A very charming species; the perianth primrose, with the segments sharply reflexed like a Cyclamen; cup small, rather paler in colour. A variety of it exists under the name of *albus*, the perianth of which is creamy white. Both are peculiarly handsome and very distinct, requiring a cool damp situation in which to flourish.

N. juncifolius.—A pretty dwarf-growing species with narrow Rush-like foliage and umbels of small Jonquil-like flowers of a deep-yellow colour, quite hardy, and a little gem in its way.—DAFFODIL.

POTATOES.

I HAVE often wondered if other people's experiences in the matter of Potato-growing were anything like mine. I think mine must be peculiar, though they come to me every year as regularly as lifting time comes—nay, indeed I begin to taste some of the bitterness of them by mid-summer, and I go on tasting, the bitterness getting more bitter, even to nausea, until by the time the Potatoes are ready for lifting I am disgusted. These experiences nearly always result in the following conclusions and resolutions—never to grow a long-topped Potato in the garden again, and never to grow an American variety in the garden, let it be ever so much praised, and never to indulge in more than one novelty in a season. If I could only keep that last resolution I should do, but I am afflicted with the Potato fever every spring time, and of course I get all the catalogues of Potato people, and I swallow every word they say about their new and "improved" varieties, and I order some of them, and devote some of the best ground of my garden to them, with the annual result that I have grown a crop of no use except for the pigs; the ground that they occupied is therefore wasted, because the Potatoes grown there are worthless to me for eating purposes, while the after, or winter crop, that must occupy all my Potato land, has been murdered by the sprawling tops of these new and improved varieties of Potatoes. But why cannot I learn sense and have done with novelties for ever? I do seriously wish that I could form and keep such a resolution firmly.

Let us start a company of gardeners (this is the age of companies, you know), shares nothing, expenses ditto, but profits tremendous, the principle of which shall be that no member of this company shall try more than one novelty (in anything connected with gardening) in one season; the penalty for non-observance of the principle of the company being that the member so offending shall the next season try and prove, and report upon all and every novelty in seed or plant or root that is sent out. But seriously, it is very unwise for a gardener to use his land in growing something new, and which may prove worthless, and neglect to grow those things which he knows will probably yield him solid and satisfying produce. I am afraid, however, that many do it, and often get themselves into difficulties by so doing. It is much wiser to grow those sorts of Potatoes, and those only, that experience has taught each gardener do the best on his land and suit his after crops. You will see that I am trying to build myself up in a good resolution. I trust I may succeed. I wish some other gardener would say that he has done the same as I have done, but that he does not intend to do so any more. It would be a great comfort to me; and, by the way, we two would form the nucleus of the company that I have hinted at.—H.

GAILLARDIA PICTA VAR. LORENZIANA.

FROM the reports of this I expected great things, and am somewhat disappointed. Some few plants which were raised late last winter were kept through and propagated by cuttings, which is an easy matter, and these we have grown on as pot plants. Certainly so grown and secured to stakes they are neat and floriferous, but it was as a border plant I expected it to excel. This it has not done, and is not nearly so showy as the old *G. picta*. Neither in pots nor in the borders does it open properly, not one in 200 plants being properly double and worth saving. It varies a little, and with us comes under three varietal divisions—namely, red florets with yellow tips, purple florets with yellow tips, and pure yellow, which latter I think the most valuable. Whether attention in selecting seedlings will ever give us a fully double flower or not is a matter for the future to prove; but if ever success be attained one great drawback seems inevitable, and that is the tendency, during the long process of development, for the outer florets to wither and fall before the inner ones have nearly become developed. The new variety, to my thinking, is not nearly so valuable in any way, for cutting or otherwise, and does not come nearly equal to the old one for brightness.—M. B.

CALIFORNIA LILIES.—Dr. Kellogg, of San Francisco, who has given much attention to raising the California Lilies, finds *L. Washingtonianum* to be the most difficult to raise successfully. "The last time I was out," he writes in the *Pacific Rural Press*, "I took a thermometer to find the temperature where it thrived best in a wild state, also to consult the conditions under which it grew. There is one fact connected with the subject that if followed up might throw great light upon the culture of California bulbs. It is one which I have intended to investigate myself, and the only reason I have not is the distance and mountain-climbing necessary to accomplish it. It was a case of the Washington Lily growing in the basin of a rock. The remarkable feature of this was, the bulb was as large as the top of one's head, and lying upon the ground

were stalks 12 feet in length, carrying from fifty to one hundred flowers. Now, if anyone could investigate the condition under which this growth was made, it seems to me that it would throw great light on the subject. This Lily, nor a great many other bulbs in California, will not grow in sand. I have seen a great variety of bulbs grow in these rocks where, in rainy seasons, they get a great deal of moisture. *Lilium Humboldtii* will grow in California. These seem to require the morning sun. Down below Santa Barbara one may go up a ravine, and if the ravine runs east and west, the Lily will always be on the northern slope, and perhaps on the other side not one will be found. Where the sun strikes when past the meridian you will not find a solitary one growing—that is, where there is no timber; but if the ravine is shaded, trees growing over it, protecting it from the afternoon sun, it will grow on one side as well as on the other. As regards soil, a strong loam for *L. Humboldtii* would be better than leaf mould."



IT has been already announced that an INTERNATIONAL FORESTRY EXHIBITION is to be held in Edinburgh next year, and we learn that the Queen had accorded her consent and patronage to the project.

— THE Brighton Corporation has recently purchased PRESTON PARK for £55,000, and it was opened last week, but a formal presentation to the public will not take place until the grounds have been laid out.

— MR. T. S. WARE, Hale Farm Nurseries, Tottenham, has now a very extensive display of SINGLE DAHLIAS, comprising a great number of varieties, representing many fine shades of colour from pure white, through yellow, orange-scarlet, crimson, maroon, rose, and blush.

— THE Reading Horticultural Society announce their intention to hold an EXHIBITION OF CHRYSANTHEMUMS on November 22nd of the present year.

— GARDENING APPOINTMENT.—MR. W. POPE has been engaged by the Earl of Carnarvon as gardener at Highclere Castle, Newbury, Berks, and enters upon his duties in October.

— A VERY handsome PRESENTATION TO MR. WILLIAM TAYLOR has been made by the Marchioness of Bath. It consists of a valuable and very beautiful drawing-room clock. A letter from her ladyship to her late gardener has enhanced the value of the gift. It is one of those frank, friendly, and appreciative communications which the truly great can afford to write to those who have served them faithfully and well. This letter and the present alluded to are deservedly prized by Mr. Taylor and his family, who are now residing near Bath.

— WE are requested to state that Mr. T. H. Hill, gardener to Mr. A. W. Ruggles Brise, of Durwards Hall, has lifted a root of the "Mr. Bresee Potato," grown with native guano, containing thirty-seven potatoes. The six largest weighed 2 lbs. 1 oz.; 1 lb. 2 oz.; 13 oz.; 12½ oz.; 9 oz.; 8 oz. The whole root weighed 13 lbs. 3 oz. This prolific crop has been sent by the grower to be exhibited at the Native Guano Company's stand at the Fisheries Exhibition.

— MR. J. F. MOULD, nurseryman, Pewsey, draws our attention to two mistakes in our report of Bath Flower Show on page 226. The third prize for nine stove and greenhouse plants in bloom was awarded to him and not to Miss E. Browne; the second prize for six Heaths was also awarded to him, not to Mrs. General Studd. Mr. Mould was also awarded the third prize for sixteen foliage plants. This was not the fault of our reporter, but of the system of attaching the prize cards.

— IN the centre of the transept at the Crystal Palace an improvement of considerable importance has been recently effected—namely, the construction of a circular FERN DELL AND FOUNTAIN, which affords a most pleasing break in the hitherto unoccupied space between the organ and the theatre. The sides are covered with ornamental cork and planted with Ferns, at the base being some rougher pieces of rock; and from these the jets arise—one in the centre, which ejects the water to a considerable height, and five or six smaller ones around it. On the upper margin is a narrow border planted with Ferns and Sela-

ginellas, graceful Palms in pots being employed to add to the effect. It is perhaps doubtful if the Ferns around the sides will endure the constant and rather heavy fall of water from the jets, but in any case the fountain must be considered a decidedly attractive feature.

— "D." sends the following note respecting PRIMULA FLORIBUNDA—"This little-known plant is a native of the Himalayas, and is found as low as 2500 feet. It belongs to the small section with the leaves folded down the middle on the upper face. Leaves spreading, ovate, or obovate crenated, about a foot high, thickly studded with golden-yellow flowers having a long tube. It requires rather a sheltered place on the rockery, otherwise it will prove rather troublesome to get established. It flowers all through the summer. A figure is given in the 'Botanical Magazine,' t. 6712."

— THE plants in the PALM HOUSE AT KEW are being very carefully rearranged, and, judging by what has been already effected, a most valuable improvement in the appearance of the house will result from the alterations. There are numbers of grand specimen Palms and other plants, the beauty of which has been hitherto in a great measure concealed, but efforts are now being made to place these in more conspicuous positions, and in several cases this has been most satisfactorily accomplished. The rods for climbers from the path to the roof have been removed, as it was found they interfered too much with the view of the central beds, while the climbers on the roof itself have been also thinned with advantage to the plants on the shelves. This magnificent house well merits the attention it is receiving at the hands of the officials.

— IN the succulent house of the above establishment the Stapelias are now in excellent condition, a very large and complete collection having been formed. Several are flowering, but the most striking of all is STAPELIA DE SMETIANA, which has flowers 6 inches in diameter, of a peculiar purplish hue, and thickly covered with hairs. The pretty and well-known striped *S. bufonia* is also flowering, and with others similarly foetid proves very alluring to numbers of insects.

— "G. N." writes—"It is a matter of surprise to me that contributions of novelties or rarities at the Royal Gardens, Kew, are not occasionally sent to the meetings of the Royal Horticultural Society at Kensington, as small collections of very great interest both to horticulturists and botanists might frequently be exhibited with very little trouble or expense. The Kew collections shown at the Linnean Society's rooms on various occasions prove what a store of valuable, beautiful, and curious plants they have to draw from."

— THE acquisition of the extensive grounds of the ALEXANDRA PALACE by the London Corporation as a public park is at present under consideration, and is said to be favourably regarded—Lord Shaftesbury and other influential persons having urged the expediency of the purchase in the interest of the public at large, and especially in that of the great suburban district of the north of London, now being covered with houses at so rapid a rate. Some demur has arisen in regard to the Palace itself, for which it was apprehended no remunerative use could be found, as it has failed as a place of amusement in successive hands. Mr. Bourne, C.E., the Principal of the new College of Practical Engineering at Muswell Hill, suggests that a portion of the Palace building should be converted into a great sanatorium, the residue being devoted to popular amusement and instruction as heretofore; and he considers that by the introduction of this new feature the total receipts will be so much increased that the scale will be turned in the right direction.

— A CORRESPONDENT writes as follows concerning ROBBERIES AT FLORAL EXHIBITIONS:—"We read of such robberies as occurred at the Sandy Flower Show with much displeasure; but from an occurrence that was brought under my notice at the Show lately held in Edinburgh it seems as if the operators have gone northwards. A gentleman being suspicious of the movements of a gaudily dressed pair resolved to watch them. Passing to the table where Mr. Ware's single Dahlias had attracted a crush of ladies, he was not long in having his suspicions confirmed by seeing an attempt made on a lady's purse. At once the police were informed, but the pair had beat a retreat. This is merely mentioned so that members of committees may be on their guard and ready to act as amateur detectives if need be, for if once flower shows become 'happy hunting grounds' for thieves much damage will result to the societies."

— THE fourth annual CRYPTOGAMIC MEETING OF THE ESSEX FIELD CLUB will be held in Epping Forest on Saturday, September 29th.

A large number of botanists have promised to attend and act as referees. In the evening a meeting will be held in the assembly rooms at the "Roebuck" Inn, Buckhurst Hill, for the exhibition of botanical specimens, when also the following papers will be read:—"Recent Additions to the Fungus Flora of Epping Forest," by Dr. M. C. Cooke, M.A., F.L.S.; "The 'Lower Orders' of Fungi," by Mr. Worthington G. Smith, F.L.S.; "Fungi as Poisons," by Dr. Wharton, M.A., F.L.S. Botanists wishing to attend or willing to aid in the exhibition of specimens, &c., should communicate with the Hon. Secretary, Mr. W. Cole, Buckhurst Hill, Essex. The members of the party are requested to assemble at half-past three o'clock by High Beach Church. Good maps of the forest may be had at the railway stations, price 2d. and 6d. Tea will be taken at the "Roebuck" Inn about six o'clock. Tickets may be obtained of Mr. B. G. Cole, Laurel Cottage, Buckhurst Hill, up to Thursday, Sept. 27th, price 3s. (for "high tea" and incidental expenses). Early notification of intention to be present at the meeting is urgently requested in order that proper arrangements may be made. Members are informed that the ordinary meeting announced on the card for September 22nd will not be held, the above meeting taking its place.

— "A NORTHERNER" writes respecting the CROPS AND WEATHER IN SCOTLAND:—"Better autumn weather could not be experienced in Scotland than we are now enjoying. There is seldom a cloud seen in the sky, and light breezes dry the corn and fan the reapers, for in addition to being dry the weather is hot for September. In one week more it will be only in late places where a sheaf will remain in the fields. It is quite true that lately there have been rains; otherwise, what a moaning there would have been about the pasture and Turnips! The crops are really very good—where they had a chance. Where they are not, other than meteorological causes have been at fault. The land is full of Potatoes—larger crops of better produce than has been seen for years. Of course they will be cheap. Farmers may—will grumble at this, but the community will have reason to rejoice. Apples are exceedingly plentiful, and those who live near orchards have no difficulty in filling their shelves and jars at 1d. per pound. Already Americans are in the market, and are, perhaps, the best for eating; but for thrifty housewives there is nothing the matter with the less handsome but very much cheaper home-grown fruit."

— THE *Journal des Roses* for September gives a coloured plate of the old ROSE COMTESSE DE BARBANTANNE, which is of globular form, and a delicate blush white in colour. It is one of the Bourbon type, and was raised by M. Guillot at Lyons, and sent out in 1858. It is not, however, very well known in England.

— DR. R. SCHOMBURGK'S report of the progress and condition of the BOTANIC GARDEN AND GOVERNMENT PLANTATIONS IN SOUTH AUSTRALIA during the year 1882 is just to hand. It contains particulars concerning plants and crops that have succeeded or failed in the colony, a general review of the year's work and improvements in the Adelaide Botanic Garden, with lists of the plants added to the collection, all the Orchideæ and Aroidæ in the gardens, of which the collections are large, some interesting facts about plants introduced into Australia, and several photographic views of the gardens.

— REFERRING to the FRUITS GROWN IN SOUTH AUSTRALIA, the above report has the following:—"Of intertropical fruits only a few kinds prosper with us—viz., the Loquat (*Eriobotrya japonica*, Lindl.), Guavas (*Psidium pyrifera*, Linn., and *pomiferum*), and Bananas partially. Even the Pine Apple must be grown under glass. Most of the fruits from other parts of the globe thrive luxuriantly in South Australia, and come to such perfection in size, and frequently in flavour, as is hardly known in other countries, and many fruits are found to improve materially by the change, the climatic conditions being manifestly favourable to them. On the plains grow Apples, Pears, Apricots, Peaches, Nectarines, Medlars, Oranges, Citrons, Lemons, Plums, Cherries, Figs, Quinces, Mulberries, Almonds, Olives, and Grapes; while in the hills and gullies are also grown Strawberries, Gooseberries, Currants, Raspberries, Walnuts, Chestnuts, and Filberts to great perfection. The Apples grow to a great size, but do not always possess the same fine flavour as at home, and contain more acidity. The Apple trees suffer much from the attack of the American blight, for which no radical remedy is at present known. The trees which grow in the hills or in very rich soil suffer most, and at last succumb to this scourge. The Pears grow to perfection and maintain the same flavour as in the old country. The fruits of the Peaches, Apricots, and Plums reach to a large size, and possess a good

flavour. The Cherries do not attain the perfection and flavour of those at home. All the stone-fruit-producing trees are short-lived, especially those of the Peach, Plum, and Apricot, which scarcely live fourteen to sixteen years. This early decline may be owing to the quick luxuriant growth and early excessive bearing of fruit, circumstances which produce over-stimulation and early exhaustion. The finest Grapes are grown in the plains and the slopes of the Mount Lofty range facing the plains. Here they grow to a great size, and the summer months ripen them to the greatest perfection. The wine produced often contains 25 to 30 per cent. alcohol. No doubt the South Australian wine must obtain a character in foreign markets. For the last nine years the oïdium has made its appearance in our vineyards, but not with such damaging results as in Europe. Also the phylloxera has appeared in the vineyards of our neighbour colony, Victoria, to an alarming way, and a good many vineyards have already been destroyed. From this it will be seen that the Australian vignerons, like the European, have to contend against the two greatest scourges which can invade a Vine-growing country. The cultivation of the Olive is a great success, and the oil is considered perfect."

A PEEP AT APPLES AND FIGS IN SUSSEX.

I OPENED my Journal of August 30th on the sunny shore of Worthing. Happily this season we have had some sun, and also, happily, we have many Apples. My attention was immediately directed to the first article, not only because of its subject, but also because of the well-known letters and name at the end—"L. A. K., Maidstone." Mr. Killick always speaks with authority about Apples, and I watch varieties and results with much interest. At the same time there happened to take place at Worthing a good, though only one-tent show, where fruits were in a prominent position; then, of course, I took constant peeps into the fruit shops, made inquiries, and made excursions, as seaside visitors usually do.

Everywhere there are plenty of Apples. I have seen in different parts of England the same sight—heavy crops of fruit, often so bearing down the trees that props were necessary. At the Worthing Show I was surprised to see almost all the Apples were of the green-coloured varieties, not a single Emperor Alexander or Yorkshire Beauty or Worcester Pearmain; plenty of Keswick Codlins, more of Lord Suffields, some Ecklinville Seedlings rightly named and some wrongly named, and a large unpleasing-shaped Apple, very popular in Sussex, called Nelson's Glory, which does not appear in the "Fruit Manual," though it is in Messrs. R. Smith's catalogue. One dish of Red Astrachan indeed showed their red cheeks, but they had been some time gathered, and had none of the beautiful bloom on them peculiar to that variety. "Why do you not show better-coloured fruit?" said I to an exhibitor; "why not Alexanders?" "Because we cannot grow them," was the reply. I saw two fruit gardens near Brighton, both excellent, and one of them most excellent, belonging to a gentleman on whom I cannot say fourscore years have laid their burden, because though of that age he was as upright as a youth of twenty and almost as active. In his fruit garden I saw Cox's Pomona, Lord Suffield, Beauty of Kent, Cellini, and others of a larger size and richer colour than I can grow them in Wiltshire.

Next as to my own personal experience. My especial pet this year is Yorkshire Beauty, which I regard as a "great find" for pomologists. It is healthy as a tree, productive, and the fruit in size, colouring, and flavour is excellent. Of another comparatively new variety no words can be too favourable. I allude to Ecklinville Seedling. It is healthy, vigorous, excellent as a cropper of magnificently sized Apples, and of good flavour. Mr. Killick speaks of Red Joaneting, or, as I prefer to call it, Margaret; although, casting off the White Joaneting, I intend to hold by Margaret. Colour, flavour, shape, earliness, and size are in its favour. Worcester Pearmain has very much in its favour, but its flavour is scarcely equal to its other qualities, though better than Quarrenden, which, like nuts, always seems to me to require something to drink after it.

Why, I would ask, has the Summer Pearmain disappeared from catalogues? It is as handsome as any Apple grown, and its flavour better than most of our present favourites, Irish Peach, of course, always excepted, which is at the head of all summer dessert Apples. In reply to Mr. Killick I will add that with me it is the healthiest of trees, never cankering, though Margaret close by does canker slightly. Duchess of Oldenburg is a charming fruit to the eye and of fair flavour. Stirling Castle, "a very gem of Apples," to quote the "Herefordshire Pomona," is beyond praise. Loddington is another first-rate fruit, and I find it a better bearer than Gravenstein, which crops with me by no means heavily any year.

Perhaps a few words on the cooking of Apples may not be out of place. The best are often utterly spoiled in two ways by the cook—first, by being cooked, especially boiled, too fast; second, by that foolish plan of putting, even by grand cooks in grand houses, any number of Cloves into the pudding or tart, or large pieces of Lemon; the result is Clove tart and Lemon tart, not Apple tart. No flavouring should be put in either pudding or tart until the new year begins, and then a very little only. If you are cooking Dumelow's Seedling not at all, even in April, as it is as fresh in flavour as other Apples when taken from the tree. Cook slowly, and the pudding will be, if the Apples are good ones, like cream. As to flavouring, the less the better. Six Cloves may be allowed, but I once picked twenty-five out of my piece of tart. Each good Apple has a distinct flavour and aroma. Oh, ruthless cook! destroy them not.

At Worthing an Apple named Beauty of Hants was shown, but it was an Ecklinville Seedling, as Beauty of Hants is in shape conical and highly coloured, and was a seedling from Blenheim Pippin. May I beg makers of catalogues to enter New Hawthornden as Winter Hawthornden without an alias? as Winter best describes it, and keeps it clear from the other fruit of that name, which should be called Summer Hawthornden.

A FIG GARDEN.

While at Worthing I was driven to see the famous Fig garden at West Tarring, about a mile and a half inland. Its size is about an acre. You enter, and a dense mass of Fig trees, all standards, are above you; Fig aroma and Fig foliage envelope you, the sweet scent is in the air, the dark green is before your eyes. There is a central path and side paths, all narrow, and so the garden is dim with branches of trees, for the trees all touch each other and join over your head. To one who had never seen a Fig garden it was not only new but strange. Truth is not told, I fear, in that garden, for I came upon a board leaning against a tree, which stated that this is the oldest Fig tree in England, being 800 years old, and was planted by Thomas à Becket! No doubt it was an old tree, probably more than 100 years old, but not 800. One peculiarity in regard to this garden, the continental little bird, the beccafigo, or Fig-eater, visits this garden, and one other at Sompting not far off. How does the little fellow know that he shall find out that he will be repaid for a fly across the Channel by finding a Fig garden at Tarring? Verily instinct is wonderful. However it may be, he does know, and does come, but to no other places save the two named.—WILTSHIRE RECTOR

P.S.—Since writing the above "L. A. K.'s" second article, "Main Crop Apples," has come to hand. Singular to say, I had before me specimens of Red Hawthornden and Yorkshire Beauty for comparison before I read it. I have narrowly examined them, and believe that though much alike—indeed, I may say, wonderfully alike, yet they are not identical. The reasons I give are these—in Yorkshire Beauty there is a vermilion tint lacking in the other; also, though the eyes are not quite alike, nor are the stalks inserted in cavities of exactly the same shape, neither is the yellow colour of exactly the same shade. Both are excellent Apples, but I prefer Yorkshire Beauty.

CATTLEYA MARGINATA.

AMONGST the smaller Cattleyas the species represented in the woodcut (fig. 48) is one of the most handsome, and its beauty has rendered it a favourite with Orchid growers generally. It is also one of the few Cattleyas that succeed best on blocks, and in this respect it forms a charming companion for the fragrant *C. citrina*, *C. Walkeriana*, and a few others. These, unlike the majority of species, do not produce good results when in pots, and the peculiar downward-growing habit of *C. citrina* especially unfits it for that mode of culture. *C. marginata* is a Brazilian Orchid, and was introduced by those celebrated orchidists Messrs. Loddiges rather more than forty years ago. It is now included in most large collections of Orchids, and fairly good plants can be purchased for half a guinea. One reason why it is a favourite is because it thrives in a cooler temperature than the majority of the Cattleyas, a recommendation of great value where highly heated houses are objected to, as they are in many establishments. The cool end of an ordinary plant stove or an intermediate house will suit it, and if attention be particularly paid to the supplying water frequently little difficulty will be experienced with the plant.

The flowers are of moderate size; the petals much broader than the sepals, but, like them in colour, usually a soft rosy purple, the lip being intensely rich crimson, with a narrow margin of white, and a white throat,

which contrasts very markedly with the rich-coloured portion. These tints, however, vary considerably in depth, brightness, and clearness, and the value of the plant varies proportionally to its merits in these respects. The flowers are usually borne singly from the top of the small bulbs, but occasionally two may be produced, though this is comparatively rare. In many collections it is now flowering freely, and a quality of inestimable value at this time of year when Orchid flowers are so scarce is the great time they last in beauty. Under favourable conditions flowers will remain upon the plants for six weeks, continuing attractive from September till the beginning of November.

GARDEN CHEMISTRY.

HYDRO-AËRIAL ELEMENTS.

PLANTS, like animals, find a large portion of their sustenance in air and water. Water pure and simple—that is to say, uncombined,

contains about half its weight of water. Then the *dry* matter of organic beings is largely made up of the elements of water. Water is composed of hydrogen and oxygen (H_2O); and starch, sugar, gum, fat, wood are all composed of these elements, to which carbon has been added. Gluten, fibrin of Wheat and of flesh, and other so-called nitrogenous matters are also composed of these with a further addition—15 or 16 per cent.—of nitrogen with a little sulphur and phosphorus. Even when every part of water is expelled these elements, hydrogen, oxygen, carbon, and nitrogen, form not less than 95 per cent. of garden plants, and oftener over 98. The rest is the mineral matter which is left as ash when plants are burnt. We have seen that the most valuable part of this ash is phosphoric acid, potash, lime, magnesia, &c., and that it is not only absolutely necessary but very scarce in most soils and even manures. Hence their high money value.

These substances come from the soil only, and, when deficient, fertility fails unless these are added. Hence their paramount im-



FIG. 48—CATTLEYA MARGINATA.

forms the greater part of all vegetable substances and all flesh. An average man weighs about 140 lbs., and of that no less than 101 lbs. are pure water. Many animals are even more watery. Cucumbers grown on the "express" system have the appearance of solids, but in reality are very nearly all water. Many fruits contain over 90 per cent; rapidly grown Water and other Melons and berries often as much as 95. When one thinks of this the fact of old Mehemet Ali consuming his 40-lb. Melon after dinner becomes understandable, and we can also understand that the huge Water Melons consumed in Spain and in the warmer regions of America are in reality not solids but liquids, and are evaporated accordingly. Then "dry" bread

portance despite their small proportion in soils and in plants. They have been called soil-elements. The carbon, hydrogen, and oxygen have been called hydro-aërial elements, because these the plants find in air or soil in the form of carbonic dioxide and water. At another place we will consider how these compounds, water and carbonic dioxide, are changed. At present we will consider the source of them—where they are found. That familiar substance water we may at once dismiss in so far as regards its being the source of the hydrogen and oxygen in carbo-hydrates. Its composition has already been given.

Something more must be said about carbonic dioxide. As its

name implies, it is composed of carbon and oxygen, $C O_2$. Take a piece of charcoal and ignite it. It burns. What is this burning? Simply, in chemical language, it is an oxidisation of the charcoal (carbon). The process is purely chemical. Two atoms of oxygen unite with one (this is scarcely correct, but as an explanation must do here) of carbon, and a new compound is formed. This new compound is a gas—it is carbonic dioxide, and it escapes in the air. The same process occurs in the human body. We eat carbo-hydrates—sugar, starch—and digest them. Then by our lungs we take in oxygen from the air. This oxygen by the blood finds its way all through the body, oxidises the carbon of the body fuel, which in the process gives out heat, and is expelled by the lungs as carbonic dioxide. The decay of all organic matter is just this oxidisation. Plants do exactly the opposite of what animals, fire, and decay do.

This carbonic dioxide in the air is the source of all the carbon in plants. Thence have been drawn all the humus of our soils, the peat of our bogs, and the coal which heats our houses and drives our engines; yet its comparative amount in the atmosphere is very small, though in the aggregate it is enormous. Its per-centage in the air is 0.035, or 35 in 100,000. But it is everywhere present, and amounts in the aggregate to over two billion tons, a quantity that quite baffles human conception. When we come to consider the functions of the leaf and the diffusion of gases we will see that the supply of this is never short unless in unventilated, too closely glazed houses.

Although, by growing them in calcined sand, it has been proved that plants can find all their carbon in the air and flourish without its presence in the soil, much is supplied from decaying animal and vegetable matter in the soil to plants by the roots, and without doubt materially assists a rapid growth; and although 0.035 per cent. in the air is sufficient to maintain a vigorous growth, it has been shown that plants are greatly benefited when it is largely increased. When too much is present it is destructive even to plants; but it may be present to an extent poisonous to animals and yet prove of great benefit to plants. Bohn conducted numerous experiments to ascertain the effects of carbonic acid on plants, and found it beneficial up to the extent of 2 per cent., over that it was injurious, and when 20 per cent. was present it killed. On the other hand Godlewski asserts that *Glyceria* was benefited when as much as 8 or 10 per cent. was present. It is supposed that the huge stature of the Club Mosses and Marestails, and the exuberance of vegetation in general at the time our coal beds were formed, was largely due to the much greater percentage of the carbon in the air. Much was also due, doubtless, to the moistness and heat of the climate, as these when combined in our age never fail to induce rapid growth. Those who have read Loudon's account of the poison valley of Java, where carbonic acid issues from the ground, will recall the fact that there vegetation is absent.

Though an increase of carbonic dioxide in the atmosphere be impractical, doubtless its abundant presence in the soil will have a similar effect on plants to what its supply in the air would. Hence manures which supply this, as those from leaves, straw, green manurings, animal dung, &c., certainly possess an advantage over equivalent amounts of purely chemical ones. But a question arises: Is not this fact one of the causes of unfruitfulness in fruit trees in heavily manured garden soils? All the elements of fertility otherwise may be present in abundance, but an excess of carbonic dioxide causes a mere excess of vegetation and unfruitfulness. So far as we are aware, no plants capable of furnishing food to the higher animals have been found in the strata of the carboniferous era. Everything vegetable was too carboniferous. A large per-centage of phosphorus and potash exist in the ash of all nutritious vegetable substances. In the ash of these ancient plants they are singularly deficient, as they always are in plants deficient in animal nutrients, and in consequence the fauna was composed of either Herbivora with huge digestive systems, or Carnivora preying on them. The Frugivora and Graminivora are singularly absent. There was no place for men.

We grow what may here be divided into two classes of plants. The one class may be called foliage and the other flowering, including in the latter those grown for fruit. For the former class we are pretty unanimous in giving quantities of manure of the carbonaceous kind and much nitrogen. Experience has taught the observant to avoid such for flowering and fruiting plants in general; hence there has been a great demand for loam—virgin, brown, or hazel loam—for fruit trees and for flowering plants in pots; and just because of this loam not being always forthcoming, or because of the injudicious enriching of it, not always the best results have been forthcoming. The main virtues of virgin loam are owing to the fact that in it is to be found a good deal of plant food not of the carbonaceous kind. The fault of worn-out—that is, too heavily manured loam, is not that it wants mineral food, but that it contains too much carbonaceous; not that it is deficient in all the elements calculated to produce growth of the most fertile kind, but in addition that which so dilutes it as to run it out, not into fruit and flowers, but into carbonaceous leafiness—unfruitful luxuriance.

We are not aware of the theory being before submitted by any other writer, but we are certainly of opinion that too much organic matter in the form of carbonic dioxide or of nitrogen is against the production of wood of a floriferous or fruitful character, because it encourages a growth that is not solid enough, contains not mineral enough, but is watery, carbonaceous, lax, and contains only enough to support itself or growth of similar character. Flowers attract matter from the body of plants to form fruit, and in that is stored the essence of plant-growth. Seeds are the magazines of future existence; but growth grown lax by reason of highly nitrogenous food, or carbonaceous because of the gas absorbed too largely by leaf or by root, has not this essence to spare—all it finds is spent on itself.

Yet at certain periods fruit-bearing plants demand much carbon. This is always the case when heavy crops are swelling or maturing. Is not this the time to give carbon? Not in the air. This is not only impracticable, but would be attended with danger to animal life, but by the root. Decaying manure yields carbonic dioxide largely, water dissolves its own bulk of it. A thick coat of such over a vinery border at certain seasons, through which the necessary water was passed, would not fail to convey abundance of carbon to the plants just when the plants demanded it, and yet enable us to keep our loams in that hazelly state which alone secures lengthened fertility, because it does not over-supply carbon when not wanted, and therefore enables the cultivator to secure a real maturity of wood in room of that undue extension of cells which, while it furthers enlargement, prevents storage.

To the farmer such questions as these are only of secondary importance; hence nothing has been done by agricultural experimenters in this direction. To gardeners they are of the first, if they are ever to advance and be sure of the road along which advancement is made. If science were to clear up such questions as these gardening advance would not be merely personal and isolated—would not die with the individual and ever slip half steps backward, but move forward in general, and the advance of every individual be the advancement of the whole, because every advance would be understood. Such work would ennoble the doings of the R.H.S.; but Society work, like Government work, though often useful, seldom advances either science or practice.

To what extent nitrogen is derived from the air is an unsolved problem. We know how much ammonia is washed into the soil; we have reason to believe that the soil absorbs some more of itself, and that it is separated by the leaves from air, but to what extent we know not. The amount of ammonia and nitric acid in the air is very small, but because of its diffusibility it is always in contact with the leaves of plants. Hence we are inclined to think that more is separated than is generally believed. Ville's theory that some plants—the Leguminosæ—have the power of using the free nitrogen of the air is not supported by scientific evidence. His experiments and those of his supporters were too loosely conducted to prove anything.

Certain it is that nitrogen must be applied to the soil. Possibly good might follow its use in the air. These points all require investigation, and will probably be placed on a proper footing one day.
—SINGLE-HANDED.

NATIONAL APPLE CONGRESS, 1883.

THE following circular has been issued on this important subject, and we would ask the co-operation of all Apple cultivators towards rendering the collection as complete and as widely representative as possible. We would also recommend that those having Apples which they desire to have named, should send them to this Congress for that purpose, with stamped directed envelopes for replies in each case *accompanying the fruit*. Through no other source can the names be supplied with equal authority.

“At a meeting of fruit-growers, held at South Kensington in conjunction with the Fruit Committee of the Royal Horticultural Society on the 11th September, it was decided to hold a conference on Apples, in the great conservatory of the Society at Chiswick, from the 4th to the 18th October next.

“The unusually abundant crop of this year affords a favourable opportunity for examining the numerous varieties cultivated throughout the country, to correct their nomenclature, and to compare their merits. For this purpose the Council of the Royal Horticultural Society have given the use of their great conservatory, and the collection of Apples grown in the garden, which contains many typical varieties, will be available for comparison.

“This Conference will not take the form of an ordinary exhibition, as there will be no competition and no prizes, the sole object being to seize so favourable an opportunity of gaining information, and making the meeting instructive and educational.

“All fruit-growers are invited to send, and the more widely the collections are procured the greater will be the interest the Exhibition will create. It is very desirable, therefore, that every collection should be accompanied with as much information as can be furnished with

regard to soil, exposure, and physical conditions of the districts from which they are gathered. No limit will be put upon the number which anyone may see fit to send, and it is not at all necessary that they should be the product of his own grounds. The Committee desire that an effort be made to procure representatives of all the varieties that are grown in the various districts, and that all *should be distinctly labelled with the name or names under which they may be known in their respective localities.*

"As the specimens sent are strictly for examination, they must necessarily be at the disposal of the Committee where required.

"All packages addressed to the Secretary must be delivered on or before the 3rd of October. Exhibitors staging their own fruit may do so on the 3rd or morning of the 4th, to be ready for the inspection of the Committee. Notice of intention to exhibit must be given to Mr. Barron not later than the 29th September, stating the number of varieties to be exhibited, or the amount of space that will be required.

"All exhibitors will be admitted to the gardens free, and they will receive a certain number of tickets, according to the extent of their exhibits, for the admission of friends.

"The public are admitted to the gardens on payment of 6d.

"Growers of fruit will have in this Exhibition an opportunity of correcting or verifying the nomenclature of their fruits, by bringing specimens with them, and making a personal comparison.

"The following have been appointed a Committee to carry out the objects of the Congress in various parts of the country:—

Blackmore, R. D., Teddington.
 Britcher, G., Tunbridge.
 Brotherston, R. P., Tynninghame.
 Bunyard & Co., Nurseries, Maidstone.
 Burcott, J., The Gardens, The Deepdene, Dorking.
 Cheal & Sons, Nurserymen, Crawley, Sussex.
 Cranston, & Co., Nurserymen, Hereford.
 Dancer, F. N., Little Sutton, Chiswick.
 Diekson, F. & A., 106, Eastgate Street, Chester.
 Diekson, James, 108, Eastgate Street, Chester.
 Diekson, A. & Sons, Newtownards, Belfast.
 Dunn, M., The Gardens, Dalkeith Palace, N.B.
 Fisher, Son, & Sibray, Nurserymen, Sheffield.
 Garland, John, The Gardens, Killerton, Exeter.
 Gilbert, R., The Gardens, Burghley, Stamford.
 Goldsmith, G., The Gardens, Hollenden, Tonbridge.
 Graham, John, Cranford, Hounslow.
 Grieve, Peter, Bury St. Edmunds.
 Harrison & Sons, Nurserymen, Leicester.
 Haycock, Chas., The Gardens, Barham Court, Maidstone.
 Hibberd, Shirley, Brownswood Park, Stoke Newington.
 Hogg, Dr. Robert, 171, Fleet Street, E.C.
 Jefferies, John, & Sons, Nurserymen, Cirencester.
 Jefferies & Sons, Nurserymen, Oxford.
 Jones, T., The Royal Gardens, Frogmore.
 Killiek, Lewis A., Langley, Maidstone.
 Lane, H., & Son, Nurserymen, Berkhamstead.

Laxton, T., Bedford.
 Lee, Chas., & Son, The Nurseries, Hammersmith.
 Lee, John, 78, Warwick Gardens, S.W.
 Miles, G. T., The Gardens, Wyeombe Abbey, High Wycombe.
 Ormiston & Reuwiek, Nurserymen, Melrose, N.B.
 Pearson, J. R., The Nurseries, Chilwell, Notts.
 Paul & Son, The Nurseries, Cheshunt.
 Paul, Wm., & Son, The Nurseries, Waltham Cross.
 Poynter, Robert, Nurseryman, Taunton.
 Rivers & Son, The Nurseries, Sawbridge-worth.
 Roberts, J., The Gardens, Gunnersbury Park, Acton.
 Ross, Charles, The Gardens, Welford Park, Newbury.
 Rutland, F., The Gardens, Goodwood, Chichester.
 Saltmarsh & Sons, The Nurseries, Chelmsford.
 Shingles, Thomas, The Gardens, Tortworth Court, Gloucester.
 Smith, James, The Gardens, Mentmore, Leighton Buzzard.
 Smith, R., & Sons, The Nurseries, Worcester.
 Stevens, Z., The Gardens, Trentham, Stoke on Trent.
 Strickland, Sir Charles, Bart., Hildenley, Malton, Yorkshire.
 Turner, Charles, Slough.
 Veitch & Sons, Nurserymen, Chelsea.
 Wheeler & Son, Nurserymen, Gloucester.
 Woodbridge, John, The Gardens, Syon House, Brentford.

"Any further information that may be required may be obtained on application to the Secretary, Mr. A. F. Barron, Royal Horticultural Gardens, Chiswick; or to Mr. L. Killiek, Langley, Maidstone."

N.B.—At a meeting of the Sub-committee held at Chiswick on September 18th, John Lee, Esq., in the chair, it was decided that exhibitors be requested to send not less than two fruits of a kind, or more than six, for the purpose of examination.

All packages should be addressed to the Secretary, Mr. A. F. Barron, Royal Horticultural Society's Gardens, Chiswick; the charges for carriage of the same will be defrayed by the Society.

Admission to the public will be 1s. on the 4th, and 6d. on other days.

INTERNATIONAL POTATO SHOW.

SEPTEMBER 13TH AND 14TH.

"THE finest exhibition of Potatoes ever seen in England" was the general verdict of horticulturists who visited the Crystal Palace last Thursday and Friday, and the officials connected with this scheme had every reason to be satisfied with the results of their untiring efforts; for never since the Show was commenced some ten years since have the exhibits been so numerous and clean, even, and devoid of coarseness. A table about 150 yards long in the north nave was filled with the entries in the principal classes, the centre of the table between the different classes being filled with small specimen Palms, Ferns, and miscellaneous plants that served to break the monotony considerably. On each side of the chief table were others slightly shorter, and devoted to the exhibits not in competition, which were similarly abundant and interesting. Some idea of the extent of the Show can be gathered from the following numbers, which far exceed those of any previous year. In the twenty-one classes enumerated in the schedule 375 collections were staged, the entries being about 30 per cent. in advance of last year. These included nearly 2000 dishes, or a total of over 19,000 tubers, and in the non-competing exhibits there would probably be 10,000 more. In the leading classes, too, the competition was extraordinarily

keen, no less than seventeen collections of twenty-four dishes, which were so nearly equal in exhibition merits that the Judges had a most difficult task in selecting the premier. Mr. Gribble's fine examples were, however, worthily adjudged chief honours, and in the opinion of many experienced Potato exhibitors such a perfect collection had never been staged before. In the eighteen-dishes class, again, there were twenty entries, similar numbers staging in classes L and N, while in S there were twenty-three, J and F twenty-one, H and D twenty-five; but in E, for six dishes, no less than thirty lots were contributed.

The Show was opened at noon by Mr. Alderman de Keyser in the absence of the Lord Mayor, and the former gentleman also presided at the luncheon subsequently held in the Marble Hall, when he was supported by Mr. Alderman Hadley and Mr. McGeorge, Chairman of the Crystal Palace Company; Mr. P. McKinlay and Mr. Shirley Hibberd taking the vice chairs.

Class A, twenty-four dishes of Potatoes, distinct varieties, nine tubers of each (open). First prize, £10 10s.; second, £7 7s.; third, £5 5s.; fourth, £3 3s.; fifth, £2 2s.; sixth, £1 1s. The first prize was given by Mr. Alderman de Keyser, Sheriff of London and Middlesex; the second, Mr. Alderman Hadley; the third, James McIntosh, Esq., Weybridge; the fourth, R. Russell, Esq., Mayor of Derby; the fifth, L. Fawell, Esq., 4, St. Paul's Churchyard, London; and the sixth, Wm. Holloway, Esq., 6, St. Paul's Churchyard, London. This formed the most important class of the Exhibition, seventeen collections being staged, all of remarkable evenness, and so nearly equal in merit that the Judges had a most difficult task in determining the relative positions of the exhibits, and nearly an hour had elapsed before their decisions were made known. Mr. Gribble, Canon Hill, Maidenhead, was awarded the premier prize for a beautiful even collection, the tubers of moderate size, but distinguished by their symmetry and cleanness. The varieties were Vicar of Laleham, International, Matchless, Fillbasket, Prizetaker Kidney, Covent Garden Perfection, Improved Peach Blow, Bedford Prolific, American Purple, Magnum Bonum, Beauty of Kent, Reading Hero, Adirondack, Woodstock, Mr. Bresee, King of Potatoes, Heather Bell, Porter's Excelsior, Extra Early Vermont, Cosmopolitan, Reading Russet, Schoolmaster, Beauty of Hebron, and Early Regent. Mr. J. Hughes, gardener to Col. Cartwright, Eydon Hall, Northamptonshire, was awarded second honours with a collection of very similar merit, handsome dishes of Mr. Bresee, Edgcott Seedling, Suttons' Prizetaker, Porter's Excelsior, International, and Advance. Mr. W. Kerr, Dargavel, Dumfriesshire, secured the third position. Mr. Robins, gardener to E. D. Lee, Esq., Aylesbury, was fourth. Mr. W. Ellington, West Row Gardens, Mildenhall, was fifth; and Mr. T. Pickworth, Loughborough, sixth.

Class B, eighteen dishes of Potatoes, distinct varieties, nine tubers of each. Open to noblemen's and gentlemen's gardeners only, and the awards to be made by three gentlemen's gardeners, not competitors. First prize, £7 7s.; second, £5 5s.; third, £3 3s.; fourth, £2 2s.; fifth, £1 1s. All the prizes were given (in cash or plate) by Messrs. Sutton & Sons, Reading. In this class also the competition was extraordinarily keen, twenty exhibitors entering and staging a total of 360 dishes, which required almost as much careful consideration as those in the previous class, for there were few faulty examples in any of the collections. Mr. Hughes won premier honours with a very handsome collection of moderate size tubers of the following varieties:—Adirondack, Jackson's Improved, Suttons' Reading Russet, Porter's Excelsior, Radstock Beauty, Suttons' Fillbasket, Beauty of Hebron, Woodstock Kidney, Mr. Bresee, White Emperor, Vicar of Laleham, Snowdrop, Queen of the Valley, Myatt's Ashleaf, Suttons' Prizetaker, Lady Truscott, Red Fluke, and Edgcott Seedling. Mr. H. Clarke, Woodstock, was placed second with neat tubers of Porter's Excelsior, Grampian, Farren's Kidney, Manhattan, Edgcott Seedling, Blanchard, Early Border, Model, Salmon Kidney, International, Beauty of Hebron, Woodstock Kidney, Triumph, Magnum Bonum, Radstock Beauty, Webbs' Surprise, Vicar of Laleham, and Bedford Prolific. Mr. E. S. Wills was placed third with good samples, Mr. W. Robins fourth, Mr. G. Akhurst was fifth.

Class C, twelve dishes of Potatoes, distinct varieties, nine tubers of each (open). First prize, £5 5s.; second, £4 4s.; third, £3 3s.; fourth, £2 2s.; fifth, £1 1s. The first prize was given by Mr. Alderman Cotton, M.P.; the second by Messrs. Daniels Brothers, The Royal Norfolk Establishment, Norwich; the third by Vice-President George Urc, Esq., Wheatlands, Bonnybridge, N.B.; the fourth by Vice-President J. T. Thomas, Esq., 138, Queen Victoria Street, London; and the fifth by Thomas Price, Esq., Lymore, Beckenham. Nineteen collections, containing 228 dishes, were entered in this class, and were throughout of great merit, though perhaps there were more weak and irregular samples in this than in the preceding. The premier awards were secured by Mr. J. Miller, The Gardens, Hamstead Park, Newbury, Berks, for fine examples of Magnum Bonum, Radstock Beauty, Woodstock Kidney, Superior, Pride of America, Vicar of Laleham, Reading Hero, Red Fluke, Myatt's Prolific, Triumph, Porter's Excelsior, and Reading Russet. Mr. J. Hughes was placed second, his best dishes being Queen of the Valley, International, Adirondack, Mr. Bresee, and Reading Russet. Mr. T. Pickworth was third, Mr. W. Ellington fourth, and Mr. W. Kerr fifth.

Class D, nine dishes of Potatoes, distinct varieties, nine tubers of each (open). All the prizes in this class were given by Mr. C. Fidler, Potato grower and merchant, Reading. Of the twenty-five competitors Mr. T. Tooley, Banbury, was placed first with a beautiful collection, comprising dishes of Prizetaker, Woodstock Kidney, Reading Russet, American Purple, International, Queen of the Valley, Schoolmaster, Mr. Bresee, and Radstock Beauty, all very even and clean. Mr. R. Dean was a good second—International, Mr. Bresee, Reading Russet, and Schoolmaster being very fine. Mr. W. Kerr was third with smaller tubers; Mr. L. Stanton, Maidford, Towcester, fourth; and Mr. T. Pickworth fifth.

Class E, six dishes of Potatoes, distinct varieties, nine tubers of each (open). The first prize was given by Messrs. Webb & Sons, Wordsley, Stourbridge; the second by Messrs. Barr & Son, seedsmen, King Street, Covent Garden; the third by T. J. Burrell, Esq., Knight-riding Street, London; and the fourth by Mr. William Earley, Ilford. Thirty collections were staged, and in this keen competition Mr. T. Tooley again secured the first position with tubers of moderate size, very even, clean, and good, the varieties being Porter's Excelsior, Reading Russet, Radstock Beauty, Schoolmaster, Woodstock Kidney, and Mr. Bresee. Mr. W. Kerr, Dargavel, was a close second,

also with moderate-sized tubers, Snowflake, International, Adirondack, and Vicar of Laleham being the best. Mr. H. E. Gribble was third; Mr. W. Finlay, Wroxton Abbey, Banbury, Oxon, fourth; and an extra prize was adjudged to Mr. E. S. Wiles, Edgcott Gardens, Banbury.

Class F, four dishes, distinct varieties, the largest and handsomest, six tubers of each. All the prizes were offered by Messrs. Harrison & Son, seedsmen, Leicester. Twenty-one fine collections were contributed, some very large and beautiful tubers being included in some of them. Mr. J. Hughes took the lead with good samples of International, Mr. Bresee, Suttons' Favourite, and Queen of the Valley, large but even. Mr. W. Ellerton followed with International, Queen of the Valley, Magnum Bonum, Lord Beaconsfield, all of great size. Mr. Bloxham, gardener to Sir P. Duncombe, Bart., Brickhill Manor, was third with Adirondack, Schoolmaster, International, and Trophy; Mr. H. E. Gribble being fourth.

Class G, three dishes of white round Potatoes, distinct varieties, nine tubers of each (open). The first prize in this class was given by James Wright, Esq., Falkirk, N.B.; the second by F. P. Alliston, Esq., The Ferns, Beckenham; the third by Martin Cornell, Esq., 15, St. Paul's Churchyard, London. Amongst seventeen competitors Mr. R. Dean, Ranelagh Road, Ealing, was adjudged first honours for excellent tubers of Schoolmaster, First and Best, and Early Bird. Mr. W. Kerr was second with Bedford Prolific, Schoolmaster, and Mammoth Pearl. Mr. R. West, gardener to J. R. Wigram, Esq., Salisbury, third with Bedford Prolific, Schoolmaster, and Porter's Prolific. Mr. G. Pickworth fourth with Advance, First and Best, and Climax. An extra prize was awarded to Mr. G. Allen, The Gardens, Rainbury Manor, Wilts.

Class H, three dishes of coloured round Potatoes, distinct varieties, nine tubers of each (open). The first prize was given by Mr. Richard Dean, Ealing and Bedford, London; the second by H. M. Pollett, Esq., Fernside, Bickley; and the remainder of the prizes were given by Shirley Hibberd, Esq. In a class of twenty-five collections Mr. R. Dean was again to the fore with even tubers of Vicar of Laleham, Radstock Beauty, and Reading Russet; Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, second with Reading Russet, Vicar of Laleham, and Red Emperor; Mr. C. Akhurst, gardener to Rev. J. W. Bramah, Faversham, was third with Beauty of Kent, Vicar of Laleham, and Adirondack. Mr. Bloxham, gardener to Sir P. Duncombe, Bart., Brickhill Manor, was fourth with Grampian, Radstock Beauty, and Adirondack.

Class I, three dishes white kidney Potatoes, distinct varieties, nine tubers of each (open). The first prize was given by Alfred Lyon, Esq., Stone Villas, Tottenham, the remainder by P. McKinlay, Esq., Headley Lodge, Penge. Eighteen collections were entered, and Mr. J. Pickworth was placed in the chief position with International, Woodstock Kidney, and Royal Ashleaf, extremely even and handsome. Mr. W. Kerr followed closely with Myatt's Ashleaf, International, and Snowflake, smaller but clean. Mr. R. Dean was third with Edgcott Seedling, Cosmopolitan, and Woodstock Kidney; and Mr. Bloxham was a good fourth.

Class J, three dishes of coloured kidney Potatoes, distinct varieties, nine tubers of each (open). All the prizes in this class were given by Mr. John K. King, Coggleshall, Essex. There were twenty-one entries, and Mr. R. Dean secured first honours with Mr. Bresee, Prizetaker, and Bountiful, even, clean, and good. Mr. W. Kerr took the second position with Wonderful, Red Kidney, Defiance, and Sir Garnet Wolseley. Mr. H. E. Gribble was third with Prizetaker, Mr. Bresee, and Defiance; and Mr. Ross fourth.

Class K.—Messrs. Sutton & Sons offered four prizes for eighteen tubers of each of the following eight varieties of Potatoes, open to noblemen's and gentlemen's gardeners only, and the awards to be made by three gentlemen's gardeners not competitors:—Magnum Bonum, First and Best, Reading Russet, Reading Hero, Early Border, Prizetaker, Early Regent, and Fillbasket. There were six exhibitors, Mr. C. Ross taking the lead with very even, clean, and praiseworthy samples. Mr. G. Allen was a close second, Mr. J. Matthews third, and Mr. C. Osman, Sutton, Surrey, fourth. In the four following classes Messrs. Sutton & Sons also contributed all the prizes, the dishes in each containing eighteen tubers instead of nine, as in the majority of other classes.

Class L, for the best dish of any white round Potato of English origin. Twenty exhibitors. Mr. W. Kerr was first with Schoolmaster; Mr. P. McKinlay second with White Emperor; Mr. C. Turner, Slough, third with Schoolmaster; and an extra prize was awarded to Mr. J. Matthews, gardener to E. Twopenny, Esq., Woodstock Park, Sittingbourne, for Suttons' First and Best.

Class M, for the best dish of any coloured round Potato of English origin. Seventeen exhibitors. Mr. T. Creed, Kenesdale, Faversham, was first with Reading Russet; Mr. P. McKinlay second with the same variety; and Mr. Pragnell, Banstead, was third with Suttons' Redskin Flourball.

Class N, one dish of any white English-raised Kidney. There was good competition of nineteen dishes, but the Judges could have had no difficulty in awarding the premier prize to Mr. Pearson, Chilwell Nurseries, Notts, for a remarkable dish of Sanday's Seedling; tubers of good size, pure white, of faultless shape, and said to be early and of the finest quality. It would be interesting to know the origin of this attractive Potato; it appears to be of the Lapstone type, but is less pointed than that variety. There was no more beautiful dish of kidney Potatoes in the Show than this. The second prize was awarded to Mr. B. West, Nuneham, Oxford, for admirable examples of Magnum Bonum. Third honours going to Mr. Kerr for a superior dish of International.

Class O, for the best dish of any coloured kidney of English origin. Nine dishes were staged, Mr. W. Kerr being first with fine tubers of Defiance; Mr. F. Fellowes, Kidderminster, second with Prizetaker; and Mr. T. Pickworth third with the same variety.

Class P, for the best dish of any white-skinned Potato, new variety, in commerce, but not offered to the public before 1882. All the prizes were given by Mr. C. Fidler. Nineteen dishes were staged. Mr. P. McKinlay, Headley Lodge, Croydon Road, was first with Lady Truscott (Suttons'), a white round, very even and handsome in appearance. The second prize was awarded to Mr. G. Allen for rather rougher samples of the same variety; and Mr. R. Dean was third with Alderman (Dean), a large, white, round variety.

Class Q, for the best dish of any coloured Potato in commerce, but not offered before 1883. All the prizes were given by Mr. C. Turner, Slough.

Seven dishes were entered. Mr. T. H. Hills, The Gardens, Durward, Essex, was awarded the first prize for a dish of The Belle (Daniels'), a pale red round variety of moderate size and even form. Mr. W. Kerr was second with Kerr's Sir Garnet Wolseley, a neat-shaped kidney, deep red, blotched with white, of moderate size. Mr. J. Butt, 17, Ruby Street, Wisbech, was third with Red Lion, an oblong red kidney with white eyes.

CLASSES FOR SEEDLINGS.

These were very well filled, a total of forty-five dishes being entered in the four classes. Each class was for a single dish of nine tubers of any seedling variety not in commerce. The greatest competition was in Class S for white kidney varieties, twenty-three dishes being entered, and the following were selected for certificates. A prize of one guinea was also offered by Messrs. Hooper & Co., Covent Garden, for the best dish or variety in each class. The granting of certificates was conditional upon the parentage being fully stated, and the provision of a dish of additional tubers of each variety for cooking. It was also required that tubers should have been sent to Chiswick for planting in the Royal Horticultural Society's gardens for trial.

Welford Park Kidney (C. Ross).—Tubers of moderate size, but very even and regular in form. This was also awarded the prize in the class.

Beauty of Eydon (R. Dean).—A seedling from Beauty of Hebron crossed with Myatt's Prolific; excellent as regards evenness and general appearance.

Hughes' Prolific (Hughes).—This is of the same parentage as the preceding, and is somewhat similar in character but smaller.

Midsummer Kidney (Dean).—A seedling from a cross between Success and Woodstock Kidney, described by the raiser as very early, a good cropper, and of fine quality.

In Class T, for coloured kidney varieties, there were eight entries, the following being awarded certificates:—

Edgcott Purple Seedling (E. S. Wiles).—A long, smooth, deep purple kidney, an exact counterpart of its white namesake in form. This was awarded the prize in the class.

Cardinal (Dean).—A second early kidney from a cross between Early Rose and Bountiful, rich red in colour, even in form, and said to be a good cropper and of first-rate quality.

In Class U for a single dish of a white round variety there were seven entries. Only one certificate and prize were awarded—namely, to

Prime Minister (Dean).—A cross between Magnum Bonum and Woodstock Kidney, a Potato of fine appearance, described as late, strong grower, prolific, and of good quality.

In Class V, for coloured round Potatoes, there were also seven exhibits, the prize and certificate being adjudged to

The Dean (R. Dean).—A dark purple round variety from a cross between Vicar of Laleham and Woodstock Kidney, and really an improved type of the former, said to be of good quality for the table.

MISCELLANEOUS.

The exhibits not for competition were very numerous, and occupied nearly as much space as the collections staged in the classes. Two tables on each side of the central table were devoted to these, very prominent amongst them being Messrs. Sutton & Sons' contribution, in which 165 varieties were represented, comprising twenty-five American, twenty-two sent out by Messrs. Sutton & Sons, sixty-four seedlings not in commerce, and fifty-two other English-raised Potatoes. Very notable also were large heaps of the standard varieties, Reading Russet, Reading Hero, Early Regent, Prizetaker, Fiftyfold, and the new Lady Truscott.

Messrs. J. Carter & Co., High Holborn, exhibited a large quantity of Potatoes, either in dishes or heaps, some being shown as lifted from the ground. A great number of varieties were represented, including most of the generally approved forms in cultivation, together with many specialities of their own. Some noteworthy varieties were First Crop, Eight Weeks, Improved Magnum Bonum, Ashtop Flake, Cosmopolitan, White Elephant, Hero, and Beauty of Hebron. Messrs. Daniels Bros., Norwich, contributed about sixty dishes, mostly distinct varieties, very notable being a heap of White Elephant weighing 115 lbs., the produce of one tuber cut into single eyes and grown without artificial manure. The tubers were rather smaller than those of this variety sometimes shown, and the eyes less deep. Some tubers of this weighing 2 lbs. 11 ozs. were also shown. About thirty seedlings white and coloured round and kidney Potatoes were also shown, some appearing very promising. Messrs. Hooper & Co., Covent Garden, exhibited twenty-four baskets of Potatoes, distinct varieties; Adirondack, Round Blue, Brownell's Beauty, Covent Garden Perfection, Belle, Pride of America, Early Border, and others being notable. The tubers were all shown as lifted from the ground. Mr. C. Fidler, 104 and 105, Friar Street, Reading, had about sixty dishes of Potatoes, with large heaps of Vicar of Laleham, Magnum Bonum, and White Elephant. Messrs. Harrison & Sons, Leicester, exhibited over sixty dishes of Potatoes, mostly distinct varieties, the tubers even and clean. Messrs. Charles Lee & Son, Hammersmith, showed about seventy-eight dishes of good tubers; Lee's Hammersmith, Early Kidney, and Lee's Defiance Purple Kidney being very notable. A collection of thirty-three dishes was shown from the Royal Horticultural Society's gardens, Chiswick, all the tubers being distinguished by the clear even appearance.

As may be readily imagined the work incurred in the necessary arrangements for such an Exhibition is enormous, and the energetic Hon. Secretary, Mr. P. McKinlay, who has for the past ten years so ably performed the task, deserves every praise. His official duties indeed have now become so numerous that he has expressed a desire to be relieved of a portion of the work by a paid Secretary, and the Committee would be acting wisely and well in selecting a competent man for the post. The readiness with which friends of the movement contribute money prizes gives every hope that a substantial salary could be raised without much difficulty.

MASTERPIECE MELON.—I notice in your report of the Bath Floral Fête you say "In the Green-fleshed Melon Class Mr. Iggulden was first with Masterpiece," which I presume to be a mistake in some way, as Masterpiece is a scarlet-flesh variety, and a very good one too. I have grown three batches of it this year, it being so good that my employer

made special inquiries as to what variety it was.—S. MORTIMER, *Purley Park, Reading.*

[The Melon in question is a new variety, and perhaps because of its external resemblance to the original Masterpiece the exhibitor intended to attach the name "Green Masterpiece," but another name would be better if the variety is to be perpetuated.]

CENOTHERA RIPARIA.

It would be well if the name of the plant figured on page 227 could be definitely settled. It is commonly sold, I admit, as *C. riparia*, and it is probably true that the name of *prostrata* is incorrect, but "T." does not give his authority for the name *riparia*, and if he will send the plant to Kew, perhaps he will find that *linearis* is the accepted name; at least, it was so labelled in the Kew herbaceous garden last year, whilst the name *riparia* was given to a very distinct plant of less merit, a garden plant having undivided upright stems 2 feet high, more in the way of a dwarf *C. biennis*. The *Cenotheras* are a difficult genus to get rightly named, and from their shortlived habit in this climate appear in cultivation from time to time and again disappear, changing their name as often as they come out again.—C. WOLLEY DOD.

THE LONDON PARKS.

HAMPTON COURT.

THOUGH out of the metropolitan district the park attached to the interesting old palace at Hampton enjoys an equally large share of popularity with the best in London itself, and very deservedly, for under the experienced care of the Superintendent (Mr. Graham) it has attained great fame for the carpet and other bedding so well carried out there. Examples of all the favourite styles of planting can, however, be seen, from the herbaceous border to the most delicate and intricate carpet design, the only style which is not largely practised being the subtropical. In front of the Palace next the long walk which leads to the river is a series of beds planted in the carpet, mixed, or conventional styles. The beds near the walks at right angles to these, and one forming a semi-circular sweep round the fine Yews, are devoted to Pelargoniums, with some varied and appropriate margin. These are very handsome, and the richness of colour they supply seems particularly appropriate and in accordance with the surroundings. They prove, indeed, how valuable beds of Zonal Pelargoniums are in suitable positions, for no style of bedding would look so well in contrast with the sombre Yews as the brilliant colouring furnished by these. Scarlet and pink shades are especially strongly represented, and the plants are notable throughout for their bushy habit and great floriferousness. The colours, too, are brighter, clearer, and richer than they are in less favoured localities. The carpet designs are distinguished by marked originality, and in most cases by great effectiveness and taste in design, combination of colours, and planting, and in several the beautiful *Echeveria Peacocki* is most effectively employed. This fine species, which is distinguished alike by its neat symmetrical form and slight purplish tint, has for some years been admirably grown at Hampton Court, and it is strange that it has not been employed more extensively in other parks. Possibly, however, the stock is at present rather limited, and it continues too expensive to bed out on a large scale. Unquestionably it will ultimately become a great favourite for all delicate carpet designs. The mixed beds constitute a decided charm, for examples of several beautiful combinations are given, and suggest others of a similar nature. The herbaceous borders have been grand, but their most striking feature has faded, for the scores of vigorous white Lilies that have flowered most profusely during the early summer months are now past their best. They have been magnificent, with grand heads of large pure white flowers, and produced an unrivalled effect. Lilliums are great favourites with Mr. Graham, and a large stock of *L. speciosum* and *L. auratum* is being raised that will one day add considerable charms to this portion of the garden.

In particularising a few of the most striking beds we may commence with those planted in the mixed style, as these are unusually good. One of the first to attract attention is filled with the brightly variegated *Abutilon niveum maculatum*, *Iresine Lindeni*, and *Verbena venosa*, margined with a band of the second-named plant. This affords a pretty contrast of colours, is really very effective. Another excellent combination is furnished by small plants of the silver variegated *Acer Negundo*, *Iresine Lindeni*, and *Verbena Hampton Court Crimson*, a most beautiful variety of rich colour and good habit. A third bed of great merit is composed of the old but useful variegated Pelargonium *Manglesi*, with *Iresine Lindeni* and *Viola Favourite*. Perhaps the most distinct of all is, however, one carpeted with *Verbena Hampton Court Crimson*, with which is planted *Veronica Andersoni variegata*, and edged with *Iresine Herbstii*. This *Veronica* has become a great favourite in many of the parks lately, and as it is readily propagated by cutting, a stock can soon be obtained from a few old plants. Several other mixed beds are devoted to various plants; such, for example, as standard Roses with a carpet of *Cineraria maritima* and *Heliotrope President Garfield*, or *Centaurea candidissima* with the same *Heliotrope*, others of *Chrysanthemum Madame Desgranges* and *Pentstemon Mrs. Sutherland*, and some of a similar style. These imparted much diversity to the general effect, and served to materially relieve the monotonous appearance that usually characterises a great number of beds planted in a similar manner.

Of the ordinary Pelargonium beds the most pleasing were the following, the central plants in each bed being named first:—Pel. Henry

Jacoby edged with *Centaurea candidissima*, a fine contrast being afforded between the very dark scarlet flowers of the former and silvery white foliage of the latter; Pel. Crystal Palace Gem carpeted with *Viola Favourite* (blue), margined with *Iresine Wallsi*; *Ageratum Imperial Dwarf*, a fine variety, of compact habit, most floriferous, and rich colour, edged with *Iresine Herbstii*. This was a simple but handsome bed. Pel. Flower of Spring, carpeted with *Viola Tory*, margined with *Iresine Herbstii*, and edged with *Alyssum saxatile variegatum*. Pel. Mrs. Pollock, carpeted with *Viola Blue King*, and edged with *Ageratum Cannell's Dwarf*, formed a pretty and distinct bed. Pel. Henry Jacoby is used in several other beds with excellent effect edged with Pel. Golden Harry Hieover; Pel. Mrs. Pollock and *Euonymus radicans variegatus*, all of which are noticeable, and prove how valuable this Pelargonium is for bedding purposes. Pel. Amaranth is freely employed, and in one very notable case it is margined with a new dark-foliaged *Coleus* named Taylor's Pet, which is said to have originated at Chelsea, and appears likely to become a favourite, as it is very dwarf, compact, and almost black. In other beds the same Pelargonium is edged with Pel. *Manglesi variegata* and *Ageratum Cannell's Dwarf*. Pel. Rose of Allandale, a good pink variety, is also a favourite, and deservedly, for it is useful and brightly coloured; in one bed margined with *Coleus Verschaffeltii* and *Euonymus radicans* is striking. Pel. Surprise is not often bedded out on a large scale, but at Hampton Court it is one of the standard varieties, and being of a very distinct salmon tint it is very effective, especially when margined with Pel. Flower of Spring, as it is in several cases with admirable results. Many other good examples might be described, for amongst the ninety beds devoted to the Pelargonium and mixed styles, few can be considered faulty even by the most critical.

The carpet beds, it need scarcely be said, fully maintain the fame Mr. Graham has already won for neatness and novelty of design. Soft tints prevail as a groundwork; *Veronica incana*, *Antennaria tomentosa*, and *Leucophyton Browni*, with bold panels of *Alternanthera amoena*, *versicolor*, *paronychioides aurea*, and *Echeveria Peacocki* furnish the chief features. They are all marked by that finish which invariably characterises the best work of any kind, and the excellent condition in which they are kept will preserve their beauty until the frosts commence.

These remarks have been chiefly confined to the beds in front of the Palace, but it may be added that the gardens generally are in similarly excellent condition; turf, shrubberies, walks, and all the minutiae of garden management, evidently receiving careful attention from the courteous Superintendent.—L. C.

SELECTING AND STORING VEGETABLE ROOTS.

THE present is the time when these must have attention, and where there are many roots to lift this work will form the most important in the kitchen garden for some weeks to come. Fine weather should always be selected for the operation, and this is the main secret of successful preservation, and the weather just now prevailing is most suitable.

Potatoes.—The stems have mostly died, and lifting the roots is being carried on, the tubers being spread on a dry pathway. Those spread out here one day are perfectly dry by the next day afternoon, and they are at once transferred to a dark shed, where they remain until wanted. The good tubers are saved, the large ones being taken in first for eating, then the smaller are put in another place for seed, and the smallest as well as the diseased are given to the pigs. This plan of storing Potatoes answers admirably.

Onions.—Next to Potatoes probably these follow in importance. In many places Onions have to be sent into the kitchen every day in the year, and when this is the case cultivators soon begin to find the advantages of careful harvesting. Our main-crop Onions always grow on a large square in the kitchen garden, and include several varieties; but these are not all put together at harvesting time. Those of the White Spanish type are kept by themselves for autumn and winter; then such capital keeping sorts as James's Keeping are stored separately until spring. This is the best way of securing a constant supply and long succession of useful Onions. In beginning to harvest the bulbs they are drawn up and laid down on their sides on the place they were growing, and there they remain for upwards of a week, when they are lifted and laid out again on a gravel path in the vegetable garden. They are allowed to remain there for a week or so, and by this time they are well dried, the stems being withered, and then they are ready for housing. Should wet weather prevail during the time they are newly drawn it is a great advantage to take them into some open shed and dry them there, as they never keep well when subjected to several soakings whilst being prepared for storing. When quite dry the bulbs should have a portion of the rough stem twisted off. We generally leave the stem from 3 inches to 4 inches long on each; and although they are now put down in heaps in the sheds, by-and-by some of them may be made into ropes to hang up, and it is necessary to have a piece of stem to each to do this.

Beetroot.—This should always be taken in before severe

weather commences. Some seasons and in some localities we have had to lift our Beets by the end of September, and in other cases we have left them out until November; but when grown to a good size there is nothing gained by risking them out, and they may as well be taken in as long as the weather is fine. They should be lifted from the soil with a fork, so that none of the rootlets are broken, as this causes them to bleed and spoils them. For the same reason the leaves should never be cut close to the crown. The roots should be dried for a day or two in the open before storing in a cool shed or cellar; and to preserve them properly and prevent them shrivelling they should be stacked and covered with moderately moist leaf soil or sand.

Carrots are treated in all respects like the Beet, and we always manage to keep both until the young crops are ready the following year.

Parsnips, Salsafy, and such-like roots are much better left in their growing quarters until spring, and a quantity may always be lifted for use before severe frosty weather.—A KITCHEN GARDENER.

ROYAL CALEDONIAN SOCIETY'S AUTUMN SHOW.

THE annual Exhibition of the above Society was held as usual in the spacious Waverley Market, Edinburgh, on Wednesday and Thursday last, under the most favourable meteorological influences. Although the entries were in excess of any previous year, internationals excepted, the display was hardly as good as we have seen it. In the larger classes competition was anything but spirited, fewer exhibitors entering than there were prizes offered in some instances.

THE FRUIT CLASSES.

As is usual at the autumn meetings in Edinburgh heavy prizes were offered in these in order to tempt growers to make as great a display as possible, and although some good fruit was shown the display was by no means what might have been expected, with the exception of the Apples, which were both extremely numerous and good.

The competition for three prizes of £5, £2 10s., and £1 10s., offered for a collection of fruit, twelve distinct sorts, only two collections were staged. Both were very nearly equal, but after carefully examining both exhibits the Judge awarded Mr. Johnston, gardener to the Earl of Strathmore, Glamis, Forfar, the first prize. Mr. Johnston's dishes of Black Alicante and Muscat of Alexandria Grapes, Smooth Cayenne and Charlotte Rothschild Pines, Late Admirable and Royal George Peaches were particularly good, while Bananas, Melons, Plums, and Figs were fair. Mr. McIndoe, gardener to Sir Joseph Pease, Hutton Hall, Guisborough, was placed second with a collection but a few points behind the first; indeed, we imagine that but for his Grapes being not quite equal to Mr. Johnston's the first card might have been won by him. He staged Black Hamburg and Golden Queen Grapes in fair condition, Princess of Wales and Royal George Peaches very fine, a good dish of Durondeau Pears, a fine Queen Pine, two very handsome Best of All Melons, and good Figs, Apricots, Plums, and Nectarines. The competition in the class for eight sorts was more spirited, and some fine fruit was staged in this class. The prizes were awarded to Mr. D. Murray, Maybole; Mr. W. McKelvie, gardener to the Dowager Duchess of Roxburgh, Broxmouth; and Mr. James Mackonichie, gardener to P. B. Smollet, Esq., Cameron House, Alexandria, in the order of their names. Mr. Fairgrieve, gardener, Dunkeld, exhibited a good collection in this class, but evidently reserved his strength for the collection of ten sorts of hardy fruits (must all be grown out of doors), in which he was successful in gaining first with Royal George and Early York Peaches in marvellous condition so early as the beginning of September, considering that Dunkeld is situated in Tayside. The Royal Georges especially proved that the expense of glass is not needed, even in the north of Scotland, in order to secure the finest Peaches. The Orange Apricot, Victoria, Jefferson, and Goliath Plums were fine, and the French Bergamot Pears especially so. Mr. MacIndoe was second, his collection containing good dishes of Souvenir du Congrès Pear and Worcester Pearmain Apple. Mr. J. Day, gardener to Mr. Broadhurst, Garlieston, Wigtonshire, third.

For Grapes seventeen classes were provided, and liberal prizes ranging from £6 to 10s. offered. For three prizes of £6, £4, and £2 only two competitors tried their strength in the class for twelve bunches, six white, six black. Mr. McIndoe staged large bunches of Gros Guillaume, Trebbiano, and Gros Colman, and fairly good bunches of Golden Queen, Foster's Seedling, and Black Hamburg. As a whole these were in anything but good condition, not being fully ripe. Mr. McKelvie staged much smaller bunches of Madresfield Court, Muscat of Alexandria, Black Hamburg, and Buckland Sweetwater very well finished, and the Judges placed them equal first. For eight bunches, at least six sorts, the competition was more spirited. Mr. McKelvie was first in this class with fine examples of Black Hamburg, Muscat of Alexandria, Abercainey Seedling, Alnwick Seedling, Madresfield Court, and Buckland Sweetwater. Mr. A. Kirk, gardener to J. T. Paton, Esq., Norwood, Alloa, was a close second, a notable dish; very good Dukes, Alnwick, and Muscat. Mr. McIndoe was third. For four sorts Mr. Kirk was first with well-finished fruit, Mr. Day second, and Mr. W. Lees, Hillborough Castle, Co. Down, who showed a splendidly finished bunch of Cooper's Late Black. For two bunches of Muscats Mr. Ramsey was first with two moderate-sized bunches fairly finished, Mr. Day being second. Mr. Johnston showed two very fine bunches in this class, but hardly ripe. Black Hamburgs were fairly good; the second prize was best, only the bloom was tarnished. Mr. A. Smith, Spiddock, Dumfries, was first; Mr. Mackie, Darlington, second. In the one-bunch classes the first-prize Black Hamburgs were good, Alicantes very fine, Gros Colman not coloured. The best of any black not named in the schedule was a Cooper's Late Black—a splendidly finished bunch. In the class for finest-flavoured black,

Madresfield Court, dead ripe and shrivelling, won the day, and a small bunch of Muscat of Alexandria that for the best-flavoured white. For the finest bloom Mr. Lees' bunch of Cooper's Black was simply perfect. Mr. Dewar, gardener to Captain Archibald, Beechwood, Tillicoultry, staged the Duke of Buccleuch in excellent condition, securing the first prize in the any variety white class. The Vines in pots were not remarkably good, though the crop on the first-prize lot was heavy. Space forbids us further noticing the exhibits in the Grape classes from No. 6 to 17, beyond publishing the names of the principal prizetakers, who are as under:—Messrs. G. Mackinnon, Melville Castle; James Jeffrey, Langholm; William Spence, Loanhead; D. Murray, Maybole; S. Castle, Norfolk; William Lees, Co. Down; and Alexander Lowe, Coltbridge Hall.

Pines were not numerous shown, but were in fine condition. There was a great display of Melons, and these were judged according to quality, although Mr. McIndoe's Best of All, which carried off the prize for green-fleshed, was handsomest as well. Only one bunch of Bananas was shown, but these were very fine. Space forbids us particularly noticing the other fruit classes, but we may say that the Apples were extra good and very numerous, although the naming was very faulty. Some of the most successful exhibitors in the minor classes were Messrs. A. Young, gardener to the Earl of Breadalbane, Taymouth Castle; N. Black, Darlington; M. McIntyre, Innerleithen; D. Murray; J. McIndoe; A. Bremner, Tranent; D. McFarlane, Peebles; John Brunton; J. Souza, Stirling; George McKinnon; G. Dewar, Fife; J. M'Intyre, Woodside, Darlington; George Maclure, Trinity, Gove; Alexander Dalgleish, Eskbank; J. Brunton, Gilmerton.

PLANTS.

Although three prizes of £5, £3, and £2 were offered for tables of plants 20 feet by 8 feet, only two competitors appeared. Both tables, however, were very good, especially the first-prize one, which excelled in graceful arrangement; the second was in the good old-fashioned style. In the classes for specimens were some grand examples of Heaths, Clerodendrons, and Eucharises. In the classes for Orchids, which were but poorly filled, Mr. Curror, Eskbank, had fine specimens of *Miltonia spectabilis* and *Cattleya gigas*, Mr. Paul of Odontoglossum grande and *Phalænopsis amabilis*; Mr. Grossart staging a fine piece of *Vanda tricolor*. The Ferns were mostly good, especially the *Adiantums*, *Filmy Ferns*, and dwarf British species. Among the latter we noticed delightful potfuls in the prize collection—*Woodsia hyperborea*, *Trichomanes radicans*, *Asplenium Trichomanes confluens*, *A. septentrionale*, *A. incisum*, *A. germanicum*, *A. fontanum*, *Polypodium elegantissimum*, *Blechnum spicant cristatum*, *Polypodium vulgare cristatum*, *P. cornubiense*, *Scolopendrium vulgare Baxterii*, and *Woodsia ilvensis*. These would form a capital collection for a beginner. Among the *Lycopods* Mr. Henderson's deserve special notice, his *Widenovii* being a remarkable specimen. *Crotons* were fairly good, *Eucharis* very much so in one or two instances, while *Zonal Pelargoniums* were only moderate, and *Fuchsias* below the average. *Tuberous-rooted Begonias* made a grand show, and the *Vallotas* were well bloomed. *Cockscombs* were very inferior to what they usually are in the north, where they are generally exceedingly well shown. The premier prizes in the leading classes were awarded to the following exhibitors:—Table of plants, 20 feet by 5 feet, for effect, Mr. R. Grossart. Six stove or greenhouse plants, in flower, distinct sorts (first prize by the Corporation of the City of Edinburgh), Mr. J. Paterson, Millbank. Three stove or greenhouse plants, in flower, distinct, Mr. J. Fowler, gardener to Mr. R. Paterson, Grange Road. One stove or greenhouse plant, in flower, distinct, Mr. J. Paterson, Millbank. Four Orchids, distinct sorts, Mr. A. Paul. Two Orchids, distinct sorts, Mr. J. Curror, gardener to Mr. G. Douglas, Eskbank, Dalkeith. Six Exotic Ferns, distinct sorts, not more than one each *Gleichenias*, *Adiantum*, or *Tree Fern*, Mr. Samuel Graham, gardener to Mr. Hugh Rose, jun., Kilravock Lodge. Four *Adiantums*, distinct sorts, excluding *farleyense*, Mr. D. Lawson, gardener to Mr. R. Croall, Craigmackay.

CUT FLOWERS.

In the gardeners' classes for cut flowers some very good examples were shown, *Gladioli*, *Hollyhocks* (in spite of disease), and *Dahlias* being especially fine. For twelve *Gladioli* Mr. Gray, gardener to W. Finnie, Esq., Newfield, Kilmarnock, was first with the following:—*Shakespeare*, *Sir Joseph Paxton*, *Camille*, *Amathée*, *Dunnet d'Urville*, *Fatima*, *Didon*, one unnamed seedling very fine, and two named *Miss Hill* and *Mrs. Finnie*, the latter having already had two first-class certificates. These, though fine, were hardly so good as Mr. Gray usually shows them, his strength being put out in the West on the same day. For the six Mr. Kilgour of Blair Drummond had remarkably strong spikes of *Ondine*, *Horace Vernet*, *Mrs. Finnie* (Gray), *Archduchess M. Christine*, *L'Unique Violet*, and *Shakespeare*. These were in magnificent condition and were greatly admired. *Hollyhocks* were in their way equally fine, especially the spikes and blooms which won the prizes for Mr. Kerr, gardener to W. Scott Kerr, Esq., Sunlaws. Among the spikes *Gem of the Yellows*, *Lord Middleton*, *Cygnets*, *Mrs. Boston*, and *Dr. Mackeyse* were truly superb. *Roses* were wonderfully good, but other cut flowers were far behind those shown the week previously in Glasgow.

Vegetables were shown in goodly quantity and very fine quality. The Leeks from Mr. Cairns, The Hirsell, of the Coldstream variety, were very large, those from Mr. Glass, Carbrook, being not far behind. *Potatoes* were in strong force and made a capital show. Some of the exhibitors seemed to think that a covering of dirt might help them, but it would not do; the brightest and cleanest won the day.

NURSERYMEN'S CLASSES.

As usual much of the success of the Exhibition as a show was owing to the efforts of the trade growers, although we have seen them in better form. Messrs. Ireland & Thomson's table was deservedly first, being brighter and better arranged than the others. Mr. Campbell of Gourock's thirty *Gladioli* were very fine, and similar to those staged by him in Glasgow last week. The *Roses* from Belfast and Aberdeen were conspicuous and attracted much attention.

Among the miscellaneous exhibits the most attractive was the wonderful display of single *Dahlias* set up in fan-shaped bouquets by Mr. Ware of Tottenham, London. Single *Dahlias* there were in plenty from different sources, generally shown as single blooms or ungainly bunches, but these completely cast all others in the shade. Out of some fifty sorts we picked

out the following as being certain to please our Scottish friends who may have fallen in love with the reigning beauty:—Union Jack, H. W. Pettitt, Rosalind, Pantaloon, Wanderer, Baron, Paragon, White Queen, Dr. Moffat, Emerald, and Juarezii of course. Mr. Robert Urc, of 70, Leith Street, had a most notable display of wreaths, crosses—partly artificial, partly natural. The Liverpool Horticultural Company exhibited a new *Adiantum* in the way of *concinnum latum*, but denser. The Lawson Seed and Nursery Company showed a table of miscellaneous plants and some good hand and breast bouquets, two of the latter made of Rowans, Snowberry, and *Salisburia adiantifolia* pleased us particularly. Messrs. Methven & Sons, Edinburgh; Smith, Stranraer; and Montgomery, Cardross, also exhibited interesting collections.

Cut Flowers.—Messrs. R. P. Laird & Sons staged collections of bouquet Dahlias and single Dahlias in bunches, Hollyhock and Dahlia flowers; from Messrs. Lamont & Sons, Joppa, came single Dahlias, one flaked crimson being fine; two pots of *Hyacinthus candicans* were shown by the same firm; Mr. Forbes, Hawick, showed boxes of border Carnations, pretty and useful for cutting, and single Dahlias, also very fine Pentstemons and Verbenas; Messrs. Cocker & Son, Aberdeen, had collections of Show Carnations and Picotees and a box of handsome Tea Roses. We understand the attendance of visitors was fully equal to the average, owing to the fine weather, and the Show was a decided success.

HARDY HERBACEOUS PLANTS.

Anaphalis triplinervia.—Probably one of the most handsome and interesting of the hardy herbaceous Everlastings when well grown. It came into cultivation in this country about the year 1823, but, like many more good old plants, it has become comparatively forgotten, though it has much to recommend it for the rock garden or the flower border. It loves a moist cool soil, and has proved one of the hardiest plants I am acquainted with. It has safely passed through the late three severe winters, a test for many hitherto hardy plants. It is of very neat habit, making dense tufts 8 to 12 inches in height, and is readily increased by division. Leaves about 3 inches in length, oblong, entire, and slightly decurrent; the upper smaller ones narrow, heart-shaped; branches and under side of leaves cottony, upper side dark green. Flower heads silvery white, in dense corymbs, afterwards loose and about 3 inches across. It comes into bloom about the end of July and continues throughout August, but its beauty lasts much longer owing to the persistent character of the flower heads, which remain until injured by autumn winds and rain. It is a native of Northern India, and grows at an altitude of 8000 to 9000 feet.

Tommasinia verticillaris (Koch).—Out of the 1300 species of Umbelliferous plants only a very small percentage are cultivated for their decorative character, the vast majority being useless for ornamental purposes. The plant in question, which is rarely seen in gardens, is one worthy of some consideration. In small gardens small-growing neat-habited plants only should be employed, but in large garden still growing noble foliage plants can be employed with marked effect. The old *Heracleum giganteum* has long held its own as a plant most suitable in relieving the monotonous appearance of many large shrubberies and borders. *T. verticillaris*, on account of its strikingly different foliage, would make a pleasing feature if associated with the *Heracleum*. It has much the appearance of the wild *Angelica*, but taller, more robust in foliage, and more floriferous, with its compound umbels of flowers on long peduncles in whorls along its stout purple stems, which reach to the height of 7 to 9 feet. It seeds freely, by which means it is increased. Native of Piedmont in Italy.

Polygonum affine.—This is better known as *P. brunonis*, but the first name is probably the oldest, and is the one now kept up in establishments of authority. It is still uncommon in gardens, though it could be easily procured from any respectable grower of herbaceous plants; but it is only when the garden becomes destitute of floral beauty that many plants can get credited for the good qualities they possess, and the plant now under notice is one of these. *P. affine* is now at its best, and ought to be liberally grown in gardens where a constant succession of hardy flowers is desired. We intend to make better use of it

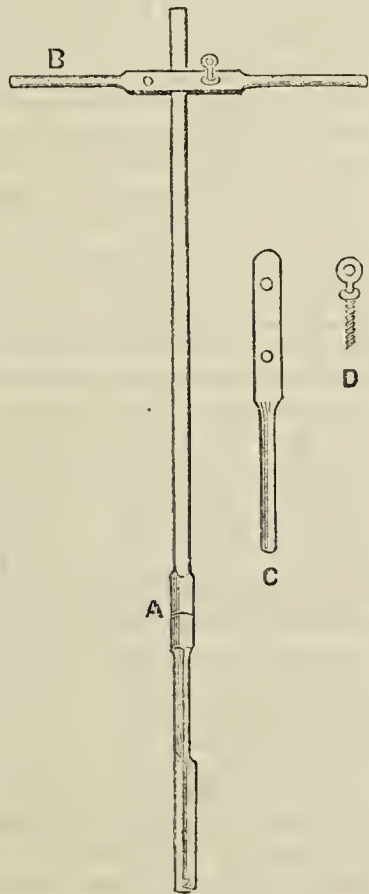


Fig. 49.

here another season. One good mass in the garden is 2½ feet through, quite round, a beautiful flat green flake of foliage bearing a hundred of its beautiful spikes of flowers, which are a rosy-red colour, changing to a true red as they become older. A brief description of the plant may be of use to those unacquainted with it. The stems, which are rather woody and prostrate, are furnished with copious, alternate, finely serrated leaves, slightly acuminate, 6 inches in length, and barely 1 inch in the widest part, with a gradual tapering to the base, and stand erect. The flower stems, which spring from the previous year's growth, are 10 to 12 inches in length, furnished with small remote scarcely spreading leaves, and terminating in a dense spike of flowers 2½ to 3 inches in length. It is a native of the Himalayas, and commences flowering with us in August, and continues gay till stopped by autumn storms and frost. It is well adapted for planting in damp or wet places; indeed it is much more at home when growing under such conditions.—T. ENTWISTLE *Wood Lawn, Didsbury.*

SUBSOIL EXAMINATION.

IN answer to the query of "F. J." on page 208 about an instrument for examining the subsoil of gardens, I send you a sketch of a simple and efficient boring tool, which I had made several years ago when searching for stone for road-making, and which is admirably adapted for his purpose. The stem is three-quarters of an inch square solid iron above the union A, below it is 1 inch, and thickens slightly downwards to the top of gouge-like scoop, which is 2 inches in diameter and 16 inches long. The handle is in two pieces similar to C, each 20 inches long, which are screwed together with a couple of stout screws with eyelets like D, and the handle is screwed together very tight to keep it from shifting by a small iron bar passed through the eyelets. This kind of handle is very convenient for shifting up or down as may be necessary. The connection at A (fig. 49) is by means of a male and female screw, and the stem may be lengthened indefinitely for deep boring by adding more lengths with a male screw at one end and a female screw at the other.—EDWARD LUCKHURST.

WASPS DEVOURING UNRIPE PEARS.—Would some kind correspondent inform me if it is usual in other parts of England to find wasps attacking the late, hard, unripe Pears, devouring them so fast each year that I am obliged to pick crops long before the fruit is ripe? This day I have three fine fruits destroyed of a fine winter Pear. Next to it is an early very sweet fruit I shall gather to-morrow; this and my Bon Chrétien Pears are never attacked by wasps. In this garden for three consecutive years this has been the case—viz., all my finest unripe winter fruit is devoured if not gathered; the early-ripening Pears are not touched. We cannot put bottles to trap them on 200 or 300 trees as we do on a wall.—SAXORING.



FRUIT-FORCING.

PEACHES AND NECTARINES.—*Making Borders.*—Where it is deemed expedient to plant in early houses or to furnish new ones the borders must be prepared without delay, so that the trees may be planted at the close of this month or at the beginning of October. The border should be 36 inches deep, and the bottom incline to a drain, having proper fall and outlet, and 9 to 12 inches depth of drainage provided, placing the roughest at the bottom and smallest on the top, securing it with a layer of turves grass side downwards. The soil should be in a moderately dry condition and firmly. Good rather heavy loam four parts, one part burnt surface, and a part lime rubble thoroughly mixed together, form a suitable compost for all stone fruits. No manure should be added, as the trees will grow quite strong enough for the first half dozen years; and when a stimulant is required it is best given as a mulching, and the employment of liquid manure when the trees are swelling off their fruit.

Selecting Trees and Varieties.—An early selection of trees is advisable, making choice of those that are well furnished and that have not made a strong growth, but have firm short-jointed wood. The trees should be lifted carefully, preserving all their fibres, and kept moist until they are planted in the borders prepared to receive them. For an early house select Peaches Alexander, Hale's Early, Large Early Mignonne, and A Bec. The second house should comprise such standard varieties as Royal

George, Grossc Mignonne, Violette Hâtive, Belle Bauce, and Nohlessc. Late houses should have Bellegarde, Barrington, Stirling Castle, and Late Admirable. Of Nectarines for an early house Lord Napier and Hunt's Tawny; second house, Elruge, Violette Hâtive, Pitmaston Orange; and later houses, Pine Apple, Stanwick Elruge, Albert Victor, and Victoria.

Lifting Trees.—No trees pay better for lifting than the Peach. Operations of this kind in early and midseason varieties should be commenced without delay, the first consideration being thorough drainage, through which the water can pass freely. Commencing at the point of the border most distant from the tree stem, and working from the extremities of the roots inwards, all long and strong bare roots will be the better shortened back before laying in the fresh compost, which should be used in a moderately moist condition, so as to allow of its being firmly rammed to induce a fibry root-formation, and consequently the feeders.

Late Houses.—When the trees in late houses are cleared of the fruit, every lateral and shoot that will not be required for extending the trees or fruiting next season should be removed, so that the young shoots now swelling their buds may have the benefit of the increased light and air. The foliage must be kept clean and healthy by an occasional syringing and the prompt application of an insecticide, if there be any trace of red spider or brown aphid. The inside borders must be kept moist, as dryness at any time is prejudicial to the health of the trees and the retention of the buds.

CUCUMBERS.—*Plants in Bearing.*—These will now be considerably benefited by a top-dressing of three parts fibrous loam, preferably light, with one part of thoroughly decomposed manure, having previously removed the loose surface soil, but without injuring the roots. If the plants are dry at the roots they should be given a good watering, the water being tepid. Liquid manure should not be given until the roots are working freely into the fresh material, which they will soon do, and then it may be applied with advantage. Maintain a genial temperature during the day of 70° to 80°, and 85° from sun heat. Close early—from two to three o'clock—according to the weather, allowing an advance after closing to 90°. The night temperature should be kept at 60° to 65°. Ventilate freely in favourable weather, especially during the early part of the day, which will do much to keep the growth stout and the foliage leathery. Syringe the plants twice a day when the days are bright, but let damping suffice when the weather is dull.

Winter Fruiters.—Young plants which some little time ago were put into their fruiting quarters will be the better of a little fresh compost being added to the ridges or hillocks in such quantity as to cover the protruding roots. Similar remarks apply to those put out in pots or boxes. The plants have now reached the third or fourth wire, and being stopped, the laterals resulting therefrom should be trained evenly over the trellis. The treatment in other respects advised for fruiting plants is applicable to these.

Plants in Dung-heated Pits.—In order to keep the plants in a healthy and fruitful condition some time longer the linings will need to be attended to weekly or fortnightly as the condition of the fermenting materials and the state of the weather may determine. The plants should be examined weekly for stopping and regulating the growths, keeping it moderately thin, and removing had leaves and exhausted growth, as also knob fruit, which shows itself pretty abundantly on plants that have been some time in bearing, especially at this time of year, and seed-bearing exhausts the energy of the plants considerably more than anything else. When the plants require water let it be given sufficiently early in the day for the foliage to become dry before night. If mildew appear dust the affected parts with flowers of sulphur. Place a covering of mats on the lights at night.

HARDY FRUIT GARDEN.

Gathering and Storing Fruit.—The fruit of Apples and Pears should be frequently looked over and gathered as soon as it parts easily from the tree and the pips are brown—not sooner, for fruit gathered prematurely becomes shrivelled and flavourless. If left too long upon the trees early Pears are spoiled, and both Apples and Pears may then be swept from the trees by the first puff of wind. Much fruit is being spoiled by wasps, which are so numerous that they attack every exposed fruit. When gathering a heavy crop of Wormsley Pippin Apples on the 15th inst., we found several decidedly sour fruits half eaten by wasps driven from the more tempting wall fruit by Haythorn's hexagon netting, which is the best for the purpose, letting in air and light, yet excluding all winged insects. It must not be forgotten that wasps can crawl as well as fly, and they will make their way through any loose place along the top or bottom of the netting. We recently found some two dozen of them feasting upon Peaches, Nectarines, and Figs in our fruit-store, to which they had gained access by crawling through the keyhole. Brunswick Figs are especial favourites with wasps, but the large fruits are easily protected upon the tree by muslin bags. Let no careless person gather fruit—it should be put in the fruit-room without bruise or blemish, or it will not keep, and to that end must be handled carefully. Do not forget that the blossom bud of next year's crop is frequently close to the fruitstalk, and should sustain no injury. The frequent breaking of spurs that it has taken several years to form, which occurs during the fruit-gathering, may easily be avoided by the exercise of due care.

Root-pruning.—All fruit trees, but more particularly Pears and

Apples, that are excessively vigorous and bear little or no fruit should be root-pruned at once before the leaf falls. Mark a circle 4 feet in diameter around the stem, dig a trench close outside it, but only half way round it, deep enough to sever all roots on that side, and then work from the trench well under the tree, so as to prune all strong roots, then fill in the soil, and put a stay to the tree to prevent its being blown over. Enough roots remain in the undisturbed half of the circle to supply sufficient sap to keep the tree healthy. The pruned roots will contribute little or no sap till new rootlets are formed, and then only in moderate quantity for some time to come. Meanwhile fruit buds will appear. Little, if any, wood growth will come upon any of the lower spurs next year; foliage will, however, be sufficiently abundant to elaborate enough sap for the development of plump fruit buds, which will become much more abundant in the second year, and in the third year the tree should be bearing a full crop of fine fruit.

PLANT HOUSES.

Cleaning the Houses.—The season has again come round when the housing of tender plants must be attended to without delay. It is good policy to commence this operation by thoroughly cleaning the houses which the plants are to occupy. The glass inside and out, as well as the woodwork of the house, should be well washed with hot water and soft soap, the walls whitewashed, and the pipes blacked before they are filled with plants. It is important to have the houses clean before the plants are placed in them, so that every ray of light and sunshine possible can reach them during the declining months of the year. Preparation should first be made for those plants that have been occupying cold frames, but will not bear a lower temperature at night than 50° or 55°. This clears cold frames for the accommodation of less tender plants that have been standing fully exposed, and only require for some weeks yet protection at night from early frosts.

Poinsettias and Euphorbias.—These, as well as many other plants, such as Linums, Centropogon Lucianus, Plumhagos, and others of the same or similar character must without delay be removed from cold frames to light positions in houses where an intermediate temperature can be maintained. The two former especially soon show the effects of being starved at this season of the year, more especially if they are injudiciously watered. The leaves soon turn yellow and present a sickly appearance, which arises mainly from inactive root-action, which is very soon the case if these plants are subjected to too low a night temperature. To secure good bracts on dwarf plants of Poinsettias their foliage must be retained, or their heads will be small. Attention is also needed, on the other hand, after housing these plants, not to give them too high a temperature, or they will be excited into growth, and in consequence will be only poorly flowered specimens. Many plants of this description that have been carefully tended through the summer are rendered almost useless by too high a temperature in autumn. After the plants are housed we prefer the application of a little heat, with ventilation at night, in preference to applying it only when there is fear of the temperature falling too low. As soon as these plants commence forming their bracts and flower buds give them a supply of Standen's manure, which assists them wonderfully.

Zonal Pelargoniums.—Plants that have been standing outside all summer in preparation for flowering in the autumn and winter should now be placed under cover. They are now in good condition, but if left out much longer they will undoubtedly commence rapid soft growth through the damp nights and heavy rainfalls, which are frequent in many localities at this season of the year. After these plants are housed, if not wanted to come into flower for some time, keep the atmosphere of the house or pit in which they are placed moderately dry, and give abundance of air during the day; in fact, when very fine the lights may be entirely removed.

A batch of plants housed now and brought forward gradually will come into flower early in November, and will continue to produce trusses freely until Christmas, even if the house in which they are placed is only second-rate, provided it can be kept moderately dry and a temperature of 50° maintained. The double forms, where they are only required for cutting, should be kept by themselves if possible, where a little heat can be given them. These plants are very much benefited by being top-dressed when started to come into flower with a little good loam, in which has been mixed a little Standen's manure.

It is a good plan to strike a batch of cuttings in moderate heat at the present time, both single and double varieties. Place the cuttings singly in 3-inch pots, and when rooted pinch out the points of the plants, and winter them on a shelf close to the glass, where the temperature will not fall below 40°; if it can be kept 5° higher so much the better. These are ready for potting early in the year into 5 and 6-inch pots, and make, if taken care of, an invaluable batch for early flowering.

Bouvardias, Solanums, and Salvias of this description that have been planted out should be lifted without delay. The first-mentioned, after they are placed in pots, should be well watered and placed in cold frames and shaded from strong sun until they commence rooting. The others, as well as Callas and plants of a similar description, establish themselves best when placed outside on the shady side of a wall, where they can have protection if necessary. These plants must not be allowed to flag after they are lifted, and this can readily be avoided when stood out of the sun's rays and kept well supplied with water, and syringed frequently during the day. Do not expose them to the sun until they have commenced rooting, and then only gradually at first.

THE BEE-KEEPER.

WINTERING BEES.

A FORTNIGHT ago the readers of this Journal were advised as to the treatment of skeps in order to prepare them for passing through the winter. They were told to strengthen all weak stocks by joining to them the bees from stocks which were to be taken up, or from those too weak in numbers to be left to pass the winter. We have on former occasions tried to impress the necessity for strong colonies of young bees at the close of the summer season, and whether bees are to winter in skeps or in bar-frame hives the same rule holds good. Have your stocks strong. After the skep has thus been well peopled with bees, and it is seen that sufficient food is stored to give the winter supply, its outer protection should be attended to. Nothing is neater than the ordinary straw hackle well secured by a stout stake, and so made that all drip is carried away well below the floorboard. Entrances should be narrowed and so arranged that mice and other vermin cannot get into the hive.

With bar-frame hives, which are so much more directly under the management of the bee-keeper than skeps, autumn preparations differ somewhat. In Heather districts there will still perhaps be supers on the hives, and finished or unfinished frames of sections on the sides or at the back of the brood nest. The hive must therefore be overhauled, and all honey which can be spared taken away; where zinc separators have been employed these should be now withdrawn and wooden dummy frames put in their place. We purchased some time ago several sheets of Abbott's wooden foundation. These are of course well known to all practical bee-keepers. They are simply sheets of thin wood upon the faces of which have been stamped the ordinary wax foundation. The wood thus forms the midrib of a comb after the bees have worked out the sheet. We have found them to be excellent dividers or dummies for winter use. In order to prevent warping and sagging we have tacked strips of wood along the bottom and sides of the sheet, and let the top into a bar of wood similar to the top bar of our other frames. Strips of list or salvage of flannel fastened down the sides and along the bottom make them fit close, and at the same time easily. The bees have in many instances filled these sheets with honey and pollen, but even where the frames are empty the slugs of stiff comb act as capital dummies superior to the ordinary wooden ones with their hard cold surfaces. With these dummies we are also able to contract the space to be occupied by the bees to a minimum, since the bees can cluster in the cells should they wish to do so.

It will be readily seen that it is of the utmost importance to contract the space to be occupied by the bees in winter. Our modern bar-frame hives are so constructed that the bee-keeper has the means of almost unlimited expansion, and it is this power which enables the bar-framist to obtain such fine harvests of comb or extracted honey when the season is favourable. But when all these store-rooms are not required he must shut them off from the warm living-room where the unemployed workers are to be kept during the winter. The spaces previously occupied by frames or sections can be either left empty during the winter or filled with dry clean oat chaff. Our own hives are mostly constructed so that the frames may run parallel with the entrance during winter, and in these hives we draw the frames to be occupied by the bees towards the centre of the hive, placing a dummy with a slit at the bottom corresponding with the hive entrance in front of the frames, and so arranging a tunnel that the bees may pass in and out, placing over this tunnel and filling the space between the dummy and front of the hive with the dry chaff. Where cork chips are obtainable they are perhaps better than chaff.

We find that a very strong colony can be pressed into the space occupied by seven or eight frames. Over the top bars we place a sheet of ticking, and on this either several quilts of flannel or drugget, or, what is better and clean and handy, a chaff cushion, made by a framework of quarter-inch wood 2 inches broad—thus. Over the bottom of the frame we tack a sheet of canvas, cutting out F. All the compartments excepting F are filled with dry chaff, and another sheet of screen canvas tacked over all. We make a pad to fill up F when feeding is not required. A flap is left removable at pleasure in the ticking to correspond with F. We found that hives over which this cheap and easily constructed quilt was used last winter were perfectly dry and warm,

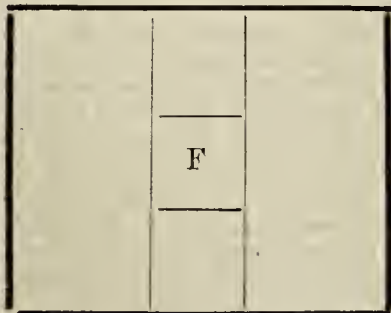


Fig. 50.

yet superfluous moisture can readily escape through it. When feeding is necessary over the pad is withdrawn, the bottle inserted on a zinc feeding stage, and cotton waste or bits of flannel pressed in round the body of the bottle to keep all warm, the flap in the ticking having been previously lifted. Where hives are kept under cover nothing further will be needed over the hives; but where they are kept in the open now is the time to overhaul the hive covers, to give a good coat of paint, and see that all is watertight from without, with ample accommodation for the escape of the moisture from within. Covers should never be so made that the inner part touches the quilts, otherwise the condensation will drip upon and be reabsorbed by them, and they will in the course of the winter months become a mouldy mass.

Much has been written and spoken against the use of wooden hives, and in favour of skeps as winter receptacles for bees, and undoubtedly the straw skep is better adapted to the welfare of a colony in the hands of one who wishes to give as little attention as possible to his bees; but where the extra care can be given the bar-frame hive (so much more suited for summer use, and for the obtaining of remunerative harvests) can be made as safe and as snug a winter residence as the straw hive. It is the careless and let-alone system adopted by many who have commenced and thrown up in disgust the culture of bees, that, but for the opposite testimony borne in their favour by careful and intelligent bee-keepers, would have brought bar-frame hives into discredit. With ordinary care and attention the bar-frame hive may be put into a condition which will bring the bees safely through the most trying winter. Damp is the great enemy to be combated. No amount of cold will work such havoc as damp or want of proper ventilation, and these are the enemies to be provided against. If the bees are strong, have sufficient food, and the instructions we have tried to give be followed out, then good results are certain to follow. The bees will be healthy and powerful in early spring, and will have a fair start for another working season.—P. H. P.

TRADE CATALOGUES RECEIVED.

- James Smith & Sons, Matlock, Derbyshire.—*Catalogue of Trees and Shrubs.*
 Thomas S. Ware, Tottenham, London.—*Bulb Guide.*
 Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Hyacinths and Tulips.*
 Daniels Bros., Norwich.—*Catalogue of Bulbs.*
 Arthur Jeffries & Co., Westerham, Kent.—*Catalogue of Bulbs.*
 Martin Grashof, Quedlenburg.—*List of New Flowers.*
 Dammann & Co., Portici, Naples.—*Catalogue of Vegetable, Plant, and Flower Seeds.*
 Cranston Nursery and Seed Co., Hereford.—*Catalogue of Bulbs.*
 George Neighbour & Sons, 127, High Holborn, and 149, Regent Street.—*Catalogue of Improved Bee Hives (illustrated).*

TO CORRESPONDENTS

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

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

Books (North Herts).—We know of no book on Roses by the author you name, and if there is one you would derive no more information from it than from those you possess. You might well add to your library the works of Mr. William Paul of Waltham Cross.

Digging, Trenching, and Draining (T. S.).—You will find full particulars concerning the cost of this work in the "Gardeners' Year Book," published at this office, price 1s., post free 1s. 2d.

Cranberries (G. J. B., Netherlands).—The Cranberry most used in England is the fruit of *Oxycoccus palustris*. They are largely imported from Russia for using in tarts, but not for mixing with preserves. The American Cranberry—most esteemed is the large round one produced by *Oxycoccus macrocarpus*, and called in America the Cherry Cranberry.

Sewage Water (F. R.).—It is good for everything, but probably weak

at times, because of the surface water draining into the tank. For all kinds of vegetables and flowers applied in summer it is invaluable. For Vines or plants in pots (but for the latter the water must be clear) there is nothing to surpass it, and hardly anything is so good. The same remarks apply to fruit trees, bushes, as well as other trees and shrubs. To grass land or lawns it may be applied in winter or wherever the ground is poor with nothing but benefit. But could you not lead the surface water into some other drain? then you would know the strength of the sewerage, and how to dilute it.

"Mushrooms for the Million" (J. S.).—The new edition of this work will be ready for publication in the course of a few days, and the price will be 1s. A number of copies of the first edition were sold in paper covers at 6d. each, but as the bound copies published at 1s. have given the greatest satisfaction there will be no further issue of the too fragile form of this treatise.

Root-pruning (S. T.).—The word "hoppers" in the article referred to should have been "loppers," an obvious misprint.

Ground Vinery (H. S.).—In the sketch given of this in "Vines and Vine Culture," the space you mark B is the bottom sill of the frame which rests on the bricks, there is no opening. The points A at the top are of no consequence, and may be cut off close if preferred.

Insects in Old Post (T. W. S., Lee).—Though it would be unwise to speak positively until the insects forwarded have emerged from their pupa state, we consider the Elm post you mention has been mined by the larvæ of a four-winged fly, one of the sawfly group, probably the species known as *Sirex juvenicus*. Their galleries often occur numerous in the wood of Pine and Fir, and occasionally they are found in other trees. Owing to their slow growth they are discovered now and then in wood which has not been suspected of containing living tenants; thus a posse of the flies has been known to appear in a sitting-room, having been hidden within the boards of the flooring, causing surprise or even alarm.

Mushrooms (A. L. T., Notts).—If the spawn is strong and the bed in proper condition Mushrooms usually commence appearing in about six weeks after the beds are cased with soil. Occasionally they appear a little sooner, but two months not unfrequently elapse before they are seen. We have known a bed to be spawned for three months before any Mushroom growth was visible, and the bed proved one of the most continuous bearers we ever had. You had better examine carefully a few of the lumps of spawn, and if the mycelium is spreading you will have Mushrooms in due time; if there is no appearance of the spawn running we should conclude either that it is not good, or the material was not of the right temperature or in the proper condition for its growth.

Mildew on Roses (E. H., Stockport).—Most certainly we do not consider you troublesome. We are ready at all times to give information when it is in our power to do so; but no one can tell you the cause of mildew attacking your Roses. It is mainly due to atmospheric influences that are wholly beyond control. You will, however, find modes of destroying, and, what is better, preventing it, in reply to another correspondent in our present issue. If your plants are dry at the roots water them copiously with liquid manure if needed.

Lifting Vines (S. B.).—You cannot do better than carry out your project of lifting at once, taking especial care that the roots are kept constantly moist during the operation. If you keep the foliage fresh by shading and syringing occasionally as may be needed, and the roots are good, the wood strong and ripens well, you may expect a moderate crop of fruit next year. It would be very unwise to crop heavily. You had better not use too much manure in the soil. If you intend planting young Vines in the inside border to which you allude, a width of 4 feet will be ample the first year.

Pipes in Vinery (G. E., Sussex).—We did not think it necessary to advise your altering the pipes, as we have seen the best of Grapes grown with the pipes even nearer the soil and stems of the Vines than yours are, due attention having been given to watering and mulching. Except for late Grapes it is generally best to allow the roots of the Vines to extend into a good outside border. If you will state the size of the garden under your charge, and the number of men employed, also give your name and address, we will answer your other question.

Making Mushroom Bed (J. W., Leeds).—The material sent by post was necessarily dried in transmission, and in that respect in very different condition from the bulk from which it was taken. It is of the right kind for growing Mushrooms, but whether it is too wet or impure or not it is impossible for us to say. No plainer instructions can be given on the subject than those in the treatise to which you refer. If you carry them out as exactly and intelligently you will, we think, succeed in your object. You have not carried them out exactly so far, as you will perceive if you peruse the chapter on preparing the manure on page 29 attentively.

Vines Unsatisfactory (Inquirer).—Your letter is mislaid, but you will recognise this reply. The examples sent in a small box are similar to many others we have seen, and no one appears to know the cause of the shoots shrinking and leaves shrivelling. One very good gardener is of opinion a too low and damp atmosphere followed by sudden and bright sunshine contributes to the injury, and he has found the Vines to improve by an increase of temperature. We have submitted examples to Mr. W. G. Smith, the eminent fungologist, and he replies as follows:—"I can make nothing satisfactory of these. I can only see that what you say is correct—cellular tissue dead, skin burnt, shoots shrivelled, a little oidium as well as the erineum (fungi), and a number of mites, possibly belonging to the latter."

Celery Fly (H. S. B.).—It is doubtful if there is any remedy when plants are "very much infested" with the grub. Remedial measures should have been adopted sooner. If when the first few blisters are seen the plants are regularly and frequently dusted with soot that will usually save the crop. We can suggest no other course at this late season than crushing the grubs with the finger and thumb. The attacks of the insect will soon cease now. It has been very destructive this year in many places. Early in the season several acres of plants were cut off nearly close to the ground and the tops burnt. These plants produced a fresh growth of leaves and the crop will be

good, but the heads not so large as usual. Also early in the season we saw the grub killed by petroleum; but as we cannot advise its use so late from the fear of its affecting the quality of the stalks we had better not state how it was applied at present. The plants in your herbaceous border have, perhaps, been attacked by the larvæ of the great crane-fly, *Tipula gigantea*. It is most difficult to eradicate. If you have any starlings near cherish them; they are the natural enemies of this garden and field pest.

Grapes not Ripening (H. S.).—It is not unusual for a berry or two at the points of the bunches of Grapes to fail to ripen even when the Vines are in good condition. In thinning Grapes many growers cut off the berries at the extreme point of the bunches when they observe the footstalks smaller than the others and of a lighter green. The non-ripening of a berry here and there is also, as you suggest, often the result of some slight injury to the footstalks. It is not a bad case of shanking, such as was referred to in answer to a correspondent on page 240 last week; still you will not err by perusing the reply in question. We are very glad to hear of your success in Grape-growing, and trust your Vines will go on improving, as the berries are not quite of the first size yet. Black Hamburg Grapes such as yours, if placed in the London market without a particle of bloom rubbed off, might, perhaps, realise 2s. per pound; if rubbed, as so many are in transit, they would sell slowly at 1s. per pound. Muscats are now being sold retail at 2s. to 4s. per pound, according to quality. It is not so much in growing Grapes for market as in packing them that so many persons reap disappointment. Quantities of Grapes arrive in London that can scarcely be sold at all, and certainly not at remunerative prices to the grower, through injury in transit by defective packing.

Mildew on Chrysanthemums (A Grower).—We do not think that the treatment to which your plants have been subjected has caused the "extra bad" attack of mildew. We saw a collection of wonderfully healthy plants last week in another district that had been top-dressed and watered exactly the same as you describe, and richer and cleaner foliage we never saw. The attack is no doubt due to atmospheric causes. Try mixing the sulphur in a solution of soft soap and apply with a syringe; if this fails try Ewing's mildew composition. Mr. Bardney prevents mildew attacking Peach trees and Roses by syringing with a solution of soft soap made as follows:—A lump of soft soap (about 2 lbs. or so) is placed in a saucepan and boiled for twenty minutes; this is placed in a large pot and mixed with five or six gallons of water. About half a pint of this solution is placed in an ordinary large watering-can full of water, and used every time the trees and Roses are syringed. Not a vestige of mildew is seen on the foliage, and the water does not injure the petals of the Roses. It would probably have the same effect if applied in good time to Chrysanthemums; perhaps he will state if he has tried it on these plants.

Soil (North Herts).—The soil sent is very adhesive clay, very unworkable in its present condition, and easily made worse by injudicious cultivation. In such tender-rooted plants do little good, because they cannot root into it. It is for this reason that your Roses fail in colour, and that La France thrives badly. In course of time heavy doses of manure will help the texture somewhat by furnishing it with humus, in which it is deficient; but this is not enough. The best way of permanently improving such soils is to burn part of them, and to mix this part with the staple. We have seen most intractable clays very much improved by this means. Another good way is to collect all the gritty matter possible, such as rakings from off public roads, sandy or gravelly soil, or even coal ashes, and to mix them thoroughly with the soil. Peat is good, not so much as either a soil or as a manure, but as a mechanical opener of the clay. London manure is also good if applied very liberally. It is very doubtful if iron would help your Roses, but the way to apply it is to give very weak solution of copperas in water. There is no danger of quicklime affecting the colour of your Roses on such a soil except for the better, and, failing a liberal application of burnt clay, you cannot do better than give a good dressing of lime. Possibly in trenching you did as the majority do, turned down any good soil you had and the bad up. Never touch such subsoils as yours, unless to dig them over and leave them where they are, and mix gritty opening matter with them. Gritty matter will open them, but if only broken up they will become puddle; better let them alone. In a week or two the amelioration of soils will be discussed by "Single-handed" in his chemistry articles, where you will find more information than can be imparted in a paragraph, but see next answer.

Planting Roses in Clay Soil (Idem).—If you have trenched down any good soil you had and turned up such clay as you have sent us, Roses will do little good if planted in it. The manure you have given is good for the purpose if very thoroughly mixed with the surface soil. If not, this is what we would do. We would gather every stick that would burn, or provide other fuel, and burn as much clay as would cover the beds 3 or 4 inches deep, and we would also provide leaf soil or other vegetable refuse, or screened town manure, or light soil, or peat, or all of them. Meanwhile we would dig the surface of the beds up very roughly, and allow the lumps to dry thoroughly. When dry we would either soften the lumps with water or wait till rain did it, and then would find it easy to knock them to powder with the fork. We would now spread the burnt clay, peat, manure, &c., over the surface, and thoroughly incorporate the whole. Such a soil after this would be worth 500 per cent. more than before, and anything would luxuriate in it; but still, if good light soil could be had we would put a little round the roots at planting time. Then we would make such a thoroughly pulverised soil, not hard, but firm; and we would never attempt to make a very smooth surface with the rake on such soil. Avoid this mistake and keep the surface gritty, cloddy, open. Never work such while adhesive with wet, and never dig in winter or autumn.

Mushroom Spawn (T. S., Notts).—Milltrack Mushroom spawn is that which is found in the accumulated manure of horse or cow stables. It used to be plentiful in the tracks of horses that were employed in working of mills and threshing machines in the olden time, hence its name. It is almost impossible to teach anyone to make Mushroom-spawn bricks except by example, and it is not unlikely you will err if you attempt to make a "large quantity." Try a small quantity first. The following is the plan described in the "Cottage Gardener's Dictionary," and is good when properly carried

out:—Take three parts of horse dung without litter, two of cow dung, one of decayed tanner's bark, one of sheep's dung, and one of good loam; mix to the consistency of mortar, and mould in small frames like those used by brickmakers, 6 inches long, 4 broad, and 2 deep. Three holes to be made half through the bricks an inch apart with a blunt dibble for the reception of the spawn. They should be put on boards for the convenience of moving abroad during fine days, as they must be made perfectly dry, which they often appear to be on the outside when they are far otherwise internally. Before they are perfectly dry they require great care in handling and turning from their aptitude to break; but in about three weeks, if dry weather, when perfectly dried they become quite firm. To pervade them with the spawn, a layer of fresh horse litter which has laid in a heap to sweeten, as for a hotbed, must be formed 6 inches thick in a dry shed. On this a course of the bricks is to be laid and their holes completely filled with spawn, and as the bricks are laid in rows upon each other the upper side of each is to be scattered over with some of the same. The bricks are not placed so as to touch, so that the heat and steam of the dung may circulate equally and freely. The heap is to terminate with a single brick, and when completed covered with a layer 6 inches thick of hot dung, to be reinforced with an additional 3 inches after a lapse of two weeks. The spawn will generally have thoroughly run through the bricks after another fortnight. If, however, upon examination this is not found to be the case they must remain for ten days longer. The bricks being allowed to dry for a few days before they are stored will then keep for many years.

Keeping Black Hamburgh Grapes (C. J.).—The Grapes that have been ripe now for six weeks will not keep so long as those that are ripened about this time, as the sun has much power in late August and early September, and acting on ripe thin-skinned Grapes, such as the Black Hamburgh, prejudicially affects them—not infrequently causing those that were jet black when first ripe to assume a reddish hue. When this takes place the Grapes are not only deteriorated in appearance, but the flavour is impaired and their keeping qualities considerably reduced. In order to insure Black Hamburgh and other thin-skinned Grapes keeping well they should be ripened beneath a good spread of foliage, yet not so crowded as to interfere with the free admission of light and air to the principal leaves. The Grapes not only colour quite as well, but the foliage prevents the sun from rendering them over-ripe, or at least prevents their losing colour—a sure indication of their days for keeping being numbered. As your Grapes have already begun to “mildew,” which we apprehend is to decay and become mouldy, we think they will not under any circumstances keep long, probably not more than a few weeks. We presume you are fastidious in removing decayed berries as they appear, the bunches being examined frequently for the purpose, and every berry in the least decayed removed. This is absolutely necessary. Instead of firing at night, as a rule you should have fires in the daytime, and then ventilate freely, the heat being afforded early in the day and turned off so that the heating medium becomes nearly cold before nightfall. A little air may be given at the top of the house, which will prevent the deposition of moisture through the night; but when the weather is wet the house should be closed day and night, a gentle fire heat being employed to keep the air buoyant, and if moisture accumulates on the inside of the glass admit a little air by the top and bottom ventilators to dispel it. A moderately moist atmosphere is not injurious to Grapes keeping, provided it is not stagnant. The temperature by artificial means ought not to exceed 50° at night, and above this in the daytime air should, whenever the weather is favourable, be freely admitted. It will be advisable to cover the inside border with dry mats to prevent the evaporation of moisture from it, and the outside border should be covered with shutters to throw off the wet. The Grapes will keep better after the foliage begins to fall if they are cut with as much wood as can be spared, and the shoots inserted in bottles containing clear rain water with a few pieces of charcoal in each, the bottles being fixed in an inclined position so that the bunches will hang clear of the bottles. A dry and cool fruit-room is a suitable place, the Grapes, from the more equable temperature, keeping much better than in the variable temperature and moister atmosphere of a vinery. We have cut excellent Black Hamburgh Grapes through December, and occasionally had very good bunches in January, but they were not ripened until towards the end of September.

Names of Fruit (Crockham).—Red Autumn Calville. (G. W. B.).—The Apple is Duchess of Oldenburg. The Pear is not ripe.

Names of Plants (W. M.).—Helianthus multiflorus plenus. (J. R.).—The plant is Siegesbeckia orientalis, a native of India, and introduced to this country about 1730. It is very troublesome in some places, increasing rapidly if not checked. (T. S.).—The specimens reached us in such bad condition that it was quite impossible to recognise them. (M. H. L.).—The Abele, Populus alba.

COVENT GARDEN MARKET.—SEPTEMBER 19TH.

MARKET quiet, with a steady supply of all classes of goods. English Pines in demand.

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Asparagus, English bundle	0 0	0 0	Mustard and Cress punnet	0 2	0 3
Asparagus, French bundle	0 0	0 0	Onions bunch	0 0	0 4
Beans, Kidney lb	0 3	0 4	Parsley dozen bunches	3 0	4 0
Beet, Red dozen	1 0	2 0	Parsnips dozen	1 0	2 0
Broccoli bundle	0 9	1 0	Peas quart	0 9	0 0
Cabbage dozen	0 6	1 0	Potatoes ewt.	4 0	5 0
Capicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 4	0 0	Radishes dozen bunches	1 0	0 0
Canflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 0
Coleworts doz. bunches	2 0	4 0	Scorzoner bundle	1 6	0 0
Cucumbers each	0 4	0 6	Seakale basket	0 0	0 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Fennel bunch	0 3	0 0	Spinach bushel	2 6	3 0
Herbs bunch	0 2	0 0	Tomatoes lb.	0 6	0 0
Leeks bunch	0 3	0 4	Turnips bunch	0 0	0 4
Lettuce score	1 0	1 6			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 0	to 2 6	Grapes lb.	1 0	to 3 0
" per barrel	0 0	0 0	Lemons case	10 0	20 0
Apricots box	0 0	0 0	Melons each	2 0	3 0
Cherries ½ sieve	0 0	0 0	Nectarines dozen	2 0	6 0
Chestnuts bushel	0 0	0 0	Oranges 100	6 0	10 0
Currants, Black .. ½ sieve	0 0	0 0	Peaches dozen	2 0	10 0
" Red .. ½ sieve	0 0	0 0	Pears, kitchen .. dozen	0 0	0 0
Figs dozen	0 9	1 0	" dessert .. dozen	1 0	3 0
Filberts lb.	1 0	0 0	Pine Apples, English .. lb.	3 0	4 0
Cobs per lb.	1 0	0 0	Raspberries lb.	0 0	0 0
Gooseberries .. ½ sieve	0 0	0 0	Strawberries lb.	0 0	0 0



USE OF GREEN AND FODDER CROPS FOR VARIOUS PURPOSES.

THE value of green and fodder crops, including vegetables, will be determined and accepted under so many and such various circumstances, that it becomes a subject not only of great importance, but of such wide application for agricultural purposes, that it seems at first sight a subject too extensive and comprehensive for the pages of this Journal. But when we consider that many of the vegetables which will come under review have been treated of to some extent under the heading of their cultivation it will render unnecessary in some cases any lengthened observations upon their different uses. The home farmer in his position will, of course, admit of no exception, and therefore various remarks applicable to the case of farmers in general must be accepted by him also; at the same time we hope so to arrange our remarks and observations as to be worth the attention of landowners and their agents. It certainly is high time that all possible benefit which can be derived from the consideration of the agricultural interest should receive the full and ample advantage of any changes calculated practically to improve the cultivation of the land and the particular products included under the heading of our subject.

It is difficult to lay down any rule for cultivation of green crops and vegetables which shall be of general advantage, chiefly on account of the variations of soil, situation, and climate. There is, however, one thing which is beginning to make a strong impression on the agricultural mind, which may be considered the best prelude to beneficial change: it is this, that many of the former practices in farming have broken down, and that the sooner some change is made the better. We are, however, of opinion that corn-farming will, if accompanied with the production of other sale crops suitable to the soil and climate and extended over larger areas, be again made to pay in this country, and the point of rotation of crops, as well as of selection of products, will have to undergo a great change, some of which we have previously alluded to, particularly in this Journal, dating from the 19th of April until the 17th of May last, under the heading of “Ploughing-in or Feeding Green Crops.” It must, however, be accepted that the production of sale crops stand first in the rotation of cropping and cover the largest area, making stock-feeding as refers to sheep a secondary consideration, and that provision for them must under no circumstances be allowed to diminish the extent and acreage of the rent-paying crops in the arrangement or scheme for cultivation of the arable land. A general impression prevails in the minds of some of our largest sheep-farmers, and also of many writers who follow suit, and take it for granted that because many men of ample capital continue extensive sheep-farming, that the cereals and other sale crops are not profitable in cultivation. We must, however, refer to our own experience to support our opinions, whether they are in accordance with those of others or not; for although during a long number of years we continued to keep and feed not only a large flock of sheep, together with a dairy of cows and fattening cattle in the boxes, at the same time we were, perhaps, as fond of stock in connection with our farming pursuits as any farmer or amateur of the present period, yet we never allowed the green and root crops to prevail in extent sufficient to prevent an area of sale crops being produced quite equal to the payment of all the comparatively fixed charges of rent, tithes, and rates. To be able to do this farmers must discard the idea that sheep-farming is a necessity, when, in fact, it is frequently adopted by men of ample capital for

various reasons, which are not always within the reach of men who must farm for profit or lose their position in business, as so many have unfortunately done during the past seven years.

We will commence our observations with those green or fodder crops which are commonly grown after our sale crops, and seeded in the stubbles or eddishes of other productions. A most important green crop is Trifolium, of which there are three varieties, the growth of each being necessary to form a succession of the most valuable of all green fodder crops, but especially for farm horses, from the first week in May until the 20th of July. These consist of the earliest Crimson Blossom, the second early or Pink Blossom, and the last sort of a perfect white blossom; these are each of them when sown in good season very productive even upon inferior or strong soils, especially if 2 or 3 cwt. of bone superphosphate is applied per acre with the seed. This crop is a capital preparation for other and succeeding root crops when grown before Turnips especially, and also upon land which may have previously proved what is called Clover-sick, and when the red Clover has failed; we have, however, grown first-rate broad Clover if seeded for in the Lent corn or Wheat which has succeeded the Turnips, but this point we should certainly have disputed as at all likely if it had not been successful in our own practice. Again, Trifolium will furnish upon strong soils, either hill or vale land, a heavy bulk of green crop, well adapted for ploughing under as manure, and it may also be succeeded by a crop of white Mustard, the seed being sown after as fast as the land can be ploughed and worked down. Upon all outlying land, especially upon the hill strong soils, no manure can be more cheaply or more successfully applied under such circumstances. The two leading points in Trifolium cultivation are early sowing of a large quantity of seed, and we recommend not less than 25 lbs. of seed per acre, sown not later than the first week of September. The only enemy to this plant to be feared is the small white slug. As a green manure for ploughing under, it ranks very high both in bulk and value as a preparation for cereal crops. This Clover is well adapted for conversion into ensilage, and for consumption by dairy cows or fatting bullocks under a well-considered mode of feeding with cake and bean or barley meal combined, will answer a good purpose and prove a valuable substitute for roots, and not likely to injure the quality of milk or butter. When the Trifolium is placed in a well-constructed silo just as it is coming into bloom it will be found much superior in feeding value than when converted into hay, and without the risk of loss from bad weather. Where the land is situated near to towns, Trifolium is of ready sale at a price far beyond any value obtained when converted into hay.

Lucerne next demands attention, and as a forage crop it offers a favourable return for cultivation, and should obtain a place in the list of permanent green forage crops, because it will produce annually a succession of valuable cuttings of the most nutritious cattle food adapted for all kinds of stock. The great benefit derived from the use of this fodder in the green state is the fact of its not only affording a very early produce, but its continuous growth until winter sets in. During the period of growth each cutting comes to maturity for fodder very rapidly, but still in proportion to the warmth of the soil and the climate, but at the same time the most produce or weight per acre will vary according to the natural fertility of the land or manures applied to it, and although heavy crops may be obtained by liberal manuring, yet it delights chiefly in a deep soil.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour in some districts will still be required in connection with harvest operations. Wherever the harvest has been completed the seeding of Trifolium should now be done, the sooner the better; the preparation of the land for the seeding of Rye, Vetches, and winter Beans will now be going on. Where steam power is available it should now be in constant work, cultivating both in preparation for the green catch crops as well as the land to lie as autumn and winter fallow for various purposes in the spring; not only for seeding with Lent corn, but in forwarding the preparation for early seeding of root crops, such as Mangolds, Carrots, Cabbage, and Turnips. After the land has been cultivated lengthways and crossways and has been worked down the couch and weeds may be carted off to heap, there to remain, and when decayed may well be formed into compost for the application to grass land and meadows. Upon various mixed soils, however, which is given to couch and weeds in the month of November before the winter ploughing takes place, women should go over it fork in hand and lift those bunches of couch grass, black bent, and Onion grass and place it in heaps, to be removed by the odd horse as fast as ready. This is especially necessary in all cases where the land is intended for planting with Potatoes at the earliest period in the spring; in fact before ploughing and planting in the spring the women should look over the land again, forking out any lumps of couch which may have grown into notice. As a rule, and in all cases except where there is a rug of couch, women

should during the late autumn and early spring months go over all the fallow surfaces on the farm and remove the lumps of couch. Now this is possible in every season, and may be done except during frost or snow. Whatever the expense may be it is sure to be the cheapest as well as the most effective method of ridding the land of these weeds, which are the greatest enemies the cultivator has to contend with. At the same time it must be remembered that forking out couch is possible in all open weather, and the growth of it may be kept under; but by horse labour only employed in extirpating couch, an open dry time is the only chance for horse labour to be effectually employed in the work of cleaning the land; but in case of a wet spring, such as in our fickle climate often occurs, it is not only impossible, but must still remain a dead weight on the culture of the farm for the future. And further, it will not remain *in statu quo*, but like all ill weeds will grow apace. Laying out farmyard manure upon the Clover leas to be ploughed in for Wheat is going on in every direction on all well-managed farms, and very properly so, especially upon strong and flat-lying loamy land; for by early manuring and ploughing-in the land will be getting mellow and stale, and promising a good tilth at seed time. In some cases where there is fallow land to come in for seeding with Wheat it is often a safer plan to have the ridge-ploughing done as fast as the dung is laid out and spread, leaving the dunging and ploughing the lea ground for a later period, as Clover leas can be ploughed any dry day and sown daily, or the seed may be drilled with a drill attached to the presser, so that the process may be completed as fast as land is ploughed and pressed; and for a late seed time this is the safest plan. The pressers may now have a drill attached to them at little expense by the implement makers, the cost being only £4 10s. for a two-ringed presser, and £7 7s. for a three-ringed implement; and the Wheat when drilled in this way—the seed being buried at the bottom of the groove formed by the ring of the presser—is not likely to be lifted by frost in the winter or spring, and besides this the land can also be horse-hoed should it be required, as the rows of corn will be about 10 inches apart. We well recollect that during the severe frost in January, 1879, that on various farms the Wheat drilled after the presser proved a full plant, while great deficiencies were the result of ordinary shallow drilling of the seed.

Hand Labour.—Spreading yard manure on the fields as fast as laid out both on the lea or fallow will be going on. Hedge-trimming and border-cutting will now be continued until finished; the border grass and weeds if preserved will prove useful in the covering of roots when stored in heap. The home farmer, too, must look to the plantations and woodlands where the grass and weeds often grow and seed with impunity. It is, therefore, desirable to cut and utilise the proceeds in the same way as covering for root heaps. The odd horse or mule, when a strong lad is appointed to go with him, is capable of doing much good work, which becomes valuable in keeping up the decency and appearance not only of the farm homestead and rick yards, but also the constant cartage of couch and other material, each contributing value to the earth or manure heaps as may be required. The odd horse and his attendant may also be employed in carting grass for horses without hindering the teamsmen in a busy time, and the carting of roots, hay for fodder, straw as litter for dairy cows and fatting cattle, should always be done by the odd horse and cart; in fact, on a farm where the labour of men and horses are well and thoughtfully appointed, the odd horse may be said to save the breaking of pairs of horses in their labour, and be reckoned as valuable as the work of any horse on the farm.

OUR LETTER BOX.

Canary Moulting (*Savoring*).—Your bird is moulting now, which is one cause of its losing its feathers. Give it two spots of castor oil into its beak, and feed only on canary seed and a plentiful supply of green food quite fresh every day, lettuce or watercress is the best. Put a bath in its cage, and if it bathes every day it will help the new feathers to come and lessen the irritation. This is the proper time for moulting.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.		deg.	deg.		deg.	deg.	deg.	deg.	In.		
September.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday	9	30.178	56.4	52.7	calm.	55.1	68.7	42.4	101.3	87.4	—
Monday	10	29.978	59.7	55.4	S.E.	55.9	65.9	52.0	79.6	44.4	0.590
Tuesday	11	30.001	56.7	56.6	N.	55.3	62.4	55.7	79.7	55.7	0.080
Wednesday	12	30.174	59.9	58.7	N.E.	57.2	72.2	54.0	109.7	53.4	—
Thursday	13	30.279	55.7	55.2	N.E.	58.0	69.7	53.3	109.7	44.2	—
Friday	14	30.142	57.9	56.3	N.E.	58.1	73.0	52.6	107.6	47.9	—
Saturday	15	29.963	59.2	55.8	N.W.	58.3	68.8	53.3	107.5	45.7	—
		30.103	57.9	55.8		57.1	68.7	51.9	99.3	47.2	0.670

REMARKS.

9th.—Fine bright day, but generally a little hazy.
 10th.—A dull day, with almost continuous slight rain.
 11th.—Wet and misty all day.
 12th.—Dull morning, fine afterwards.
 13th.—Dull early, fine afterwards.
 14th.—Fine, bright, and warm.
 15th.—Fine and warm, hazy towards evening.
 Temperature higher than last week, and rather above the average. The mornings have been very damp and misty.—G. J. SYMONS.



COMING EVENTS

27	TH	
28	F	
29	S	Meeting of the Essex Field Club.
30	SUN	19TH SUNDAY AFTER TRINITY.
1	M	
2	TU	
3	W	

WATER LILIES.

THE summer that is now rapidly closing has been an unusually favourable one for most plants, and especially so for the Water Lilies both indoors and out. The bright warm weather experienced in the spring and early summer caused Nymphaeas to make a vigorous start, instead of the weak, slow, and unpromising beginning they make in a dull and cold spring, such as we too frequently experience now-a-days. If Nymphaeas have been properly wintered and replanted in the early spring in a rich lasting soil in large-enough pots, such a spring as we enjoyed this year is bound to do all that is necessary to make them strong and healthy in foliage and prolific in blossoms, given, of course, the other conditions essential to the welfare of aquatic plants. To many the possession of proper convenience for the cultivation of Nymphaeas, and especially of the tropical species, is denied; and although it is possible to grow some of them and flower them fairly well in tubs, the plants never look at home, nor are they so attractive as when surrounded with something like what we find naturally associated with Water Lilies. It is only in such tanks as Kew, Chatsworth, Oxford, and several other large gardens possess that the indoor cultivation of Nymphaeas on a large scale can be successfully carried out.

Where, however, only a few, or perhaps a solitary plant, can be grown in a stove with other plants, a little difficulty should by no means deter amateurs and others from a trial of their skill, as it furnishes an additional source of interest, and when in flower will vie with the most beautiful occupant of such structures in attractiveness. For this purpose the less vigorous forms are the most suitable.

There is much to be done in the way of establishing Water Lilies in our lakes and streams where they would grow, and especially in establishing some of the exotic species, the hardiness of which is beyond doubt; for in addition to our own white Water Lily we have the North American *N. odorata* and *N. tuberosa*, both robust large-flowered kinds and as sweetly scented as our native one. These would prove perfectly at home wherever the water is deep enough and sweet enough for them, and so would the rose-coloured variety of *N. alba*, of which we know little at present, but which is destined to become a beautiful ornament among hardy aquatic plants. *N. odorata* var. *rosea* is yet another recently introduced Water Lily of the most delicate grace and beauty, and is well adapted for cultivation out of doors in this country. Of all Nymphaeas the last is perhaps the most beautiful, its well-formed flowers, delicate flesh tint, and delicious scent being of the most exceptional excellence even amongst the many beauties of its kind. At present it is so rare that few, if any, of its possessors have ventured to place it out of doors altogether; and yet, judging from its native habitat, there can be no doubt of its hardiness. Lastly there is the yellow-flowered species, *N. flava*, whose *début* at Kew was so complete a success two years

ago, and its distinct colour and well-formed flowers have won for it universal admiration. Hardy enough it is, but so precious that—as is the case with the rose-coloured *odorata*, so it is with this—we like to keep it in a pot under our eyes for fear of an accident. At Kew several plants have been planted in the lake and in the pond, and these are doing very well. Deep planting is necessary for this species, and, in fact, for all Nymphaeas out of doors. The tubers should be safe from the severest frost, and then all fear of death in the winter is at an end.

An interesting fact in connection with these plants, and the readiness with which they adapt themselves to altered conditions as regards temperature and light, may be observed in their thriving well in a tropical tank, and that for year after year, without any apparent debilitating effect. At Oxford the whole of the hardy ones are grown in the warm tank along with the tropical kinds, and at Kew some of the former are perfectly at home along with natives of the Nile and the Ganges regions. A knowledge of this accommodating nature enables us to understand the wide geographical distribution of many of the species of Nymphaea, and although the characters of the species may be slightly modified or altered under different conditions, the general resemblance is always manifest. It is very desirable that the skill of the hybridiser should be brought to bear on these plants with a view to procuring some of the blues, purples, and reds of the tropical kinds into the hardy ones. There seems no reason why by a careful selection such work might not be accomplished, and that it is worth doing will be apparent to those who are acquainted with the bright colours of the tropical Nymphaeas.

Of the species the requirements of which can only be met in a tropical house with specially constructed tanks it would be easy to fill pages in praise of their beauty, and in descriptions of the characters and requirements of each. Few plants reward careful cultivation and observation more fully than these. From the pure white sweetly scented and gigantic flowers of *N. Lotus* var. *dentata* to the blues and deep purples of *N. stellata* and its vars, which include the new *N. zanzibarensis*, down to the small button-like flowers and Frog-bit like leaves of the little Indian *N. pygmaea*, we have almost every shade and form. Some of the forms of *N. Lotus* have been crossed with each other, and have yielded the large flowered, deep-scarlet forms known as *N. devoniensis*, *N. Ortgiesiana*, and *N. Boucheana*—magnificent Water Lilies, large-leaved, strong-growing, and very floriferous. The sturdy character of hybrids is shown in these as in almost all other hybrid plants, and points the way to much greater results from skilful hybridising than any reached hitherto. *N. zanzibarensis* is the latest fine introduction to cultivated Water Lilies. It is beyond question the handsomest of the blue-flowered forms, surpassing the giant blue *N. gigantea* from Australia in its thriving much more satisfactorily under ordinary cultivation than that species.

N. stellata is a very variable species, including those plants known as *cœrulea*, *capensis*, *versicolor*, *cyanea*, *scutifolia*, *micrantha*, and the Zanzibar variety, the prevailing colour in the whole of which is blue in its various shades. It is remarkable that the flowers of the whole of the *N. stellata* forms open wide about noon and close in the evening, whereas the forms of *N. Lotus* open late in the evening and remain fully expanded until noon of the following day. It may be noted that the flowers of the Victoria Water Lily also open in the evening at about six o'clock, and remain open until the evening of the day following.

There is always some difficulty in keeping Nymphaeas through the winter. Some cultivators prefer drying them off in the autumn and preserving the tubers in sand until the following spring. This treatment often results in dry rot, similar to what occurs to Caladiums and other tuberous-rooted plants when treated in this way. My experience leads me to prefer keeping the plants in the water the whole winter through—a much safer method than the former, but

perhaps a little less economical in respect to fuel and space than the drying-off plan. Finally I would recommend abundance of sunlight, plenty of ventilation, and clear and if possible running water for all tropical Water Lilies.—W. WATSON, *Kew*.

GRAPES SHANKING.

NOTWITHSTANDING that one or two persons who have nothing more to learn on the subject of Grape-growing complained some time ago of so much of your space being occupied with matter relating to it, queries come thicker than ever, as may be seen by the answers to correspondents every week. The point which most puzzles both amateurs and professionals is shanking, and although many able articles have been written on its cause and prevention there is still something of a mystery about it, and it probably occurs more or less in ninety-nine vineries out of a hundred in this country.

A correspondent says that, by closely following the advice given in a treatise which lately appeared in these columns, he is now able to colour his Grapes. He has no pink ones, such as he formerly had, but still many of them shank after they are coloured. His border is outside; he has a good depth of soil, which is well drained by a good fall from the house; he has good foliage of a dark green colour and leathery texture, but still his bunches are rather small, and he is annoyed by a considerable amount of shanking.

It so happens that there are two cases very similar to the above which I have been called upon to inspect and give advice on during the present season; but although appearances are alike, I believe both cases are not exactly the same. One border where shanking occurred has been already operated on. It was found to have been very carefully made, but rather too porous, and I have no doubt that at times it has been too dry. It contained a great quantity of what are generally called roots, but which are really, as "Single-handed" puts it, "underground stems" clothed with decayed and decaying bark. Feeding roots with greenish tips and bristling with hairs were scarce; but still there were a few, just sufficient to prove that there was nothing deleterious in the soil, and these were of very recent formation.

The plan adopted was to cut a trench 7 feet from the front wall and 3 feet wide (the border was previously 17 feet wide), severing scores of stems thicker than one's thumb, clear out the drainage and relay it in the bottom of the trench, place a layer of turf over it, then fork down another 2 or 3 inches on the side of the trench nearest the house, and cut all the roots through close to the soil with a sharp knife. The trench is then filled up with some new turf tumbled in roughly and fresh as it was dug up, with some of the best of the surface soil from the part of the border which is cut off to fill up all interstices. A liberal sprinkling of half-inch bones and a still more liberal one of old lime rubbish are given to every 4 or 6 inches of soil, and where the new soil meets the old on the side where the roots are cut with the knife it is trodden very carefully and firmly, so as to prevent the possibility of a crack for the water to escape. Great care will be taken of the foliage, and for a time all growth wherever formed will be encouraged, and as soon as the fruit can be cut the house will be kept rather close and moist, but not so much so as to unduly excite the lower buds which have to produce fruit next season.

The other case which has come under my personal notice is probably a case of the Vines being buried too deep and the border being water-logged. That remains to be proved. But the plan of commencing operations would be very similar; only if I found the soil was sodden and sour, I should after cutting the trench and securing good drainage remove the greater portion of the remaining soil, notch freely the old naked roots, and lay them in something sweet and tempting made very firm—say a mixture of partially decayed loam, lime rubbish, half-inch bones with a little wood ashes or charcoal, and a little road grit or coarse sand, placing rougher and more substantial soil under and above them.

All this sort of work must be done while there is plenty of healthy foliage to induce immediate root-action. If the borders are outside it should be done not later than the middle of October, and September is better still. In some cases where the Vines have not many fibrous roots it may be necessary to shade the foliage for a time from bright sunshine, and if the fruit is cut it is advisable to keep the house well damped down.

I would again urge on all cultivators the necessity of getting their Vines perfectly clean before the foliage falls. Insects and parasites are much easier to kill now than they are when in a semi-dormant state during winter, and spring we know brings plenty to do without insect-hunting; besides at that season, owing to the foliage being tender, such drastic measures cannot be used.

There is, I believe, still nothing so good for the purpose as petroleum, and when the leaves are tolerably hard they will bear two

ounces to the gallon of water used in the way so often described in this Journal—*i.e.*, one syringeful forced violently into the pot, and another in the form of the finest spray on to the plants. The syringe should be used with the tube, not the rose, and the finest possible spray is made by pressing the first finger of the left hand on the end of it.

The petroleum-and-soap mixture is as much used as ever, but not on paint or glass.—WM. TAYLOR.

PROPOSED INTERNATIONAL EXHIBITION OF VEGETABLE PRODUCTS FOR 1885.

I HAVE read with much interest and satisfaction the comments which appear in the *Journal of Horticulture* of this date (September 20th, page 247), and fully concur in most of the suggestions contained therein. Before commenting generally on the article before me, I think it right to explain why the two contradictory announcements appeared in the *Journal* referred to. I had sent a letter to each of the horticultural papers conveying the intelligence that the proposed International Exhibition would be held next year. A few hours after I had dispatched that intelligence I received the letter, a portion of which appears at the end of the article before me. Directly I received Mr. Birkbeck's letter of the 13th I at once telegraphed to each of the *Journals*, but my message only appears to have reached two of them in time to stop the publication of the letter.

The horticultural resources of this country I maintain are amply sufficient to fill all the space now occupied by the Fisheries Exhibition at South Kensington, but I readily admit that if confined to horticultural products alone, the public might tire of the display; but add the vast number of other available exhibits so graphically suggested in the article before me, and the measure is more than full, and contains abundance of subjects to gratify the public, and will contain sources of instruction for all.

I am thoroughly of opinion that a continuous display may be kept up and fully maintained from the middle of April to the end of June, and in that case valuable collections of such plants as Orchids need not remain on exhibition longer than three days; these could be easily replaced by other plants of equal interest, the change inducing visitors to the Exhibition to repeat their visit. The same thing would occur all through the first part of the Exhibition. August might be allowed to pass without any exhibition of tender plants and flowers; it would only be a question of timely arrangement to fill the space with implements and horticultural sundries, and these in turn could be removed to other positions to make room for autumnal flowers and fruits during September and October, to be followed in November by a grand display of Chrysanthemums, fruits from the colonies, and numerous hardy plants suitable for winter decoration, horticultural and agricultural roots, &c. No doubt the numerous Chrysanthemum and other kindred societies would amalgamate if properly treated with, and the prizes they offer severally might, with the prizes the Fisheries Committee should offer, become a common fund for the benefit of all exhibitors. The same reasonable suggestion should apply to all exhibitions held earlier in the year, the Royal Horticultural Society joining in the same way with the amounts they offer every year in prizes for their shows, they alike participating in the benefit that would be gained by the amalgamation. In this way a sufficient fund could be produced to cover all expenses, and so enable the conductors of the Exhibition to organise the finest and most comprehensive and instructive exhibition of horticultural products the world has ever seen. A portion of the proceeds could be applied for the founding of a horticultural college, and institutions for decaying and decayed horticulturists.

The buildings being all ready for the purposes of the proposed series of exhibitions, an enormous expense is saved, and with a continuance of the evening fêtes which have proved such an attraction this season, success will be certain. In succeeding years the fêtes will no doubt be earlier, during the height of the London season.

I have had frequent opportunities of seeing during the past month how much the public appreciate the gardens under the present arrangements. The crowds which nightly go there are of the most orderly character, and I think the fact of not a single police case having been reported since the Exhibition opened speaks volumes in favour of nearly two millions of people as well as the careful management under which they are controlled. All this offers a guarantee for the success of the promised horticultural Exhibition, and proves that no doubt need be entertained of its proving a great success. The great thing needed now is a speedy, formal, and definite announcement by the International Fisheries Committee that the Exhibition shall take place during the year 1885, and that full details shall be furnished with as little delay as possible.—JOHN WILLS.

HARDY HERBACEOUS PLANTS.

GERANIUM TRAVERSII.—Of all the species of Geranium that have as yet come into cultivation *G. Traversii* is probably one of the most remarkable. *G. armenum*, *G. ibericum*, *G. Endressii*, *G. pratense* flore-pleno, and one or two others stand pre-eminent for general decorative purposes, but *G. Traversii* is distinct in its habit of growth, and is most adapted for the rockery. It is perennial, forming a rather dense crown of leaves of a silvery hue, especially in their earlier stage of development. The fully developed leaves are 3 to 4 inches across, round, and cut half way down into seven three-lobed segments, with a petiole 6 or 7 inches in length. The flowering

stems which radiate from its tufted crowns are 12 to 18 inches in length, very slender, and several times branched—dichotomous—are prostrate, and furnished with small reniform leaves under to over 1 inch across, cut in the same fashion as the larger ones, with the petioles varying in length from 1 to 1½ inch. From the axils of the opposite leaves spring the flowers solitary on pedicels 3 inches in length, the colour being light rose and pencilled with purple. It commences to bloom in early summer and continues till autumn. I have lately gathered a few ripe seeds. It is a native of New Zealand, and is almost the only perennial species that has been introduced from that distant region to this country. It bears our English climate admirably, but being a somewhat recent introduction it is as yet practically rare.

ANAGALLIS TENELLA—This modest little denizen has afforded me much pleasure this season, simply from the fact that it has succeeded very well—so well, indeed, that I think it scarcely possible for the plant to be met with even in its wild state in a more luxuriant and floriferous condition than which it is in one of the compartments on the rockery here. It is not a rare British plant, but somewhat local in its distribution. In some districts it is common, in others sparingly represented, and in others quite wanting. It is usually met with on heaths and moors in wet places, growing amongst short grass and other scanty vegetation, on wet banks, borders of streamlets, and in boggy ground. The best example I have seen in a wild state was in County Clare, Ireland, and not very far from the sea, but off the limestone. It grew on a bank from which water was continually dripping, and fully exposed to the sun. It was here in its best form, a glow of rose-coloured bloom, the foliage being almost hidden. It is a low growing plant with creeping slender stems, rooting at every joint, and furnished with small, opposite, shortly stalked leaves, one-quarter of an inch across and between reniform and orbicular in shape. From the axils of the leaves spring the rose-coloured flowers, which are borne on short wiry stems, are bell-shaped and delicate in texture, standing erect, and are about a quarter of an inch in diameter. With regard to our cultivated example, I may add that the flowers were so abundantly produced as to almost correspond with the number of leaves on the plant, and the sight produced was one sufficient to compel the admiration of all who saw it. It was at its best throughout the greater part of July, and it was remarked that it was one of the handsomest plants that had flowered on the rockery. If it came from Labrador, Tasmania, or some other distant region, and was difficult to grow and propagate, it would be highly prized and eagerly sought after by lovers of alpine and rockery plants. Contrary to this, it grows at home, is easily procured, and easy to grow when its requirements are understood. In a garden where a swamp or spring exists its requirements are met at once. It is, however, not absolutely requisite that such conditions should be at hand, as a miniature artificial bog may be contrived for its reception. In our case a saucer not 2 inches deep and filled with loam and sand was employed, peat being objected to on account of its being more liable to turn sour. The saucer was sunk in one of the compartments on the rockery and well supplied with water in hot sunny weather, and the result was that the plant quickly spread over the rim and filled every corner of the compartment allotted to it. Owing to the saucer being shallow, and the roots of the plant being able to reach to the bottom, the soil does not become stagnant, as the moisture passes off by absorption, but is assisted by evaporation.—T. ENTWISTLE, *Wood Lawn, Didsbury.*

POTATOES.

I AM rather amused at "H.'s" experiences in Potato-growing and the unpleasant result which follows his Potato trials. His enthusiasm begins to cool down by midsummer, and by digging-up time is changed to disgust. "These experiences nearly always result in the following conclusions and resolutions—never to grow a long-topped Potato in the garden again, and never to grow an American variety in the garden, let it be ever so much praised, and never to indulge in more than one novelty in the season." If "H." has arrived at these conclusions after a fair trial why does he not keep to them? There is this to be said about the long-topped Potatoes, that they have been more grown lately than others, because the vigorous growers are, as a rule, more free from disease, and the short-topped new varieties have been somewhat neglected, but I hope the necessary attention will be devoted to them. I have a short-topped seedling which I grew for five years entirely without disease, and which ripens before the *Magnum Bonum*, and which I may introduce to general cultivation some day, but I will not say any more in its praise lest "H." should be induced to try it. The long-topped varieties do not run up so high when they are grown without manure, and they require a little more room between the rows. Short-topped varieties, which are also good disease-resisters, will be produced if there is a general demand for them.

With regard to the American varieties, perhaps "H." would do wisely not to grow them if he has a strong soil, which I expect to be the case. They are calculated for warm dry soils. There is a wonderful difference

in the quality of Potatoes made by the soil in which they are grown and surrounding atmospheric circumstances, and those which are good in one place are almost uneatable in another, and that is one cause of the large number of varieties in cultivation, and the disappointment experienced by some people on the trial of a new Potato. There is also a great difference in individual taste about what is a good Potato. Some people like a very dry floury Potato; I do not, but prefer rather a moist floury one such as *Milky White*. Others, again, like a firm eating Potato such as *Magnum Bonum*, and I know one gentleman who likes Potatoes which are commonly called waxy, but I believe he is rather the exception. The American *Early Rose* is not good on some soils, and writers have gone so far as to say that they did not believe one was ever grown in this country which was fit for anything but the pigs; but that was a great mistake, for it is very good on the land here, and we are eating them now every day in preference to others. In speaking of American varieties, it must not be forgotten that without them there would have been no *Magnum Bonum*, for the latter is a seedling partly raised from the former, and without this Potato and the aid of another or two, we should not have been able to supply ourselves with Potatoes of our own growth, instead of sending about three millions of money to foreign countries. I have a seedling of the *Magnum Bonum* which is very promising. It appears to have all the cropping qualities and freedom from disease of the original, but is a little more regular in shape. This will be good news for those who believe in the degeneracy of the tuber, and think the *Magnum Bonum* will inevitably collapse with the disease before long, because there will be another to supply the place of it.

Besides my own seedlings I have grown ten varieties of Potato for the purpose of experiment, and have found the result very interesting and the opposite of that experienced by "H.;" but I go a different way to work. I only plant a peck of each, and do not introduce any to the main crop unless I approve of them. Perhaps some of your readers may be interested in hearing the result of my experiments, which will form the subject of another letter.—AMATEUR, *Cirencester.*

GLADIOLUS COLVILLI THE BRIDE.

WHERE choice flowers are in constant demand for cutting during the spring and early summer months the above should be grown in large quantities and brought into flower in succession as required. The flowers being pure white, they are most useful in a cut state when wired for bouquets, or the whole spikes can also be cut, and are admirably adapted for associating with other cut flowers. Independent of its use and beauty in a cut state, it is invaluable when grown in 5-inch pots for the embellishment of the conservatory or greenhouse. When in flower a number of plants freely associated with other dwarf plants have a choice and conspicuous appearance.

The bulbs of this variety can be obtained any time next month, and should then for early flowering be potted without delay for an early batch. In places where bulbs were forced into flower last spring, have been judiciously treated since, and are strong, potting should be done at once. This will secure a month at the start, which is a great advantage when these flowers are required as early as possible. Drain the pots liberally, and place four or five bulbs in each pot, and if strong they will produce at least seven or eight spikes of bloom. If the flowers are grown solely for cutting, pots of any size can be used. The bulbs should be covered with from half an inch to an inch of soil. If the soil at potting time is moderately moist do not supply water until they commence rooting. Almost any soil will grow them providing it is rich. We have found good loam, a seventh of decayed manure, and coarse sand to suit them well.

After potting place them in a temperature of 50° to 55°, and if possible plunge them in cocoa-nut fibre or other material, merely covering the rim of the pots. Where this can be done no water will be needed until the growths make their appearance through the material in which they are plunged. A good plan is to plunge them until they commence growing in slight bottom heat derived from leaves or other fermenting material. A bed can be made in a cold frame and the plants plunged into it, and the frame kept close until their shoots can be observed, when they should be taken out and given the temperature mentioned above. When allowed to start under cool conditions time is lost and forcing is needed during their latter stages of development. This is a great mistake, as they should be allowed time when fairly well developed, and allowed to expand under as natural conditions as possible. After growth has well advanced they must have a light position, and should be kept as near the glass as possible. While growing abundance of water should be given; in fact they should never be allowed to suffer by the want of it. As soon as they commence showing their flower spikes weak stimulants should be given every time water is needed. After the plants have flowered they must be gradually hardened and then plunged outside, well supplying them with water and stimulants until they ripen naturally. Bulbs treated

as described will be in grand condition for forcing the following season.

It is only necessary to make two pottings of bulbs, as some can be pushed forward and others brought on under cool treatment and retarded to suit the requirements of different cultivators.—SCIENTIA.

ROOT-PRUNING LARGE AND OLD TREES.

I AM very glad to see this subject opened by Mr. G. Bunyard of Maidstone, who, speaking with an extensive practical experience to draw lessons from, may be accepted as a safe guide and counsellor in the matter. Personally, I am quite certain that very many old and comparatively barren trees which are occupying valuable space on walls, and equally valuable space in other parts of the garden, might be made fruitful and satisfying by being subjected to this operation, always provided that that operation is performed with care and judgment. It is annoying in the last degree to have yards, almost miles, of good wall room taken up by old, perhaps time-honoured, but still useless and barren trees, and yet be prevented or afraid to operate upon them fearful of disastrous consequences. I was once in charge of two large trees of Gansel's Bergamot Pear. They were trained to the height of perfection as to the disposition of their branches, but in all the six years I had them in charge did I see more than, perhaps, five or six Pears in any one year, and some years none at all. I suggested to my employer that it would pay to grub them up and plant afresh, and he fell in with the idea, but on referring it to the landlord, or his agent, I forget which, we were forbidden to touch these trees harmfully on pain of something fearful coming to us. They were trees hoary with age and family associations I suppose, and as my then employer was only a yearly tenant we were obliged to let it alone, and endure seeing the barren trees covering some 60 yards of 13-foot garden wall. I should have liked to root-prune both those trees, but, being timid and faint-hearted as to what might be the result, I let them alone.

There are in many old gardens these unserviceable ancients. Since my Gansel's Bergamot experience I have had in my hands, and not long since, a wall of old Pears with stag-horn breast shoots, growing yearly a forest of sticks that would do admirably for training young Fuchsias and Begonias to, but no fruit, or of fruit just one or two at the ends of each of the side main branches. Immediately I took them in hand I reduced these stags-horns down to their lowest dimensions, to the little trusses lying close to the main branches, and then, not caring whether one or two of the trees lived or died, the walls being very full, I root-pruned them, digging the trench at, say, rough measurement, $1\frac{1}{2}$ yard from the bole of the tree, and cutting all roots off, no matter how thick that we encountered in the digging. That was three years ago, and I am glad to report that the trees are full of fruitful wood close to the main branches for the first time in the memory of one of the oldest of my labourers, bearing a fine crop of clean-looking fruit. I am quite sure that we may do more root-pruning than is usual, even amongst some of the oldest of our wall trees, and thereby bring them out of a state of unfruitfulness and vexation to owners into one of profit and usefulness. All that is required is to use judgment in the operation both as to time and manner of doing. As to the time, I think the end of this month (September) is as good as any—nay, better; indeed that is my experience.—H., *Notts.*

THE PHYLLOXERA.

I HAVE no doubt your correspondent Mr. H. W. Ward is perfectly right when he recommends the "stamping-out" system as the only radical one for getting rid of the above-dreaded pest. Had the French nation acted on this advice, which was tendered to it nearly twenty years ago, the insect might have been banished out of Europe, instead of which, in spite of all such nostrums as immersion, which is impracticable, and sulpho-carbons, and such like, the pest is rampant in the length and breadth of their land. Will Mr. Ward lay your readers under an additional obligation by letting them know how and from whence he got the insect at first?—A VINE GROWER.

SENSITIVENESS OF EARTHWORMS.—I am now engaged in extirpating Daisies from the lawn which surrounds my Rose beds, and I have observed how sensitive the earthworm is to vibration. After taking out a patch of Daisies from the soil raised by the Daisy fork, one may notice on replacing the earth and putting it level again a general alarm amongst the worms that may have been raising their bodies through the earth. Possibly the first movements of the fork in lifting the soil may have disturbed the creatures; but certain it is that on tapping the earth down again any that may be within, say, a hand-breadth or

so of the operation retreat or pull themselves in so rapidly and simultaneously that they must have experienced some shock. Has anyone who knows more about the habits of the worm noticed this?—A. M. B

RANUNCULUS IN POTS.

IN many gardens Ranunculus do very unsatisfactorily when planted outside, especially when the ground is light and dry; but they can be successfully grown in pots, and will afford abundance of useful flowers for cutting. When in pots the roots should be secured as early as possible, and about five placed in each 6-inch pot in good rich soil consisting of fibry loam, decayed manure, and a little coarse sand. They should be potted moderately firm, and it is a good plan to place a little sand round each pot. Place the pots containing the roots in a cold frame, and fill the spaces between them with coal ashes, just covering the rim of the pots with the same material. Directly the plants commence growing the ashes must be removed from the surface of the soil, but the pots should still remain plunged. It is a good plan to keep them plunged until they have flowered. When plunged they do not dry so rapidly, which is a great advantage to their successful cultivation in pots. After growth has commenced they must be protected from frosts, and the plants kept as near the glass as possible, with abundance of air both day and night when favourable. They soon draw up weakly in a close confined atmosphere, and will not endure being forced into bloom. To achieve success as natural a system of cultivation as possible must be practised. While growing never allow them to suffer by the want of water at their roots.—LANCASTRIAN.

GRAPES AT THE EDINBURGH SHOW.

HAVING long wished to see Grapes as exhibited at the above Show, I made a point of taking a trip northwards. To say I was gratified does not fully express my feelings, yet I was disappointed in some particulars. As was stated last week, Mr. J. McIndoe, gardener to Sir Joseph W. Pease, Bart., M.P., Hutton Hall, Yorkshire, and Mr. W. McKelvie, gardener to the Dowager Duchess of Roxburgh, Broxmouth Park, Dunbar, were placed equal in the class of twelve bunches of Grapes, six black and six white. All Mr. McIndoe's bunches were large, but the only varieties really good and ripe were Black Hamburg and Golden Queen. Mr. McKelvie had a trio of Muscat of Alexandria, the best in the whole Show; Buckland Sweetwater, good; Black Hamburg, fair; and Madresfield good, much smaller than the others, but ripe. As far as quality went the latter exhibitor decidedly should have had first honours, but the others overweighed them, and it must have been size, and size alone, which the Judges honoured by their verdict. This award gave great dissatisfaction, and to me, a stranger, it was amusing to hear the comments in the northern tongue. I carefully went through the exhibits several times, and failed to see the justice of the awards in this class. This is written in no carping spirit, and doubtless you will find I am not alone in my opinion.

Muscats.—Grand heavy bunches were shown by Mr. McKelvie, excellent produce also being exhibited by other successful exhibitors, notably Messrs. Ramsay, McKinnon, Day, and King, and this valuable Grape was on the whole well represented.

Black Hamburgs.—In the classes for this Grape the exhibits were not on the whole of great merit. The best was a good bunch of nearly 3 lbs. weight, and with fine hammered berries, from Mr. James Jeffrey, Craighleuch Gardens. Some good examples were staged in the collections; the premier bunches in the Show probably being those of Mr. Kirk.

Duke of Buccleuch.—A noble bunch with monstrous berries was exhibited by Mr. McKinnon. Mr. Dewar, Beechwood Gardens, also well won the chief prize in the any white variety class with capital examples of this fine Grape.

Alnwick Seedling.—I expected to see this Grape better represented. Mr. Kirk exhibited it well in a collection; and in the single bunch class Mr. D. Murray, Maybole, won the chief prize with a good bunch, but rather small berries; Mr. Robertson following with a small bunch and grand berries, only five lots being staged.

Gros Colman.—This was still more disappointing, only three bunches being staged in the class, and both the prizetakers—Messrs. D. Murray and Pringle—had good examples, while those shown in the classes were, as a rule, not ripe.

Black Alicantes.—These were generally good without being superior. A few fine examples were shown in the collections, notably by Mr. Day, also in the class of one bunch, in which there were twelve competitors, the prizes going to Messrs. Spencer, Lindsay, and McKay, but they by no means gave general satisfaction; Mr. Ballantyne, Stoneyhill, staging produce equal to any in the class.

Abercainey Seedling.—This was exhibited by Mr. McKelvie, but is too much like the Black Alicante to be considered distinct by me.

Cooper's Black.—This Grape, which is not often seen, was admirably shown by Mr. Lees of Hillsborough, winning him a prize in one of the collections, also first for any black Grape for any variety not in the schedule, and first again in the finest bloom class. It was very good, and appeared to be quite distinct.

Mr. Forbes staged a superb bunch of Madresfield Court weighing about 6 lbs; and Mr. Murray, Park Hall, a beautifully finished example of Gros Maroc.

In the sixteen classes 197 bunches were staged, and there were several in the collections of fruit. The best class of all was that in which fruit was exhibited for the finest bloom. Having given my impression of

the Grapes at Edinburgh, I conclude with the hope that I may not only see the grand city next year, but that I may be again placed in the list of successful exhibitors.—STEPHEN CASTLE, *West Lynn*.

MILDEW ON CHRYSANTHEMUMS.

IN your notes to correspondents, page 262, in giving "A Grower" information you refer to the solution used by me for mildew on Roses and Peach trees, and also wish me to state if I have used it on Chrysanthemums. I have not done so, as I discontinue the use of the syringe on these plants altogether after the approach of heavy dews at night, which commence very early and are continuous in this neighbourhood. When mildew has been allowed to thoroughly establish itself either on Roses, Peaches, or Chrysanthemums the solution advised to be used by me is not sufficiently strong to destroy it, neither are many of the "infallible compositions" recommended for the purpose, unless it is very strong, and not unfrequently then they prove injurious to the foliage of the plants or trees operated upon. If "A Grower" lives in a locality where mildew abounds at this season of the year I feel confident that if he will commence early enough with the softsoap solution, and follow it up regularly, his plants will not be troubled with mildew. If any of my Chrysanthemums are attacked I follow the excellent advice given by you to "A Grower" of mixing a little sulphur in water in which soft soap has been dissolved. The plants are laid upon their sides and thoroughly drenched with it, which is again repeated in a few days if necessary. If the weather prove showery when the operation is performed the plants are placed under cover, so that the sulphur is not washed off them. The soft soap must not be used too strong. After the mildew has been destroyed wash the plants thoroughly with clean water to remove the sulphur. A weak solution of Fir tree oil and a little sulphur will be found useful in destroying mildew.—W. BARDNEY.

THE DESTRUCTION OF PEARS BY WASPS.

YOUR correspondent, "Saxoring" (page 259), in last week's Journal is not alone in his suffering from the wasps. They have attacked the following varieties of Pears here on the walls, espaliers, and bush trees:—Duchesse d'Angoulême, Vicar of Winkfield, Williams' Bon Chrétien, Beurré Clairgeau, and an Easter Beurré. I am of opinion that the small birds, which prefer hard gritty Pears to soft ripe ones, are the beginners of the mischief. The skin of the fruit being pecked by the birds the wasps at once commence operations, which, of course, in a short time cause the complete destruction of the fruit.

In our vinerias as well the wasps are giving us much trouble, especially among Black Hamburgs where not protected. Last year we employed muslin bags with very poor results. The Grapes went mouldy, and the wasps made their way through the bags with the greatest ease. We are now using white paper bags, which can be had from the grocer any size and at a low price. We bore a few small holes at the bottom of the bags, the bag to be slipped upwards over the bunch, but not tied round the mouth, or the Grapes will not keep very long. Strange to say not a wasp has entered any of the bags, though thus quite open at the top. Late Pears intended for exhibition or other particular purposes may be protected in the same way if the material used was waterproof. An invention for the protection of this valuable fruit from the ravages of these troublesome insects would indeed be a boon to the gardening community.—WM. CHISHOLM, *Oxon Heath, Tunbridge*.

IN reply to "Saxoring" as to wasps devouring unripe Pears, I may say that with me, when wasps are numerous, they have done so for several seasons. This season some dozens of the hardest fruits both for stewing and dessert are completely spoiled. But in my case there is another enemy far more destructive, and which precedes the wasp—viz., the tomtit. Many of them can be seen pecking at the Pears on the upper or sunny side and eating the flesh, which makes a hole large enough for half a dozen wasps to enter, as I think the wasp has not the power to break the skin of such hard fruit were it not for that mischievous bird. But all my forward Pears have been more or less eaten.—THOMAS RECORD, *Belmont, Barnet*.

SABBATIAS.

A SMALL genus of North American plants, chiefly biennials or annuals, bearing showy brightly coloured flowers, especially the two described below. They can be readily raised from seeds either sown out of doors in a sheltered border or in pots under glass.

Sabbatia campestris (Nutt.); *S. formosa* (Brickley) in "Prod. Acad. Phil.," 1862.—This is one of the very showiest of our hardy outdoor annuals, and is a native of the open prairies of Arkansas and Red River, where, although not very plentiful, the effect of its deep rose lilac-coloured flowers is quite dazzling when seen through the long grass. It grows from 6 inches to a foot high, with slightly winged stem, branching habit; leaves ovate, amplexicaule, acute, nerved; flowers nearly 2 inches in diameter, each of the variable segments being marked with a five-rayed greenish-yellow star, having an irregular white margin; calyx segments linear-lanceolate, and a trifle shorter than the corolla. It grows well in ordinary garden soil, and, judging from the time the

flowers keep fresh after cutting, is likely to prove useful for purposes of decoration. It was, I believe, first introduced to this country by Mr. James Carter, but was lost until reintroduced by Mr. Thompson of Ipswich through a German correspondent in 1855. *S. campestris* has often been confounded with the *Chironia trinerva* of Ceylon, and, although agreeing in artificial character, the colour of the flower and the ovate leaves distinguish it clearly enough for all practical purposes. There is also a pure white variety, extremely pretty, but unfortunately it is not in cultivation. The species flowers from June to September. The woodcut (fig. 51) represents a spray with several flowers.

Sabbatia chloroides (Pursh).—According to Dr. A. Gray's second edition of the "Flora of the United States" this is one of the handsomest species, but it was probably described before the above was introduced. It has a round stem from 1 to 2 feet high, loosely paniced.



Fig. 51.—*Sabbatia campestris*.

The corolla, which is of a beautiful rose colour, is over an inch broad; leaves oblong-lanceolate; segments of calyx linear, and only half the length of the corolla. It grows round the edges of ponds from Massachusetts to Virginia, and flowers from July to September.—D. D.

AVENUES AND BOULEVARDS IN AMERICA.—The municipalities accept it as part of their duties to adorn and beautify the thoroughfares of the localities over which they have control. The result is that avenues and boulevards are everywhere constructed out of the public funds. Even Brooklyn and New York, which are probably the most ill-governed cities in the American Union, are supplied with abundant trees. When a new city is laid out attention is at once bestowed on those features of urban life which will make it an agreeable abode for all who settle in it. It is a practice in some communities, as in Rochester, to remit part of the taxes if owners of property plant trees along the front of their premises. So much has been done, and is yet being done, towards beautifying the outlying parts of Chicago, that many miles of the loveliest boulevards in the world have already been constructed, while plans have been formed for connecting the whole of the public parks surrounding the city in such a manner that no fewer than forty-eight miles of magnificent drives will eventually come into the possession of

the people. New Haven in Connecticut, known also as the Elm City, is so amply blessed with verdure that the view of the place from East Rock gives one the impression of a town planted in a forest. The same impression is produced when looking down upon the city of Rochester from Power's Block. Cleveland and Detroit are also reputed for comeliness and verdure. Euclid Avenue, in the former city, would certainly be difficult to surpass. To my fancy, however, there is no prettier town in either Europe or America than Milwaukee. Its charming drives, its shady walks, its lawns and flower gardens, none of them enclosed, made it impossible to imagine that one was not strolling through a public park instead of threading the streets of a thriving and industrious community.—(*Our American Cousins.*)

USEFUL APPLES.

It would be interesting to know the best Apple of the year. Ecklinville Seedling has been the best here. The crop as regards number has not been so large as on some other sorts, but taking number with size and bulk when gathered this is our most profitable variety. I have seen it stated that this is not subject to canker in the stem. This is not correct as applied to every garden, as the tree cankers here, but not so badly as some others. It is a variety that requires a good amount of young wood left. Too close pruning is a decided evil. Warner's King is another profitable Apple—not such a heavy cropper as the above, but sure, the fruit large, and a grand keeper. It is very bad with canker. Mère de Ménage is a variety I shall grow more of. It is a certain cropper; the fruits are large, keep well, and are moreover beautifully coloured. The one tree we have is quite free from canker. Cox's Pomona is also a healthy tree. It is well worth growing. Cellini and Hawthornden I am going to clear out. They are good croppers, but the fruits are never large.—B., *East Lothian.*

NOTES FROM A SCOTCH GARDEN.

We experienced so much wet weather throughout the later portion of summer that Pelargoniums have not been at all satisfactory, and proves that it is not well to depend on these exclusively for brightness of effect. By planting many hundreds of *Gladiolus brechleyensis* through the beds and borders we have had plenty of colour for several weeks past. Huge masses of *Tritomas* are now well into bloom, and these will give an effect that no other plant approaches. Well-grown Sunflowers (annual) with eight flowers open at a time are better than anything I know at this season. *Oenothera Lamarkiana* is also a most effective plant. None of these, however, is of much use unless the surroundings are bold and open.

In the race after novelty gardeners are very apt to neglect good things. *Tritomas* are worth more attention than they receive at the hands of gardeners, and another pretty flower is the Japanese Anemone. Anemone japonica is one of the few flowers which are out of place in no position. The flower stems rise from a leafage which is as beautiful in its way as that of any flower. The flowers themselves, pure white, faint lilac, or of a dull rose, are very lovely. Loosely arranged amongst their own foliage with a few half-opened buds they are admirable for vases. I am inclined to think that the lilac form used alone is the most lovely. This variety is, I believe, sold as *A. japonica hybrida*. The present is a good time to propagate these. We cut the roots into pieces, and each of these grows. Of course where only a small stock is wanted good-sized pieces of roots with buds started into growth should be selected. They may either be potted or planted out.

A writer recently recommended surface dressings to be applied to the stock of Chrysanthemums. I have done so for the past two seasons, and believe the practice to be a thoroughly good one. I do not find it necessary to apply the dressing so soon as your correspondent recommends, the end of September being quite early enough for our plants. I do not remember seeing Chrysanthemums look healthier than they are this season, yet they never were subjected to such unusual treatment. We had the plants in 4-inch pots until the middle of July before they could be transferred into their flowering pots. A month after stimulants were commenced, and they have so far thriven admirably. Our stimulants are guano, and latterly sulphate of ammonia once a day. They have twice had a dry dressing of saltpetre, and once a mixture of phosphates, potash, and nitrogen worked into the surface. It is very certain that the Chrysanthemum likes high feeding, and it is equally certain it does not always receive it.

I have our Zonal Pelargoniums in their flowering quarters already. Like the Chrysanthemums they were rather late in being potted, and are not so large as we should like them to be. And another reason: I have not found that it is advantageous to let the plants stand out too long. When the plants are housed the best of the leaves fall in the course of a few days. We escape that by placing them under glass early.—X.

MASTERPIECE MELON.—The fruit I staged under this name at Bath, and which was described as the best Melon in the Show, was received from the Messrs. Sutton & Sons for trial, and was unnamed. It ripened so unexpectedly and quickly that there was not sufficient time to communicate with the Messrs. Suttons unless by telegraph, and as a consequence, a name being necessary, I called it "Masterpiece." I think now I made a mistake in so doing, especially as I now find Messrs. Suttons have a Scarlet Masterpiece; but it was done hurriedly, and after finding its aroma was much better than a fruit of Eastnor Castle I

had intended to stage. The fruit I staged was scarcely ripe, as some we have cut since were much superior to it. It is not of attractive appearance, but that is its only fault.—W. IGGULDEN.



THE ninth Exhibition of the LAMBETH AMATEUR CHRYSANTHEMUM SOCIETY will be held on November 12th, 13th, and 14th, in the Borough Road Lecture Hall. Schedules can be had from the Hon. Sec., Mr. G. Addison, 22, Peckham Grove.

— THE dedication for the public use for ever of BURNHAM BEECHES will take place on Wednesday, October 3rd, when it is expected that the Lord Mayor and the Sheriffs of London and Middlesex will attend in state and perform the ceremony, after which a grand *dejeuner* will be given in the large hall at Eton College in honour of the event.

— "G. N." writes—"One of the noblest of the tall Compositæ employed in gardens is *BOLTONIA GLASTIFOLIA*, which attains the height of 6 to 7 feet, and has pink Aster-like flowers produced in considerable numbers. The leaves are lanceolate, 3 to 6 inches long, and about 1 inch broad. It grows freely in any ordinary garden soil, and large clumps have a good effect at the back portion or in prominent positions in the herbaceous border."

— WE observe that the Yellow Ingestrie Apple is becoming a great favourite in the markets and on the costermongers' trucks. Its neat symmetrical shape, clean clear colour and convenient size, adapting it readily, for "three a penny" no doubt commend it both to producer and consumer. To those of the former who find it a profitable Apple to grow we would commend BRINGWOOD PIPPIN, which is about the same size, of richer colour, better flavour, and a much later keeper. It comes well in succession to Yellow Ingestrie, and keeps till January, when it would pass well for "Golden Pippin" where nomenclature is not much cared for. Besides, it is an excellent dessert Apple, and also one of Mr. Knight's seedlings.

— WE learn that there are GREAT POTATO CROPS IN CHESHIRE. At Chester market last week very fine Magnum Bonum Potatoes were sold at 2s. 9d. per hamper of 126 lbs., or a little over one farthing per pound. Reports from all parts of the country show that the present crop is the largest on record.

— A GRACEFUL plant for a stove or intermediate house is *PHYLLANTHUS SUB-EMARGINATUS*, though it is known in comparatively few gardens. It is of tall elegant habit with small leaves, about a quarter of an inch in diameter, and arranged on slender branches in pinnate manner. A compost of light loam and peat suits the plant, which is not at all difficult of cultivation, and might be added to many collections with advantage.

— THE Glory of the Snow, *Chionodoxa Luciliae*, has become a general favourite; and now another species, *CHIONODOXA SARDENSIS*, has been introduced to notice. The collector who found the bulbs, it is said, near the ruins of Sardis, at an elevation exceeding 4000 feet, describes the flowers as "larger and more numerous than those of *C. Luciliae*, and with the exception of a very small white eye are of a uniform intense Nemophila-blue." If this description proves correct the plant will undoubtedly soon share the popularity of its better-known beautiful relative.

— A CORRESPONDENT writing in reference to DUKE OF BUCCLEUCH GRAPES AT BEECHWOOD, TILlicOUNTRY, N.B., observes that "Mr. Dewar, gardener to Captain Archibald at the above garden, exhibited some fine examples of this Grape at the recent Show in Edinburgh, and was deservedly awarded the first prize in the any white variety class. This variety has received particular attention from Mr. Dewar with very good results, as the fruit shown and at home has been greatly admired. In a warm vinery he has a Vine of the Duke inarched upon Rivers' Sweetwater, but another in a cool house, from which the bunches exhibited were cut, is inarched on West's St. Peter's, and he had twelve bunches on one rod, the lightest weighing

2 lbs. $8\frac{1}{2}$ ozs., and the heaviest $4\frac{1}{2}$ lbs. From one bunch four berries without the stalks weighed $2\frac{1}{2}$ ozs. As with other practitioners, Mr. Dewar considers the extension system the best for this variety, allowing the main laterals to run 2 to 3 feet before stopping them."

— MR. W. WATERFIELD, The Quarries, Exeter, writes:—"In your number of August 30th, page 196, you notice that the root and stem of DATURA STRAMONIUM are smoked like tobacco for the relief of asthma, but are followed by disagreeable effects. A much milder, yet very efficacious remedy, is to dry the leaves, powder and bottle them like sweet herbs, and for use to sprinkle some of the powder upon a square of touch paper (brown paper soaked in a solution of nitre or saltpetre till it will smoulder without bursting into flame), then light the paper and inhale the fumes."

— A USEFUL plant for covering a division or wall in a house is BEGONIA ULMIFOLIA, a species of climbing habit not in general cultivation, but included in a few botanic gardens. The leaves are of moderate size, and, as the name indicates, bear some resemblance to Elm leaves. The stems are furnished on the under side with small suckers or rootlets, which adhere closely to any substance with which they are in contact, climbing and gradually covering it with rich green foliage. Wood seems to suit it best for this purpose, as the rootlets more readily obtain a secure hold, and the plant thrives better. Another excellent wall-covering plant is Pothos celatocaulis, which, however, requires a higher temperature than the former, succeeding well with Nepenthes. It has a beautiful effect, the leaves being quite flat on the wall, like some of the Marcgravias.

— MR. RIVERS of Sawbridgeworth has sent us specimens of SOUVENIR DU CONGRÈS PEAR, which are marvellous examples of good cultivation. One of them weighed $17\frac{1}{2}$ ozs., and the other 15 ozs. Accompanying them were specimens of GOLDEN EAGLE PEACH weighing $9\frac{1}{2}$ ozs., and measuring $3\frac{1}{2}$ inches in diameter; and of GLADSTONE PEACH weighing 9 ozs., and also measuring $3\frac{1}{2}$ inches. The flavour of all of them was very fine, and we longed to have the opportunity of producing on our own account such examples. Golden Eagle Peach is of the deep yellow-skin and yellow-fleshed varieties, and Gladstone is a new variety with a pale skin like Noblesse, and with the faintest tinge of mottled red on the side next the sun. Both are freestones.

— "D. D." writes—"The robust habit generally possessed by the more common species of Rudbeckia, such as R. laciniata, R. maxima, and others, better fit them for the shrubbery than the herbaceous border. RUDBECKIA HIRTA, however, is of less robust habit, seldom attaining more than 2 feet in height at its best. It is very susceptible of damp, and in such situations is apt to be destroyed; when planted in a light dry soil it grows luxuriantly, and will continue increasing for a number of years without division. The flower stalk is naked, about a foot high, terminating with a large pretty yellow flower; ray florets very stiff, slightly indented at their points with a very prominent dark purple disc. A succession of flowers continues from July until they are destroyed by frost. Leaves undivided, oval-shaped, three-nerved, with serrated edges covered with rough hairs."

— THE ROCKERY AT KEW has throughout the present season been steadily increasing in beauty, and has now become one of the permanent attractions of the gardens. The air of newness is leaving it, as the plants are covering the more exposed portions of stone; and as planting has been continued with much judgment and taste, it has now assumed a furnished appearance that is very pleasing. When first constructed this rockery was subjected to rather severe criticism by some, and almost equally undeserved praise by others. It undoubtedly had faults, as a work of such a kind must have, but they were few, and not of fundamental importance—such, indeed, as admitted of being gradually removed or counterbalanced. This continued attention and readiness to remedy defects has resulted in the greatly improved character above noted, which will, undoubtedly, be still further advanced another season. The waterfall and marsh are quite successful, and the recesses devoted respectively to peat-loving plants, seashore plants, and others requiring particular habitats, possess much interest. The old rockery near the Economic house is, we understand, to be devoted solely to Himalayan plants, which appear to thrive particularly well there. This will render it highly interesting if consistently carried out.

— MESSRS. H. CANNELL & SONS, Swanley, send a collection of

DAHLIA FLOWERS representing some useful and brilliant bedding varieties. Foremost in distinctness and richness of colouring is the Cactus Dahlia, D. Juarezii, some of the blooms of which are 6 inches in diameter, with broad pointed rich scarlet florets, which impart a most striking character to the blooms, proving the appropriateness of the popular name. Next is the remarkably floriferous Glare of the Garden, both scarlet and crimson forms, neat blooms, which are produced in great profusion. We recently saw this producing such a striking effect in a nobleman's garden that the gardener suggested it ought to be called the "Blazer." The white Cactus Dahlia Constance is also useful and good, but the blooms are smaller than the scarlet type, the florets broad but less pointed; it is, however, very free. A white variety, unnamed, we take to be Camelliæflora, an old form that is not very often seen in gardens, though it merits attention, as the bloom certainly bears some resemblance to a white Camellia. A pink variety, also included, is very pretty, the florets being broad but with the margins infolded, giving a quilled appearance, and the upper portion being cut still further adds to the distinctness.

— IN describing the VEGETATION and SCENERY near the RIVER CONGO in CENTRAL AFRICA, the correspondent of a daily contemporary gives the following:—"The vegetation that clothes the precipitous shores on the south side of Stanley Pool, near the entrance from the Upper River, is one of the most magnificent spectacles that the Congo offers. Rising nearly perpendicularly from the water the forest climbs the hillsides higher than the eye can reach without a single break in its luxuriance. The variety of colours, too, at this season, when most of the trees are in blossom, is particularly striking. One tree-top will be covered with scarlet flowers scattered with a liberal hand, another has pendulous flowers of a pinky white hanging gracefully by their long stalks amid the sombre masses of foliage, while errant creepers in exuberant growth trail their yellow blossoms over the victims they entwine. There is every note struck in the gamut of green, and the trees that form this mass of foliage may vary in tone from blue-green to greenish-yellow, and from greenish-white to russet-red, and they will differ equally in form and aspect. While some are compactly massed in their leafage, others grow erratically and in disordered tufts. Beautiful Mimosas dominate their fellows, clothed in foliage of dark green velvet; Dracænas raise their spiky heads here and there from out of the soft verdant mass. The large flat leaves of a Fig alternate with the feathery Palm fronds, while many stems are completely disguised by the network of graceful creepers which mask them like a vegetable cobweb. A climbing Palm makes a sort of latticework fence, rising straight up from the water's edge, and seems effectually to forbid trespassing in these fairy forests, while along the river's brim lines of white Lilies stand like sentinels to see the barrier is not passed."

— DOUBTLESS not a few of our readers have seen and admired, or at all events read of, the LARGE BLACK HAMBURGH VINE which some years ago was the glory of the fine range of vineries in the Vice-regal gardens, Phoenix Park, Dublin, and entirely filled one of them, producing annually a quarter of a ton or more of splendid Grapes, and which when seen at this season, with its extended horizontally trained rods almost mathematically strung on either side with their sable pendants, was a sight to wonder at and admire. It was not merely an example of a large Vine, but, what was more important, a grand example of successful Grape culture. It was a source of regret when some three or four years since this noble Vine (whose life history was somewhat peculiar) came to grief from a peculiar affection of the bark and wood, and ultimately died. The defunct will, however, soon have its place filled and its glories surpassed by a worthy successor in the shape of what promises to be a more than equally imposing Black Alicante, which the clever head of the department, Mr. Smith, has already educated to fill a third of the space occupied by its predecessor, and is just now heavily laden with beautiful bunches. By reason of the greater size of its bunches, the greater depth of colour and thickness of bloom, and the much greater length over which the season of the Alicante extends, the aspect of the house, when the young giant fills it, will be finer and more imposing than it was when its predecessor, the famous Black Hamburgh, won the admiration of all.—(*Irish Farmers' Gazette.*)

— A WRITER in the *American Gardeners' Monthly* has the following notes on the EFFECTS OF CROSS-FERTILISATION ON FRUIT:—"An opinion seems to be gaining converts among some careful observers of facts that cross-fertilisation not only modifies the characteristics of the

progeny resulting therefrom, but that the size, appearance, and other qualities of the fruit produced during the season of impregnation must and will, in a greater or less degree, exhibit some of the qualities of the staminate parent, as well as those of the one bearing the fruit. For example, the fruit of a Strawberry of a pistillate variety growing near a given staminate one—by the aid of which the greater portion of the crop is produced and perfected—will show a marked difference in size, appearance, and quality from that of the same variety of plant growing near and impregnated by another staminate variety. A little reflection upon one or two of the primary and well-known laws governing the matter of reproduction by seed will convince any unprejudiced mind, not only of the possibility of such collateral effects of impregnation, but of their extreme probability. These laws are—first, that the fertilisation of the seed is a necessary condition to the formation of the fruit; secondly, that the seed, after impregnation, excites and stimulates by the power of the reproductive principle of life imparted to it by that impregnation the development and growth of a matrix of fruit to suit its own requirements. In view of these indisputable facts is the conclusion not irresistible that, taking for example a bed of a strongly pistillate variety of Strawberry—that portion of the bed lying near to and consequently largely influenced by impregnation from a staminate variety bearing large, fine, highly coloured or high-flavoured berries, will bear fruit partaking to a marked degree more of those qualities than another portion of the same field coming under a like influence from staminate plants bearing smaller meaner fruit?"

— THE "BOTANICAL MAGAZINE" for the present month contains figures of the following plants—*Crinum Hildebrandtii*, a species related to *C. americanum* and *C. crubescens*, from the mountains of Johanna Island, where it was discovered in 1875 by Dr. Hildebrandt. Bulbs were sent to England in 1878. The flowers are in loose heads, the petals very narrow, white, the filaments purple. The leaves are 1½ foot to 2 feet long. *Tulipa Kolpakowskyana* is represented in a faithful figure. This is a fine species, with dark scarlet elliptical spreading petals and purple anthers. It is a native of Turkestan, and was introduced to St. Petersburg by Dr. Albert Regel in 1877. *Leucoium hyemale* is "one of the rarest of European plants. It is confined to a small strip of rocky shore reaching from Nice to two miles east of Mentone." The flowers are small, neat in form, and pure white. *Primula floribunda*, a distinct species from the western Himalayas, with small yellow flowers produced in terminal umbels and from the axils of smaller bract-like leaves. *Senecio concolor*, a South African species, related to *S. speciosus*, and was discovered by Drege at Tulbaghe about fifty years ago. The flower-heads are purplish-rose, and are borne in loose corymbs.

A NEW GARDEN.

THE KITCHEN GARDEN.

PASSING in review numerous gardens which have come under the writer's notice in different parts of the country, the favourite position, and undoubtedly the best, is moderately elevated and gently sloping to the south. Occasionally gardens in a valley are met with, and also high up upon a wind-swept plateau, but it is only dire necessity—that place or none—that should ever sanction the selection of either place for such a purpose. In the valley early and late frosts often do much harm, the mean temperature of winter is lower and the frosts more severe by several degrees than on higher ground; winds, too, are a source of mischief, which may, however, be turned aside by judicious planting. All that can be said in favour of a valley garden is that there we find a deep, cool, and frequently, but not always, rich soil, and plenty of water. It cannot be denied that excellent fruit and vegetables are produced abundantly in such gardens; but summer vegetables, such as Vegetable Marrows, Peas, Scarlet Runner and Kidney Beans, are usually destroyed in autumn by early frosts much sooner than in gardens in more elevated positions. It is not uncommon for the entire crop of Broccoli and Greens to perish from cold in winter, and in spring frost again assails the blossom of fruit trees and frequently destroys it. In some respects an elevated bleak position is worse than a valley. A poor thin soil, scarcity of water, and exposure to winds are the principal evils, all which it must be admitted are to be overcome—quickly, as regards the water supply; slowly, but nevertheless surely, in soil-improvement, and in imparting shelter by planting. Soil-treatment and shelter will both be discussed fully in subsequent papers, but due provision for an abundant supply of water is so

clearly a preliminary matter in the making of a new garden that another useful method of obtaining it must be explained here.

Montgolfier's clever invention, the hydraulic ram, since its introduction has been modified in various ways, but its principle of self-action, or rather of action by means of the water and air passing through it, was wrested from Nature by Montgolfier, and remains unaltered. By means of it a steady flow of water may be sent from the base of a hill to its summit, from a valley to any part of its slopes. Once in position and fairly at work, it embodies the nearest and certainly most useful approach to perpetual motion that I know, for so long as enough water flows into it, on it goes day and night, requiring no attention, sustaining so little damage from wear and tear, that after the first outlay the cost of new valves is very trifling. It is so simple in construction, so efficient in action, and so comparatively inexpensive, that its speedy universal adoption would appear to be a certainty. Such, however, is not the case. I have met with many rams, large and small, by different makers in various

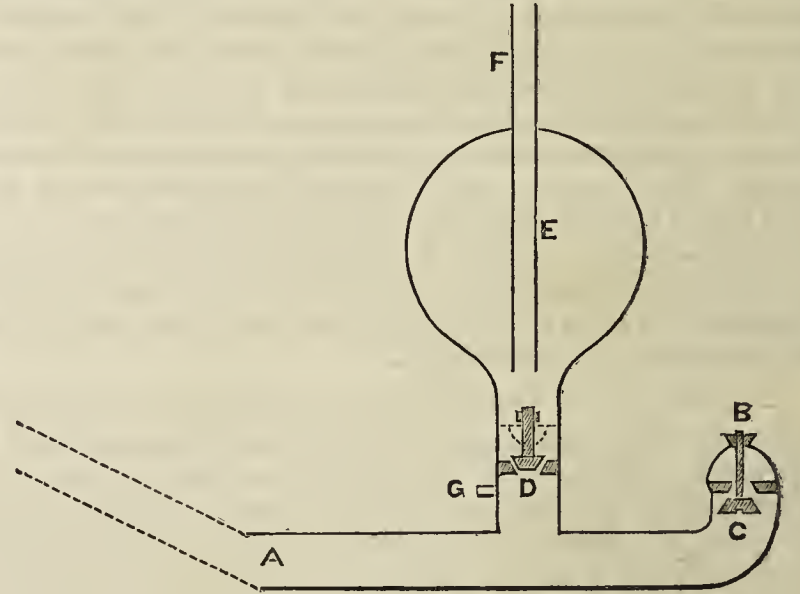


Fig. 52.

- A.—Supply pipe to ram, 2 inches in diameter.
 B.—Exit of waste water.
 C, D.—Valves.
 E.—Air vessel.
 F.—Supply pipe from ram to garden, 1 inch in diameter.

parts of the country, all working well, but it is still by no means uncommon to see manual labour and horse power employed where every facility exists for the use of a ram. Several instances of such wasted power occur to me which might, if necessary, be enumerated. Ignorance of its simplicity, durability and cost, and how and where it is possible to use it, must be the reason why it is not turned to account everywhere; and knowing from experience how much ways and means are discussed when a new garden is made, I have called attention here to one of our best means of obtaining an abundant supply of water economically, and will now proceed to explain sufficiently for general guidance its use and cost.

For an hydraulic ram with a 2-inch supply pipe to work reliably and well, the source of water should be 100 feet from it and 10 feet above it. Fed by twelve gallons of water per minute, the most ample allowance for waste leaves us 1300 gallons forced vertically to a height of 200 feet, and any

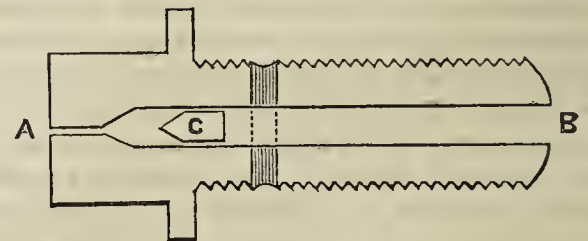


Fig. 53.

- This is a section of the snifle valve made to screw into the ram at G, fig. 52.
 A is the outlet, only large enough to admit a pin.
 B.—Inner opening into ram.
 C.—Valve.

distance horizontally. In a price list recently sent me by a respectable firm of hydraulic engineers, a machine of this capacity is offered for £6 10s., smaller and larger machines being also offered at proportionate prices. This will afford sufficient data whereon to base calculations; but lest anyone with a small garden should suppose that much less water than the quantity given is not available for our purpose, I may add

that of a list of rams actually at work in my hands, one very small one has a fall of only 9 inches from the source to the machine, another of 13 inches forcing the water to a height of 34 feet, both of them requiring only a few quarts of water per minute. To convey a tolerably clear idea of the construction of a ram, let us now turn our attention to fig. 52, which represents a transverse section of a useful form of it. The water enters at A and escapes at B. In doing this it forces the valve C upwards and closes it temporarily. This sudden check of the rushing current forces it backwards up to the other valve D, which it lifts, and a certain quantity of water enters the air chamber E, and is retained there by the falling of D. As soon as D closes C opens again, and the first process of rushing water and opening and closing of valves is constantly repeated. So much water accumulates in E that the compressed air forces the water up F to the garden. Fig. 53 is a section of the snipe valve, which is of brass, and is screwed into G, fig. 52. Its use is described by Mr. Buchan in his valuable manual on plumbing as "somewhat analogous to the use of a man's nostrils to him. The man may speak, although his nostrils are stopped up, as when he has a cold, but he will speak all the better when they are clear."—EDWARD LUCKHURST.

(To be continued.)

THE LONDON PARKS.

FINSBURY PARK.

OCCUPYING an elevated and beautiful position in the north-east of the metropolis, and commanding extensive views in the direction of Highgate, Muswell Hill, and towards the valley of the Lea, Finsbury Park has gradually advanced in the favour of the residents of that part of London, and is now as popular in the north as Battersea Park is in the south. Its site, it is true, unfits it for the diversity of landscape effect which is the great charm at Battersea; but to counterbalance that the visitor enjoys a more bracing atmosphere, greater boldness of character, and a pleasing prospect. Shrubberies, too, have been judiciously planted with hardy and vigorous-growing plants, which are slowly but sturdily filling up previously vacant places, imparting a much-needed variety in the appearance of the Park, and serving, moreover, as a shelter to beds of choice flowers. Indeed, without this protection flower gardening would be very unsatisfactory there, as the exposure to winds would be destructive of ordinary Pelargoniums, Calceolarias, and similar orthodox bedding plants. With the aid of these shrubberies, however, a flower garden of considerable beauty is ensured; and other sheltered walks assume a subtropical character, with numerous beds of Ficus, Solanums, Abutilons, and similar tender favourites for such beds. Tree-planting has not been largely practised, but there is one of the finest avenues to be seen in London of Black Italian Poplars, which are fast attaining considerable proportions; and though the stems have been much bent in one direction by the wind in their earlier stages of growth, they are now recovering from that and developing into handsome specimens. This avenue extends from the entrance near the Finsbury Park station to the opposite extremity of the Park, and runs parallel with the road, rising slightly to the centre from both ends. The same Poplar is also employed as isolated specimens in other portions of the Park, chiefly because from its hardness it seems the best fitted to resist the keen winds frequently experienced there during winter and spring. Rhododendrons have been planted in several beds, and though some appear to be fairly prosperous the majority look as if a more sheltered site would suit them better. Hollies of the common green varieties and Laurels thrive the best of the shrubs, and form a good foundation and protection for others that are less hardy.

The principal portion of the ordinary bedding is on the highest portion of the Park, near the lake, a walk with a broad belt of shrubs on each side passing through the centre of a large oval expanse of turf also bordered by shrubs, and in this are cut a series of beds in four or five rows, large circles at the back, and smaller ellipses, ovals, oblongs, and circles in front. The beds on each side of the path are similar in shape, and planted alike, with a few exceptions that will be noted. The beds nearest the walk are devoted chiefly to carpet designs, and though nothing very elaborate is attempted, a bold effect being the principal object; yet so well are they planted, so clear and distinct are the designs, that they may claim the visitor's attention and admiration. The beds of Pelargoniums and other plants are similarly distinguished by their freshness and brightness, the plants being well developed before they are placed out, so that compact handsome beds are quickly formed. For several years this has been one of the marked characteristics of the Finsbury bedding, the result of employing such sturdy plants being a proportionately abundant and lengthened display of richly or delicately coloured flowers. In these respects and in general neatness this Park has deservedly obtained considerable fame under Mr. Cochrane's careful management, and with the assistance of his able foreman, Mr. Mardlin.

But to denote particularly the composition of the beds the chief features will be briefly described, commencing with the beds nearest the path. This consists of circular and oblong beds margined with *Echeveria secunda glauca* and *Mesembryanthemum cordifolium variegatum*; the oblongs, which are devoted to Pelargoniums, having an additional inner marginal band of *Lobelia Finsbury Park Blue*, an excellent dark blue variety, which originated in this Park several years ago, and has since

been annually employed in bedding with great advantage, being of good sturdy habit and very floriferous. The Pelargoniums in these beds contain the silver variegated *Princess Alexandra*; *Marshal MacMahon*, a vigorous bronze variety of rich colour; and *Macbeth*, a beautiful golden tricolor that appears to succeed very well in the Park. The circular beds are appropriated to *Alternantheras*, the centre one containing the richly coloured *A. versicolor*, those on each side the golden *A. paronychioides aurea*, and the third pair *A. magnifica*. All these have done exceedingly well, and afford a very striking contrast of colours. The next row of beds comprises four circles and the same number of irregular rhomboidal beds, the former being occupied with *Coleus Verschaffelti* margined with *Pelargonium Robert Fish* and *Echeverias*; the others have *Pelargonium Mrs. Holden*, a compact, strong, and floriferous pink Zonal variety, edged with *Ageratum Cupid* and *Golden Feather*. Following these is a row of quadrangular beds and circles, the latter being of great size and devoted to well-grown Cannas, with marginal bands of Pelargoniums *Rose of Allendale* and *Vesuvius*, with the white *Lobelia The Bride*. The first-mentioned beds contain *Pelargonium Henry Jacoby* edged with *Flower of Spring* and *Lobelia Omen*. Behind these are some very large beds of *Cineraria maritima var. candidissima* and *Verbena venosa* in lines margined with *Iresine Lindeni*. These beds are extremely effective, the contrast between the colours being most striking. On the opposite side of the path the beds are, as already mentioned, similar in form and design to those noted, but a few different Pelargoniums are observable, notably *Mrs. Turner*, a good pink Zonal; *John Gibbons*, a rich crimson variety; and *Cleopatra*, a useful pink Zonal. These also, with *Lobelia pumila magnifica*, form a border next the shrubs, and nearly surrounding the main portion of the bedding.

Several of the walks in other portions of the Park have beds on each side, which are effectively planted with Pelargoniums and miscellaneous plants of a similar character. Some large clumps of Dahlias have also been very showy, and, together with the subtropical beds, impart abundant attractions to the Park during the summer months. Another grand attraction, too, will be provided in about a month's time—viz., the grand collection of *Chrysanthemums* which during the past two seasons have drawn so many horticultural and other visitors to the northern Park during the dull November. The plants are all in excellent condition, and giving abundant promise of fine blooms.

VICTORIA PARK.

The inhabitants of no district of London so much needed a bright and pleasant recreation ground as those residing in the neighbourhood of what is now familiar to all as Victoria Park; and when the open waste formerly termed *Bishop Bonner's Fields* was converted into the present well-kept park a great boon was bestowed upon hundreds of thousands of weary toilers whose occupations retain them east of the city. There during leisure hours in the evening, but especially on Sundays, they can enjoy the brightness of a rich floral display, tasteful carpet designs, luxuriant subtropical plants, and fresh green turf. Or, if during the week they desire a more active form of recreation, there is a gymnasium and swings, a lake for swimming, and abundant space for cricket or other sports. It is not surprising that the Park is so highly appreciated, for it brings pleasure and health to thousands of those that on fine days throng the walks in all the principal portions, or cover the turf with their wickets or goals. In an educational point of view it is also most valuable, as Mr. McIntyre has paid close attention to providing tasteful combinations of colours, either of flowers or foliage, and with a large measure of success, for the bedding at Victoria Park has gained considerable fame in the horticultural world. There are several ways of reaching this Park—by tram or rail to Cambridge Heath station, or by the North London line to Victoria Park station, which is at the extreme east side, and then the visitor can proceed across the Park, taking the chief features, and quitting by the west side near the station first named. When time is an object, however, the former is the most convenient mode of reaching the bedding, as it is all near that side. Entering from this road, a path to the right leads down to the lake and thence through the subtropical ground to the chief carpet beds, and as this is a very convenient route we will briefly refer to the characters distinguishing it. The subtropical plants employed are principally of the orthodox kinds, *Castor Oils*, *Cannas*, *Wigandias*, *Ficus*, a few *Palms*, &c., with margins of richly-coloured *Chilian Beet* that impart a most welcome warmth to the effect. Prominent amongst the *Cannas* is *C. nigricans*, a telling form with exceedingly dark foliage, which has a very good effect in contrast with plants possessing lighter green leaves. *Acacia lophantha* is also freely employed, large clumps being very graceful. Some of these beds are bordered with *Golden Treasure Fuchsia* and *Echeverias*, which form an agreeable finish to the beds. The *Wigandias* have a noble effect, and are indispensable plants for this style of bedding, the *Castor Oil Plants* being similarly useful, especially when vigorously grown as they are there. The rockery, which is near the lake, is an unpretentious structure, principally occupied with succulent plants; but it has a certain degree of freedom, or what may be termed naturalness, in its design that pleases, because it is rarely a character of such adjuncts to the garden.

Leaving the lake, the carpet beds attract attention, and here, as elsewhere, *Alternantheras* form the main portion of the display, furnishing the colour on a groundwork of *Herniaria glabra* or *Mentha*. The first seems, however, to be preferred, and it is surprising how generally it has grown in favour this season; the foliage possesses such a rich deep velvety green hue, and the habit is so dwarf and compact, that it has much to recommend it for this purpose. There are many beautiful designs, but two may be selected as samples of neatness and

beauty, one a circle and the other an oblong. The circle has a large central ornamental cross of *Alternanthera aurea* and *A. amoena*, defined with rows of Golden Feather and *Echeverias*. In the centre of the cross is a fine clump of *Echeveria metallica*, and in the centre of each space between the arms of the cross is a plant of *Sempervivum tabulaeforme* surrounded by a band of *Alternanthera versicolor grandis*. The main groundwork is *Mentha Pulegium gibraltariaea*, on which are triplet chains of small diamonds and ellipses of *Alternanthera aurea*. There is a simple finish in the appearance of this bed that is very pleasing, and furnishes a good example of really effective carpet bedding. The oblong bed is more complicated in design, but fewer kinds of plants are employed. The *Mentha* forms the groundwork, with a margin of Golden Feather and *Echeverias*, with numerous small panels of *Alternantheras versicolor, aurea, amoena, &c.*, which have a diversified and pretty effect, though perhaps the panels are in some cases rather too small—a defect that is often noticeable where very complicated geometrical patterns are attempted. The designs that generally prove most satisfactory are those with bold clumps or panels of colour neatly defined by some neutral tint upon a good green ground, or, if the neutral colour is employed as a foundation, the defining lines are not needed, and this is even more simple.

The Prince of Wales's Feather beds are, as usual, aglow with *Pelargoniums* and ordinary bedding plants, and have produced a most brilliant display during the summer. The series of small beds near the walk skirting the Park on that side are also occupied with similar showy plants, while the large borders near the shrubberies are filled with an excellent assortment of herbaceous plants that keep up a display from early spring until late autumn, far exceeding the standard bedding in length of time, but never producing the same brilliancy of colour, though constantly possessing much interest.—L. C.

THE NATIONAL APPLE CONGRESS AT CHISWICK.

OCTOBER 4TH-18TH.

A VERY extensive and remarkably fine display of Apples is anticipated on this occasion, the applications for space being numerous. Amongst others large collections will be exhibited by Messrs. Rivers and Son, Sawbridgeworth; The Cranston Nursery Company, Hereford; Saltmarsh & Sons, Chelmsford; Harrison & Sons, Leicester; Lee & Son, Hammersmith; Scott, Merriott; Wheeler & Son, Gloucester; Bunyard, Maidstone; Killick, Maidstone; Haycock, Barham Court; Britcher, Tonbridge; Veitch & Sons, Chelsea; Lane & Son, Great Berkhamstead; Dickson, Chester; Poynter, Taunton; Dunn, Dalkeith; Gilbert, Burghley; Stevens, Trentham; Selwood, Eaton Hall and district; Miles, Wycombe Abbey; Clayton, Grimston Park, &c. Extensive collections are also expected from Tweedside.

There will be a meeting of the General Committee on October 4th at 2 P.M. Certificates will be awarded to approved new varieties, the Sub-Committee being entrusted with the preparation of a detailed report, &c

THE National Apple Congress will doubtless be interesting to those who can attend; but what about the far greater numbers who cannot? Will an official tabulated report of the collections be published? if not the Congress will be of limited use.—NORTH BRITON.

In view of this gathering next month, which it is to be hoped will bring together a large variety of Apples, it would, I think, be much appreciated by many of your readers if you would state through the medium of your columns the best way of getting there to see the Gardens. Chiswick is some distance from South Kensington, and as many visitors to London avail themselves of the day trips or excursions organised by the railway companies to the Fisheries and other "sights," and as all gardeners are not acquainted with the quickest and cheapest route to Chiswick from London, a few lines respecting it in your columns would be of great service to those contemplating a visit. Which is the best route by rail from the Fisheries Exhibition at the Horticultural Gardens at South Kensington?—A. HARDING.

[There are three or four trains hourly from the Mansion House *via* the District Railway to Richmond, Hounslow, Harrow, and Ealing, all of which stop at Turnham Green, and some of them at Acton Green stations, the former fifteen minutes' and the latter eight minutes' walk from the Garden. These trains can be met at South Kensington station by visitors to the Fisheries Exhibition.]

LONGFORD CASTLE.

IN the lower portion of a beautiful park fringed with fine timber, with bold masses of trees in the distance, and noble individual specimens in the open central space, Longford Castle, the baronial seat of the Earl of Radnor, is situated. It is three and a half miles east of Salisbury, and was built in the early part of the fifteenth century, but has been much enlarged and beautified by the present owner. Late in 1644 the King demanded its surrender as a garrison. After the battle of Naseby, Oliver Cromwell during his triumphal march, taking Basing House and Winchester Castle on his way, thought fit to summon Longford, and it surrendered to him in 1645. Queen Elizabeth, too, paid a friendly visit of some duration to Longford Castle, which is of great size and remarkable for the beauty of its architecture. The general figure of the building is triangular, is built of Bath stone and small pieces of flint in squares at short and regular intervals between the stone. This is very effective, and the large

circular towers at each angle, and a small staircase tower at each of the inner angles, give to the pile an imposing appearance. In the centre is an open court; at the western front—the carriage entrance—is a recessed vestibule or piazza and a large hall. This façade is profusely adorned with rustic pilasters, with balustrades and a gallery or portico on the first storey. About 30 yards east of the Castle is situate the Manor House, a picturesque building in the Tudor style, having as its prominent feature a central clock tower. The river Avon flows through the park on the east side, and within a few dozen yards of the Castle, in the clear waters of which this noble pile of buildings, with its towers and minarets, is sharply reflected.

THE FLOWER GARDEN.

The Italian flower garden opposite the south front of the Castle is sunk below the general level. It is a parallelogram of considerable size, having a broad central walk, in the centre of which, at the south end, stands an elaborate temple to the Goddess Flora, with steps ascending thereto. It is supported by circular columns having capitals and cornice of the Corinthian order, the temple being surmounted by an urn. On each side of this temple, in a recess to the rear, are large Orange trees with rich foliage and laden with golden fruit; beds of Roses on their own roots, pegged down and growing freely, while between the walks and the grassy slopes are several mythological figures of great age. In the central squares, of which there are four, consisting of twelve beds each on each side the central walk, are large urns supported on pedestals, also vases; several of which, together with large specimens of scarlet and pink *Pelargoniums*, are on and in close proximity to the terraces. Irish upright Yews, with standard and climbing Roses trained to rustic posts, occupy central positions in several of the flower beds, imparting diversity to a beautiful garden. Twenty-four of these beds, eight oblong and sixteen hexagon-shaped, are filled with a select variety of carpet-bedding plants, the remaining beds being planted in masses with *Pelargoniums*, the bicolor, tricolor, and silver-leaved sections being mixed with Blue Perfection and Golden Gem Violas. *Ageratums*, a superior variety of the Tom Thumb, we never saw finer. *Lobelia pumila magnifica* was also highly effective, as was the best bed of the distinct *Calceolaria amplexicaulis* we have seen for years, while *Heliotropes* were very good. After the summer occupants are removed from the beds they are filled with spring-flowering plants, and when these are in beauty the effect must be charming. On the centre of the terrace at the south end of the garden is a sundial, and from this elevated position there is a fine view of the Castle northward; westward, in the undulating park, fine glades, clumps, and single specimens of Beech, Elms, and spreading Chestnuts, with the spire of Salisbury Cathedral cutting the sky-line; eastward, also, the park dotted with handsome trees, having in the background beautifully wooded slopes, behind which is the village of Alderbury, with the tapering spire of its church towering above the tree tops, and in every direction rich masses of foliage just developing its autumnal tints. A view more fair than this—a quiet view of pastoral beauty, it would be difficult to find, as there were so many features to command attention.

A characteristic feature of the flower garden is its broad encircling Yew hedge, through which a series of arches have been cut with mathematical precision, and the whole is enclosed by ornamental stone balustrading, with piers surmounted by stone balls at regular intervals, the lower part of the wall being covered with Ivy and Yew. The garden in question is a model one of its kind, everything—statuary, flowers, Yews—being so admirably balanced and in keeping, it may truthfully be pronounced faultless; lawns, walks, flower beds, everything being in the most admirable condition. Many hardy plants are employed in the beds, and form a sort of permanent carpet as suitable for spring as for summer effect, such low-growing plants as *Veronica repens* and the golden-tipped form of *Sedum acre* being extensively employed. Very striking, and not often seen now, were some beds and large specimens of the true old Tom Thumb *Pelargonium*—sheets of velvety scarlet of its own peculiar glossy hue, and the innumerable small trusses appear to great effect rising from its light green zoneless foliage. For effect late in the season Mr. Ward finds this excels all others, but *Vesuvius* is the most effective in early summer. Some beds of Beaton's distinct old Indian Yellow were also highly effective; but we were especially pleased to see Tom Thumb in his rich autumn garb of long ago, yet fresh and bright as ever, and holding his own bravely among his modern rivals. We leave this garden with the remark that in neatness and finish it ranks with Drumlanrig and Heckfield, and more need not be said.

Immediately outside the flower garden is a large expanse of lawn, bounded on the east by the rapid-flowing Avon, in which fishes by the million are disporting in the clear water, and west and south by fine belts of *Rhododendrons*. In the front of these a line of *Lilium auratum* in flower showed to great advantage, the plants being remarkable by their sturdy habit, and the flowers were seen to great advantage against the dense background of green. The bulbs, we were informed, were planted in June in a border 2½ feet deep of sandy peat. On the lawn are several fine specimen *Beeches*, including a grand example of the purple variety. *Magnolia grandiflora* also diffuses its fragrance, and a huge bush of the common *Barberry* in all aglow with its coral-like fruits. For relief and effect in winter are a few thriving *Conifers*, including a very fine specimen of the dense *Abies Clanbrasiliana*, *Thuja borealis*, *Pinus insignis*, *Juniperus sabina*, and some others.

Noteworthy here are what are called the "Clematis Temples." There are two of them; one covered with *Clematis montana*. These are paved with pebbles like mosaic work. The larger one has a small circular bed in the centre, and mosaic walk round it; eight others, about 2½ feet wide, radiating from it to an outer circle 60 feet in diameter. Between

these radiating walks are eight beds edged with ornamental tiles, and filled with gold and silver Pelargoniums, mixed with purple and yellow Violas. The wirework of this temple is also covered principally with varieties of Clematises. Large oval-shaped beds, in which single Dahlias are the prominent autumn flowers, are appropriately placed; and there are beds of Roses, the plants raised from cuttings and the growths pegged down. Nothing could be more satisfactory than the condition of these, and they must produce a wealth of fine blooms throughout the summer. There is also a row of standard Roses on raised grass mounds outside, and parallel with the low wall of the flower garden; this method of arranging having probably been adopted with the object of rendering the Roses visible from the windows of the Castle. The dressed grounds now under notice are as admirably kept as the flower garden, and form an agreeable link between that beautiful enclosure and the part next to be referred to.

THE PLEASURE GROUNDS.

Southward from the flower garden and Castle these are most pleasantly situated. They resemble a wilderness of vegetation traversed by sound and excellently kept walks, over which the arching branches form a canopy of foliage. Under the dense shade of the deciduous trees it is noticeable how well the common Box thrives; there are bushes of all sizes of it, also large masses of Yews, Portugal Laurels, and other

THE KITCHEN GARDENS.

We say "gardens" advisedly, for there are several enclosures; indeed, we never saw such a great extent of walls on the same space of ground, nearly a mile in length being covered with fruit trees. Prominent among these are Fig trees, which cover more than 100 yards run of wall, clothing it from base to summit, excellent in health and laden with fruit, the varieties being Brown Turkey, Castle Kennedy, and Brunswick; and on another wall near the gardener's cottage a fine tree of the latter covers a length of 60 or 70 feet of wall. The walks are neatly edged with Box, and the borders fringed with Parsley—splendid rows of Lec's Matchless, which would gladden the many gardeners, especially near towns, who experience such great difficulty in maintaining a supply of this indispensable herb. Well-formed pyramid fruit trees and well-furnished quarters of vegetables also arrest attention in this department, as do some rows of Scarlet Runners about 20 feet high, necessitating the use of tall garden steps to gather the abundant produce; and in striking contrast is a lowly bed, not often seen in gardens, of Cranberries. As might be expected, these are in a cool moist position, and growing in a compost of peat and vegetable matter. They are bearing freely, and the fruit is much appreciated in the Castle.

GLASS STRUCTURES.

These are rather numerous, there being upwards of twenty of them,

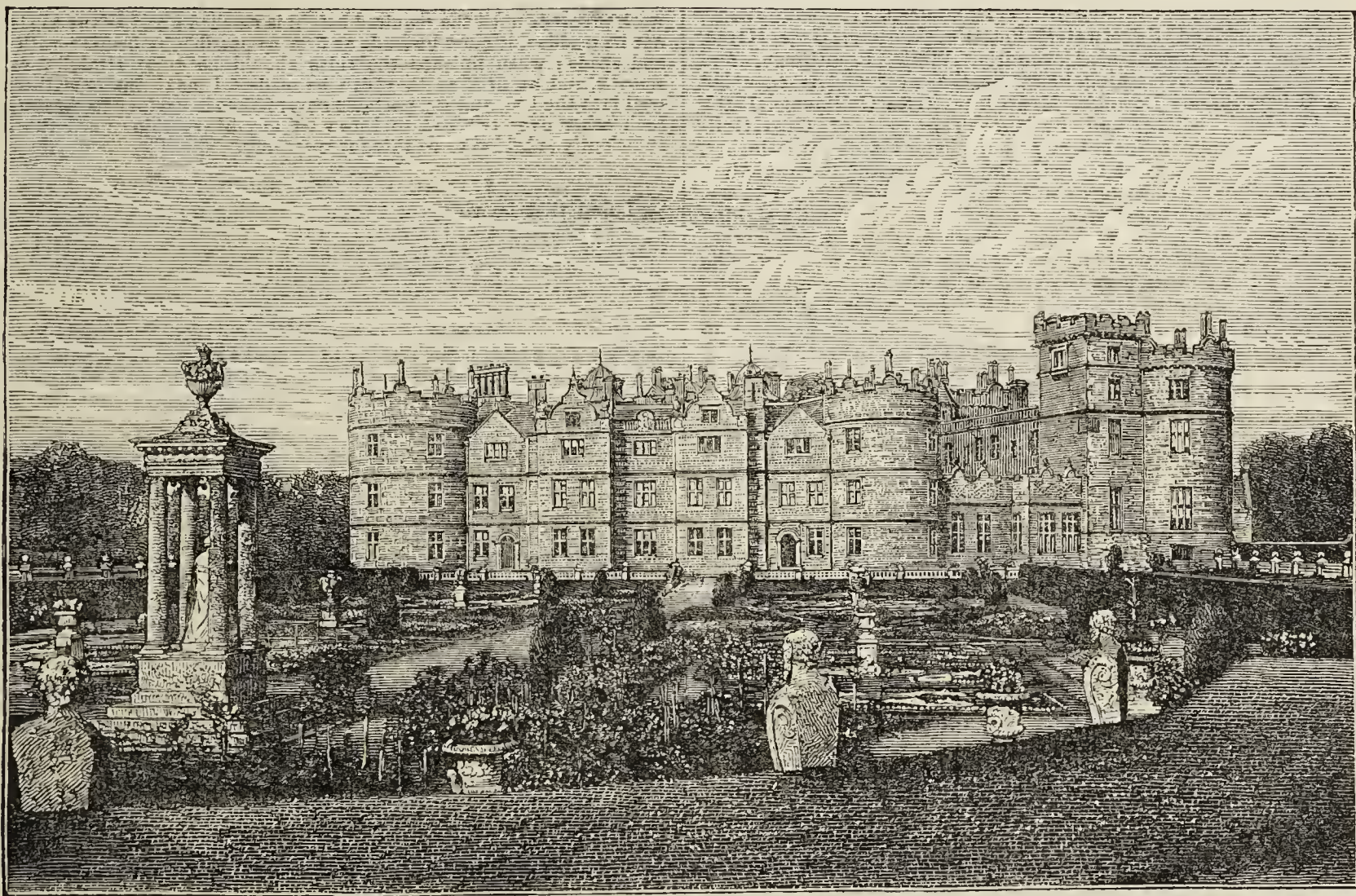


FIG. 54.—LONGFORD CASTLE.

evergreens. This is a delightful retreat on a sultry day, and the more so since a trout stream winds through it alive with fish and spanned by appropriate bridges. This stream unites at its exit with the rushing waters of the Avon. These pleasure grounds are extensive, and at one part there is a "clearance"—an open expanse of turf known as the "old garden." Here is a very fine example of the Judas Tree, *Cercis Siliquastrum*, a still finer bush 20 feet in diameter of *Chimonanthus præcox*, and a specimen of *Catalpa syringæfolia*. The Deciduous Cypress also thrives well here, one specimen standing alone on the turf; but another a short distance from it among the trees being about 100 feet high, and the stem 8 feet in circumference 4 feet from the ground. Seats and summer-houses here and there render this part of the grounds additionally enjoyable. The walks are edged with flints, and between them and the shrubs are continuous lines of Snowdrops and Daffodils associated with Periwinkles, and the effect in their season must be very attractive; these and other bulbous plants, also the Periwinkle, thriving, like Ivy, in the densest shade. There is little that is gardenesque in these pleasure grounds—their charm lies in their semi-wildness; yet it is very apparent they are not neglected, but in their cleanliness receive the same attentive care on the part of the gardener as every other department does that is in his charge, and form a conspicuous feature of this fine demesne.

some small, others large, but all useful and well stocked throughout. Near the gardener's cottage a square of sloping ground is occupied with a series of pits and houses running east and west. First are two Melon and Pine-sucker pits, then a lean-to Pine pit in two divisions, next following in the order named a three-quarter span range, comprising early Peach and Pine stove, the latter containing good fruiting plants of Smooth Cayenne, Charlotte Rothschild, Black Jamaica, and Queen; an Orange and Camellia house 24 feet wide, with large specimens in the best of health; a pit for the preparation of decorative plants of the usual popular kinds, all admirably grown; a Melon, Cucumber, and Strawberry house in three divisions, the late Melons being of the most promising character, and the Strawberries (now, of course, outside and 3000 in number) being in a thoroughly satisfactory state. Other plant pits follow, one division containing Gardenias planted out, and others accommodating healthy stocks of Eucharises, Tree Carnations, Callas, *Echeveria retusa*—in fact, all kinds of plants for house and conservatory embellishment.

In another enclosure we find a range of vineries in two divisions, with Lord Napier Nectarine and *Passiflora edulis* fruiting on the back wall. The Vines in one, being struck and planted out in 1882, will carry a few bunches next year; the other, a mixed house of Alicante, Black Ham-burgh, Madresfield Court, Mrs. Pince, and Gros Colman, affording

useful bunches for present use. Passing through another archway we find a long Peach house 100 feet long in two divisions, the varieties in the second early house being Grosse Mignonne, Goshawk, and Dr. Hogg, with Pine Apple and Lord Napier Nectarines. The other or late house contains Bellegarde (midseason var.), Prince of Wales, Late Admirable, Lord Palmerston, Barrington, and Rivers' Orange Nectarine. The back wall is covered as well as the trellis, all the trees being remarkably clean and in the best bearing condition.

The last and chief range to be noticed consists of a series of vineries with a conservatory in the centre. This is a well-proportioned and very excellent three-quarter span range 200 feet long, and nearly new; erected by Messrs. Weeks & Co. of Chelsea. This new range consists of a fine central greenhouse or conservatory with two central stages, together with side stages and a tank underneath the tessellated floor capable of holding 7000 gallons of water, and having several inlets for conveying the water to it from the roofs. On each side of this house are two vineries, the Vines in which were rooted and planted in 1881 in an inside border 17 feet wide and an outside border not yet being made. Good drainage was afforded, and the soil consisted of loam, lime rubble, and horse droppings. The first house at the east end is planted with Muscats and one (central) permanent Vine of Roberts' Gros Guillaume, a few of the same, with Foster's Seedling being planted temporarily between the Muscats. The second is a house of mixed late varieties—Gros Colman, Gros Guillaume, Trebbiano, Raisin de Calabria, Alicante, Syrian, Madresfield Court, Lady Downe's, and Muscat of Alexandria. The third, an early house, contains Black Hamburgh, Trentham Black, Black Prince, Buckland Sweetwater, Foster's Seedling, Gros Maroc, Mill Hill Hamburgh, Muscat of Alexandria, White Frontignan, and the Strawberry. The remaining house at the west end is occupied with Gros Colman, Lady Downe's, Mrs. Pince, Gros Guillaume, Black Alicante, Alwick Seedling, and Syrian. The rods of Gros Guillaume in girth average 5 inches and the other rods about 4 inches. The lateral-bearing bunches of Gros Guillaume, many of them measure 2½ inches round, and are bearing Grapes worth going a journey to see, three excellently formed bunches close together on one Vine weighing 30 lbs., well-shaped and regularly furnished with fine berries. The other varieties are also excellently represented. In a short time a very fine collection of superior Grapes may be expected in the houses referred to, and which we trust will give Mr. Ward such a return for his labour as will compensate him for the grievous disappointment he has had to endure in consequence of the virulent attack of the phylloxera, which he has combated so successfully by the stamping-out process. The Vines are clean now, and fine Grapes may be expected at Longford.

The gardens are well appointed in the working departments, good offices, Grape-room, bothy, Mushroom house, and useful shedding being provided, and needed, for the demands are great, produce having to be packed four times a week during the London season. The noble owner, who is the Lord-Lieutenant of the county of Wilts, is highly esteemed as a landlord and employer. He appears to cherish his garden, and provides all that is necessary for its efficient management, water only needing to be "laid on" to render it complete, and this valuable addition will doubtless be made eventually, especially as it would not be a work of great magnitude.

Such an establishment as this is worthy of a competent manager, and such it undoubtedly has in Mr. Ward, for good work is seen in every department, and the admirable order that is observant throughout, and the extreme neatness that prevails everywhere, are prominent features of the surroundings of Longford Castle.

THE OUTDOOR CULTIVATION OF MUSHROOMS.

[Abstract of a paper read before the members of the Sheffield and Hallamshire Gardeners' Mutual Improvement Society, by Mr. W. K. Woodcock, gardener to Mrs. Firth, Oakbrook.]

WHILST residing in London in May, 1882, I had the opportunity of visiting and inspecting the grounds of Mr. J. F. Barter, Mushroom grower and spawn manufacturer, Lancefield Street, Harrow Road, London, and from him I gathered much useful information, the value of which I have fully proved in practice, and I can commend his system to all who wish to grow Mushrooms largely.

SHELTER FOR MANURE.

In the case of a large grower like Mr. Barter, who has large quantities of manure under preparation at one time, no cover is found necessary for it whilst it is under such preparation; but for a gardener who has to collect manure daily from what is made in the stables on the establishment, I believe it to be necessary that some kind of shelter should be found for throwing off the rainfall, as it takes a considerable time to collect a sufficient quantity of manure for making up a bed of proper size. At Oakbrook I have found what answers the purpose admirably in a number of lengths of corrugated iron roofing, each 5 feet by 2 feet. These I set up with their base about 5 feet apart, the tops resting against each other so as to form a span roof with open ends, and as the heap of manure enlarges I add additional lengths of roofing. We give the manure so collected a turn over about twice a week to prevent it becoming very hot and drying mouldy, which would be fatal to Mushroom-growing; this does not take up much time, as the lengths of roofing are easily set aside and replaced when the work is done. By the time sufficient manure is collected, which takes five or six weeks, it is in capital condition for use without further preparation. If by repeated turnings and keeping the covers over it is likely to get too dry, I take off the covers for a few days and leave it open to showers until it is sufficiently damped, when the covers are replaced. I have been particular in explaining my mode of preparing the material, as the greatest of all difficulties which gardeners often experience in their endeavours to grow Mush-

rooms is finding a suitable place in which to prepare the manure, but I have found none to equal for efficiency and simplicity this plan of portable covers, by which any out-of-the-way corner may be used; and if corrugated roofing is not available some old boards nailed together and used in the same way would be equally serviceable, and failing either of these, some stout stakes driven into the ground and old canvas or garden mats stretched tightly over them to form a span roof would answer the purpose.

MAKING THE BEDS.

In commencing to make up my beds I first measure off and mark out by a small stake driven in at each outside corner the ground it is to cover; this is 2 feet 6 inches wide, and of length in proportion to the material I have ready. A cartload of manure will make about 3 yards in length of bed, which, when completed, should be 2 feet 6 inches in diameter at its base, and the same in height from the ground-line to the apex of any length, though it should not be less than 5 or 6 yards, as a less quantity would scarcely maintain a sufficiently lasting heat to cause the spawn to work satisfactorily. The sides should be equal, and sloped up, so as to meet in a sharp ridge at the height mentioned. Mr. Wright in his book suggests that for those inexperienced in the work, guide sticks are useful for getting the correct form and dimensions of the bed, which sticks are made as follows:—Two sticks are cut, each a yard long, which are driven into the ground 6 inches, at a distance of 2 feet 6 inches asunder; the tops are then pulled together until they nearly meet and fastened there, when they give the outline of the bed. When we have marked out the base of the bed by the four corner pegs, a layer of manure is spread over the space to a depth of about 18 inches, which is then trodden and beaten until it is as firm as we can make it, when another layer is put on and treated similarly, drawing the sides in as the work proceeds until the required height is reached; and as the top layer cannot be trodden, it must be made as firm as possible by beating with the fork and spade; when finished the sides should be quite straight, even, and smooth, and as firm as they can be made. I next insert a thermometer well into the bed, and my portable covers come in useful again, set up against each other over the bed to throw off any heavy rains until the heat has sufficiently subsided to be safe for spawning.

SPAWNING AND COVERING THE BED.

I find that in a day or two after making up the bed the thermometer shows a temperature of from 120° to 130°. I wait until that has subsided to just below 100°, when it is safe to insert the spawn. In doing this I do not dibble holes into the bed with a peg, as is often done, but raise up with my hand a small flake of manure, put in a lump of spawn about the size of a hen's egg, and beat down the manure again.

All the portable roofing is at once removed, which is done with so far as this bed is concerned, and is ready to be used again in the preparation of more material. I next cover up the bed as lightly as possible with a thin layer of long litter, taking care to watch the thermometer, and if the heat rises again to over 100° I open the covering along the top to let it escape. In a fortnight to three weeks after spawning it will, if all has gone satisfactorily, be ready for covering with earth; before doing which I like to see that the spawn has permeated thoroughly through the bed, which is easily ascertained by taking out a handful of the material from different places in which the mycelium in the form of fine white threads ought to be plainly visible. For earthing I use maiden loam taken from the fields, well broken up and sufficiently moist to be easily beaten with a spade to a smooth hard face. Our plan of procuring this loam is to take off the turf and lay it aside, then take out a sufficient quantity of loam and replace it with the same quantity of any ordinary garden soil, afterwards replacing the turf. If the loam is too dry when procured it should be broken up small, and well watered a day before being used. If such loam is not procurable, any good garden soil may be used, providing it is not too light and sandy.

The thickness of the casing of soil as given in Mr. Wright's work, and as carried out in my practice, is 1 inch when beaten quite firm if of a heavy texture, 1½ inch for medium, and 2 inches for light soils. As soon as earthed the bed is re-covered with long litter, but the covering will now require to be thicker and closer than that put on after spawning. The length of time which will now elapse before Mushrooms may be expected will vary with the season of the year and the temperature of the external air. If in the summer or autumn months Mushrooms may be looked for in a fortnight to three weeks from earthing; if in the winter months thrice that time may probably elapse before they appear. My bed was made up at the end of last year, and was earthed about the end of January in this year. Mushrooms commenced to show themselves early in March, and I gathered a few off the bed all through that month, although the weather was exceptionally cold nearly the whole of the month. They, however, came but slowly and in small numbers during that month, but as soon as April came, and with it more genial weather, they began to show themselves all over the bed in large clusters. From thence until now, a period of four months, Mushrooms have continually been gathered off that bed in large quantities. If I had kept an account of the number or weight of what has been taken from this bed from the first gathering till now it would have been startling, and probably almost incredible. But it has not been less than three bushels. I gathered more than a bushel at one time in the middle of May.

I do not believe that such quantities are, or can be, produced on indoor beds, nor will the indoor beds continue in bearing for so long a period as those out of doors. I have had as good beds this season in our Mushroom house as I have ever seen or known; but my outdoor bed has, for weight and continuity of crop, surpassed them all. From early in November of last year up to the present date there has not been a day on which I have been unable to gather Mushrooms.

GATHERING THE MUSHROOMS.

In lifting the crop care is required in removing the covering so as not to disturb the young and half-grown Mushrooms, and it is essential that the covering be immediately replaced so as to conserve not only the warmth, but what is of more importance in the summer months, the moisture contained in the bed. It is well to avoid watering the bed unless absolutely necessary, which it sometimes will be in very hot drying weather. I follow Mr. Barter's practice of not watering the bed directly, but of putting it over the litter covering. I put salt in the water in the proportion of about a quarter of a

pound to three gallons of water. If the bed is nearly exhausted a little stable drainage added to the water in the proportion of about a pint to the gallon will materially benefit the bed.

The system of gathering the crop adopted by the London market growers differs somewhat from that where a gardener is expected to send in a daily supply for his employer's table. The London grower uncovers his bed only once a week, and he then gathers nearly all, big and little, that are grown. The gatherer has with him two baskets, into one of which the large Mushrooms are placed, and the small ones, or buttons, in the other. They also attach much importance to the manner of gathering. They say it is especially important that they be all pulled, not cut; and not only do they pull them up by the roots, rubbing the soil off the stem as they go on before putting them in the basket, but each man has in his hand whilst gathering an old table knife, and when any break off on the surface of the bed, leaving a portion of the base of the stem in the ground, he at once with his knife digs it out, making a hole in the face of the bed as big as a walnut, the edges of which hole he then scrapes clean and smooth with his knife. His reason for this is that the stumps of the old Mushrooms if left will produce a mass of fluffy stuff, a kind of mould or fungus, spreading out like a plate all round these old stumps, and that no more Mushrooms will come on the space covered by this mould, whereas if the stumps are scooped clean out small Mushrooms are formed almost immediately again around these holes.

I said it was advisable in private practice to differ in the mode of gathering from the market growers, but I did not mean in respect of this pulling the crop and scooping clean out the base of any requiring it, as I have tried and proved to my satisfaction this theory to be correct. I meant that it is not advisable to gather the whole crop, big and little, as they do. It answers their purpose, as there is a large demand for buttons, which fetch a much higher price than the full-grown Mushrooms. Also as they, as a general rule, uncover but once a week, those buttons if left till next gathering would be too old for market purposes. In gathering the crop only a small portion of the bed should be uncovered at once, and that again covered before uncovering any further, as it is especially important to conserve as far as possible the warmth and moisture contained in the bed, both of which will evaporate considerably if the bed remains long uncovered.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

A SHORT time ago a letter appeared in this Journal from a gardener, who was prepared to subscribe £10 to the funds of this Society provided he could see his way to do so justifiably to himself. To this end he asked a very pertinent question, which the Secretary was invited to answer, and which, without doubt, many others besides your correspondent would be glad to see answered. Hitherto no notice has been taken of that letter; and although it is not likely the question referred to could be answered in the affirmative, an excellent opportunity was and is afforded for the claims of the Institution for support, and the advantages it offers to subscribers to be placed before those whom it is intended to benefit, in a popular manner.

Dry, formal, stilted rules, though essential, are not sufficient for gardeners to thoroughly understand the working of the Institution. And, besides, hundreds of persons who either are, or ought to be, interested in it, have never seen the rules, nor do they know where to apply for them. An advertisement of the Institution is rarely seen, and persons are only reminded of its existence by an allusion to the annual dinner, or sending round the hat occasionally. I am one of those gardeners who are prepared to subscribe, but it has never been made sufficiently clear to me whether by doing so I should in the hour of need have a distinct claim on the funds over those who have never subscribed. I can understand if I had subscribed for a number of years—say twenty—that it would not be easy to pass over my name if I were an applicant for a pension; but suppose I had subscribed for five years only, or had paid a life subscription of £10, and needed aid, is there not a chance that some non-subscriber with powerful friends on the Committee would not have a prior claim to myself when a pension was allocated?

The truth is the working of this Institution is not well understood, and this being so, it necessarily fails to enjoy the full confidence of gardeners who support it, if they join at all, hesitatingly, and as if they were not sure they were doing right or wrong. Possibly the Secretary of the Institution has been enjoying his holidays, but now that the holiday season is over he might perhaps do worse than attend to the letter on page 175, and also to this if it happens to be worthy of his notice. One thing is clear, a benefit society is needed by gardeners, and if the "Royal Benevolent" does not, or cannot, be made to meet the requirements no one need be surprised if an institution is not started on a more popular basis, with the object of benefiting its members in the hour of adversity.—A COUNTRY GARDENER.

FRUIT TREES IN POTS.

ANYTHING that is inexpensive and likely to give satisfaction in the shape of culture I think should be brought before the readers of your widely read Journal. Last year, after having read a work on fruit culture in pots, I procured a few maiden trees of Apples, Pears, and Plums, and had them placed in 10-inch pots. I tended them carefully with water last summer and winter, and this spring kept them protected when in bloom till the fruit was fairly set; then in May I set them out upon the gravel walk (did not plunge them), every day supplying them with plenty of rain water which I kept in store for the purpose, giving them also about once a month a draught of liquid manure made with soot and hen-pen refuse. I send you a sample of the fruit herewith, and the quantity upon each tree:—Victoria Plum, fifty-five; Jefferson Plum, two trees each, forty-five and fifty; Stirling Castle Apple, twelve; Lord Suffield, seven; Pears various up to twenty, the

name of these latter I did not get. I have found the greatest pleasure in looking after these trees. First, we have the most lovely bloom, which in my way of thinking, nothing is so beautiful, then the prospect of splendid fruit instead of a decayed tree after the attention. If this is thought worthy of a place in your Journal, and this method of fruit culture is practised by any of your readers and they find as much pleasure in it as I have done, I shall not have written in vain.—JEDBURGH.

[We congratulate our correspondent on his success, which is both satisfactory and encouraging. The fruit sent was highly creditable to the cultivator.]

GARDEN CHEMISTRY.

THE CARE OF MANURES.

IN the majority of gardens farmyard manure will continue to be regarded as manure *par excellence* and indispensable. It is undoubtedly a good article when properly cared for and applied. Often enough it is neither. Bearing in mind that the chief value of manure of any kind depends on the nitrogen, phosphorus, potash, magnesia, and other mineral matters which it affords, in addition to the effects of humus, it may not be out of place here to give a typical analysis of ordinary farmyard manure. Of course no two samples will be exactly the same, but ordinary mixed manure will approximate to the following:—

COMPOSITION OF FARMYARD MANURE.

	Fresh.	Decayed.
Water	71.0	79.0
*Organic matters	24.6	14.5
†Ash	4.4	6.5
	<u>100.0</u>	<u>100.0</u>
	Fresh.	Decayed.
*Containing nitrogen	0.45	0.58
Equal to ammonia	0.54	0.70
†Containing potash	0.52	0.50
" soda	0.15	0.13
" lime	0.57	0.8
" magnesia	0.14	0.13
" phosphoric acid	0.21	0.30
" sulphuric acid	0.12	0.13
" chlorine	0.15	0.16
" silica	1.25	1.70

In the preparation of ordinary manure great mistakes are made. The manure from stables where hunters and carriage horses exclusively are kept and hard fed is, chiefly owing to its dryness and the careless manner in which it is thrown into heaps, generally reduced in value by one-half or even more. Gardeners are all familiar with the pungent odour that arises from such heaps, but it does not seem to be known generally that the pungency is owing to the carbonate of ammonia which the excessive heat is driving into the air. Nevertheless such is the fact, and no greater mistake can be made than to suppose that turning and damping such until it is wet and greasy will make matters all right. The heating has driven off the best part of the manure, which is, not the moisture, but the nitrogen.

If stable waste were put up into heaps, properly moistened and trodden down as hard as possible, and turned and damped again and again if need be whenever the heat threatened to rise too high, this would not occur. But another danger here presents itself. If too much water be given it will filter through and carry with it the ammonia dissolved in the water; for in the various forms it assume (as in the ulmate, humate, carbonate, &c.), it is easily washed away. Any urca in the manure is thus easily carried. Because of this all gardens should be provided with manure yards with cemented bottoms so inclined that all moisture shall run into a sunk space whence it can be drawn to baste the heap or be otherwise economically used, instead of being allowed to drain away. The littery mass is, weight for weight, far from being equal to this liquid. Failing a waterproof bottom, much may be done by placing a layer of loam or even ordinary garden soil under each heap. This will absorb much of the escaping liquid and filter from it its virtues—becoming itself, when sweetened by exposure, the very best thing to be found for top-dressing Melons just as they are setting, covering roots of any kind of trees that have been enticed to the surface by good treatment, or, indeed, anything.

Manure is seldom half made. The common idea is that when by fermenting and turning a ton of farmyard manure is reduced to 15 cwt., that 5 cwt. has been lost. Unless through carelessness nitrogen, phosphates, &c., have been allowed to escape the very reverse is the case. When fresh manure is applied to soil it is not prepared for the first year's crop, and in consequence the following winter's rains wash much away. This is lost. When very thoroughly

prepared and properly applied the crops get the food they want, and benefit accordingly. As such grow strongly and send roots through every particle of soil little escapes them, and hardly anything is left for the rains of winter to dissipate.

We think manure is seldom applied economically unless it is nearly a year old. But when kept for that length of time in our climate, unless it is protected, much is sure to be washed out, and at any rate the resulting manure is a soddened mass that "cuts like cheese," which, though an ideal state with many, is bad, for it is sour and cold, and will not spread easily. One of the main conditions which should be aimed at in preparing manure should be to have it in an easily pulverised state—something like what manure which has served the purpose of a hotbed and been protected by frames or pits usually is; otherwise it cannot be properly applied without great trouble, and the proper application of manure makes a great difference in the crop.

In order to keep off rain and allow of the proper manipulation of manure when the weather prevents open-air work, it would be a real saving to have roofed-in sheds for the purpose. Here in wet or snowy weather manure could be turned and prepared without injury either to men or manure. Then enough moisture could be given to prevent firing, and yet the manure kept dry enough to be easily pulverised. To pulverise it properly we would even for many purposes put it through a gravel screen. The reason for this we hope to make apparent by-and-by.

Fresh manure, no matter how carefully put up, gives out an unpleasant smell. This can be very much prevented by the use of earth. Old potting soil thrown over a dungheap will deodorise any escaping gas and become enriched in the process. When heaps must perforce be formed in the open air the escape of foul gases may be prevented and the rain thrown off by the same operation if the manure is laid up ridge fashion and covered with soil. It pays.

All garden refuse should be carefully gathered into a heap and rotted down. Such makes more valuable manure than that from the stables. Some garden vegetables, such as Cabbage and Onion stalks, smell offensively when decaying. To prevent this such should be mixed with earth. Such things as Cabbage stumps which rot slowly should be kept in a place by themselves.

It is wrong to mix quicklime with ordinary manure or vegetable refuse—it dissipates the ammonia; but road scrapings, turf from hedges, and such material as the turfy clearings of open drains and ditches, are all the better for being mixed with hot lime. It causes not only the rapid decay of any vegetation, but sweetens and pulverises the soil. Often such material so prepared is the best that can be got for mixing with the staple for planting fruit trees in.

Hotbeds are generally made of leaves and ordinary manure, but tan from the leather manufactories serves the same purpose, perhaps better. In some places the cleanings of flax or "pob" is used, and excellent hotbeds for certain purposes it makes. Then horse-droppings are used for Mushroom-growing. All these materials are valuable fertilisers after use, and because of the care taken of them are generally in first-rate condition for applying to soils.

Old hotbed manure, which has neither been so wet as to sour nor so dry as to fire, constitutes not only a good manure but is suitable as the basis of a soil for many purposes. For mixing with loam and sand it is the best article for rapidly forwarding most bedding plants and many vegetables early in spring. It is also good for mixing with soil for rapid-growing plants in pots, the existence of which does not extend over a few months, such as Balsams, Celosias, and annuals generally. As a matter of fact it is used for by no means ephemeral subjects, but is not the best for such.

Leaf soil is what its name indicates. As Mr. Wright has shown, there is leaf soil and leaf soil. He has shown that that formed in the usual way is very inferior. This he attributes to the fact of its being the product of fermentation; another reason is that when leaves are laid in large heaps too much water is held, and the whole becomes sour; another, and perhaps the main cause of its hurtful qualities, is the fact that heaps of leaves which lie for many months in a wet state are sure to be worked into a puddle by worms; and although these humble creatures certainly perform much useful work in the making of mould, leaf soil made by their agency is very bad. Plants grown in it do not thrive, not even such robust nurslings as Celery or even Cabbage. When the roots of such are examined it will seem as if they were rusted; they are corroded—poisoned. Such leaf soil is rich, but not wholesome. The kind Mr. Wright recommends, and the recommendation we can endorse from experience, is not rich, but it is wholesome. It is that found where it has accumulated of itself—in woods and neglected spots under trees. Never in heaps big enough to heat. Too dry to entice worms to take up their abode in it, thin enough to allow rain to pass through and air to penetrate, it can hardly be called a manure; it is soil that particularly suits very many plants that love "peat." We need hardly add that soil formed from Oak or Beech leaves is much preferable to

that from Planes and Elms. For many purposes, especially for growing Ferns, we have found the decayed fronds of *Pteris aquilina* by no means to be despised; flaky, porous, sweet, it makes a capital rooting medium.

Charred refuse of all kinds, old pea sticks, prunings, and everything that will burn, is of value as a manure, as we have already shown. But we wish to point out that these should be stored dry, for when left to bleaching rains for months they are of little more value than dry dust.

Of the care of artificial manures nothing need be said beyond urging the necessity for keeping such very thoroughly dry. Many mixtures have the property of taking in moisture from the air and becoming lumpy. This should be guarded against, for the value of such depends to a great extent on their friability. When scattered in pieces even as small Peas or even Onion seed they are half lost.

No farm and no garden is complete without a liquid-manure tank. The farmer wants one to save every drop of liquid manure, the gardener to have a supply always to hand, so that he with the least delay and expense possible may be able to give help when help is exactly needed. Not only so, such a tank might be the means of saving much expenditure in addition to securing enhanced crops. There is not a dwelling in the country but is capable of furnishing a constant supply, and this is far too often lost or worse. Water from closets stored in tanks becomes equal to any guano water, and in many cases no other is wanted. If tanks to collect such were placed in such positions that the water from them could run by gravitation to the garden and be distributed by hose, the difference in many gardens would be very apparent. But it will pay to pump it and convey it in swing barrows. Where it cannot be carried by gravitation hose and a force pump is the next best method for distributing it.

In impervious subsoils ordinary brick tanks well puddled outside the brickwork will be perfectly sufficient; but where the subsoil is very open, and especially if the tank is at all near any well, in addition to the puddling the inside should be carefully cemented. It is not a good plan to make tanks very deep, rather make them longer. Their width should not be more than 6 or 7 feet, as that breadth can easily be arched over. Wood rots and iron rusts in time, and so arched brick covers are best; but good large manholes should be left through which pails could be easily passed when the sediment needs removal. Only glazed pipes with faucet joints very carefully cemented should be used. Porous pipes or pipes with faulty joints allow the water to dribble away into the subsoil, while the sediment remains in the pipe. Open joints, too, encourage the admission of tree roots, which revel in the manure and soon choke the drains.

Hides, horns, hoofs, hair, and feathers are similar in composition, and contain nitrogen equal to 20 per cent. of ammonia, which is the only valuable matter in them. They are not of much value to the gardener for producing immediate effect, for they decay very slowly. Horn shavings and dust are the best form in which they are applied. Hair, wool waste, and feathers should be mixed with ordinary manure and thoroughly decayed. As they are not often to be had in any but trifling quantities nothing further need be here said about them. Blood is best prepared by saturating earth with it. Fish is best made into a compost with earth. Seaweed is often of more value than farmyard manure. It needs no preparation.

Earth closet, pigeon dung, hen dung, and all similar manures are best prepared by mixing them freely with earth, and keeping them where the rain cannot reach them till they become mould; at the same time they may be used at once under certain conditions. Tree leaves are generally used for making hotbeds mixed with manure, or thrown into heaps by themselves. They should be treated as directed for ordinary manure. When it is intended to have them reduced to mould, it is well to turn and re-turn repeatedly, so that air may constantly penetrate, and it should be seen to that they never get too wet. Tan mixed with manure to form hotbeds adds very little to the value of the manure, but the mixture contains no evil qualities. Tan itself is not of much use as manure, but as a mulch for shrubs or even Strawberries, and, when decayed, for flower beds, is a very useful article.—SINGLE-HANDED.

TRINITY COLLEGE BOTANIC GARDENS, DUBLIN.

THERE is no time of the year in which this fine old garden is not attractive, and at all times a walk around with the Curator, Mr. F. W. Burbidge, is of great interest. There are few plants in the extensive borders, beds, or houses without a history that even the uninitiated or the most casual visitor would wish not to hear. Whenever I go to our Irish metropolis on business or otherwise I look forward with much zest to a run round with Mr. Burbidge. In winter the warm houses are brilliant with Orchids and many stove and greenhouse plants and some of the newer and best plants just introduced, while the cooler houses are gay with Chrysanthemums and cool Orchids. If tastes lean to spring flowers, through the whole of that period there will be a host of the various bulbs smiling from cosy nooks or occupying long borders—as do the Narcissi—

to greet you out of doors. I have been told there is one of the most complete collections of Narcissi in the world here. Anyone can see, as I often did, that ministering to the wants and studying them of his various *protégés* is a labour of love to the Curator. The place is large, and a mere casual look round gives no idea of its floral wealth. I spent part of two days recently there, and left abundantly satisfied. The few following were either new or striking:—*Æschynanthus javanicus*, a handsome basket plant introduced, if I remember rightly, by Mr. Burbidge from Java, with curious *Salvia*-like orange flowers, and rarely to be met with. *Gloriosa superba*—there was a well-trained floriferous specimen of this climber, very striking with its Lily-like blooms, and a remarkable contrast with the adjacent *Asparagus consanguinea*, as their foliage commingled. For cutting or bouquets imagination could hardly picture anything finer than the graceful Fern-like fronds on arching stems of this *Asparagus*. Mr. Burbidge, for the purpose named, prefers it to *A. plumosus* or *A. tenuissimus*. As finely cut as is its feathery foliage, and apparently so tender, it has more staying power in water when cut than the hardest Fern frond, which evidently points to its more extended culture. *Impatiens Sultani* was very striking in the Orchid house, the brilliant rosy scarlet blooms, as large as a florin, produced from the axils of the leaves and in continuous profusion. Although only introduced into commerce in the present year I was rather surprised to find it in several gardens in Cork and Dublin recently visited, and a prime favourite. *Anthurium Andreanum*—there is here a most promising young specimen of this coveted Aroid, and having just now two well-developed spathes. Of many showy plants it first catches the eye from the moist stove vestibule. Very beautiful is the white tint of the spadix as contrasted with the soft yellow of the tip and the shining, varnished, glowing scarlet of the spathe.

The collections of *Nepenthes* here and in Glasnevin embrace all that have been recently introduced. One of the most conspicuous, and still one of the rarest and most expensive, is *N. Rajah*, introduced by Mr. Burbidge from Borneo and sent out by Messrs. Veitch of Chelsea. It has two curiously recurved fimbriated lips or wings, and studded with hairs or glands within. The lid, I understand, in older specimens often reach nearly a foot long, and the pitcher being nearly half that through. Probably one of the most highly coloured, and which many prefer, is *N. sanguinea*. It is scarce and beyond the reach of most people. I must not pass from the *Nepenthes* without referring to *N. Mastersiana*, certificated last year and raised from *N. sanguinea* and *N. distillatoria*, or what is commonly called the Glasnevin variety. At this time of the year the number of Orchids flowering is limited; still there are some fine varieties among *Masdevallias*, *Miltonias*, a number of *Cypripediums*, *Oncidium*s, *Epidendrum*s, *Zygopetalum*s, *Dendrobis*, and *Lælias*. In the very select, showy, and well-stocked herbaceous beds and borders I cannot pass that welcome beauty of this year's introduction, *Tigridia conchiflora alba*, or, as some call it, *T. pavonia alba*. This and many other plants of doubtful hardness or capricious flowering propensities have a place in front of the long range. There is probably the largest and most select collection of *Chrysanthemum*s in the country; also of single *Dahlia*s. Conspicuously good in beds and borders are many members of the Composite order, which seem to like the warm sheltered positions. Nowhere do you see finer *Helenium*s and *Rudbeckia*s.—
W. J. MURPHY, *Clonmel*.

HISTORICAL JOTTINGS ON VEGETABLES.—No. 8 THE GARLIC AND LEEK.

OUR heading indicates two vegetables of high antiquity once in general favour, yet which are now held in no great estimation amongst the natives of Britain. We are more refined or more squeamish, or, perhaps, less sagacious than our ancestors were who loved these strong-flavoured allies of the Onion. Garlic, however, does not seem at any period to have had quite as much repute in our island as on the adjacent continent, in various parts of which the plant is frequently employed even now in mixed dishes, to the annoyance of sundry tourists who are somewhat fine of nose. These, like other plants of the genus *Allium*, contain both sulphur and phosphorus, hence in the processes of cooking and of digestion their bulbs evolve gases which are undeniably disagreeable, but to which habit reconciles many persons.

To the lovers of word-studies the Latin name of the Leek has afforded amusement and occupation. It is very probable that Bryant is right in his notion that *porrus* is the name, slightly altered, of an Egyptian deity, "Pi-orus," a God identical with the Bel or Baal of other nations. But some uphold the theory that it has an early Keltic root—*pori*, meaning simply to eat, hence porridge, a dish that contained Leeks with various articles beside to form a vegetable soup. This is certain, that the Leek figures not unfrequently in Egyptian hieroglyphics; it was well known to that ancient and singular people, presumably revered by them. A majority of botanists think the garden Leek (*Allium Porrum*) is hardly a distinct species, but a variation from *A. Ampeloprasum*, found wild both in the east and west. The plant may have been brought into England from Germany as some conjecture, but as Leeks are mentioned in Welsh history before there occurs a notice of them in our English annals, it

rather looks as if the species was indigenous in the principality. It is one of the peculiarities of this species of *Allium* that it adapts itself readily to any climate, though the pungency increases if grown in a low temperature.

That the Leek should have been taken as the emblem of Wales is not surprising, the simplest explanation being that it was the usual practice of the small farmers, who helped each other with their ploughs in the olden time, to bring Leeks for their midday repast. "Now-a-days," says one tourist, "in spite of the proverb, 'Common as Leeks in Wales,' few of them appear to be eaten by the Welshmen, but a peasant may often be seen munching an Onion with his bread and cheese." Of course the story has been passed from author to author that the Leek is worn on St. David's day to commemorate a victory achieved by the Welsh over the Anglo-Saxons in the seventh century, when the conquerors had placed Leeks in their hats by way of distinction. Its truth must be considered doubtful. That anonymous writer was probably a Welshman, who, in some rather barbarous lines, praised the green and white of the Leek, taking one as a symbol of courage, the other of excellence.

Gerard the herbalist speaks well of the Leek, which by his time had been introduced into most of the gardens about London, but he gives no directions about its cookery or its culture. Tasser observes that the farmers throughout England were acquainted with it and allowed it a place in their fields, as well as Onions and Garlic, to supply themselves and their neighbours. In one of his quaint verses he remarks:—

"In March Leeks are in season, for pottage full good;
And spareth the milch cow, and purgeth the blood."

King James J., when he arrived in the south of England, was doubtless pleased to find his favourite Leek was not unknown to his new subjects, for he is said to have had a particular liking for the "cock-a-leekie," a dish owing its distinctive flavour to this savoury vegetable; and the Scotch Leek, which differs somewhat from the English kind, having narrower leaves, has also an extra pungency grateful to northern stomachs.

The Shalot or Eschalot (*A. ascalonicum*) is another pungent species, but less offensive than the Garlic. It is named from the town of Ascalon in Syria, which is supposed to have furnished the first samples of it that were sent into Europe. The Crusades, which certainly brought us many Asiatic plants, may have been instrumental in making us acquainted with the Shalot, still called by some folks the Scallion, a form of the name that has not come through France, as has the common appellation. In a book published about 1548 Turner mentions this species, and its small membrane-cased bulbs or cloves clustered together; but in the Tudor times this vegetable seems to have had less patronage than others belonging to the same group.

We need not question the identity of the Garlic referred to in two of the oldest works extant—viz., the Old Testament and the Iliad of Homer; this is plainly the *A. sativum* of modern authors, still occasionally cultivated in gardens; a plant growing apparently wild in some parts of South Europe, perhaps only a true native of the East and of North Africa. By many of the ancients Garlic was regarded as both food and physic. The Romans held it in high estimation, believing it had such restorative properties that it would give strength to the exhausted, and even inspire the timid with courage. Pliny commended Garlic as a specific for a variety of maladies, and several of the old physicians during the period when England had visitations of the plague advised the use of a drink made from Garlic steeped in milk by way of antidote against the infection. Old Fuller averred that the plant was "sovereign" for men, and for beasts also, and in several of the south countries, until very recently, a clove of Garlic was carried upon the person as a remedy for ague and "chin-cough." An oriental superstition ascribes to it the power of driving away evil spirits! The reverence shown by the Egyptians, or supposed to be shown, to the Onion and Garlic was ridiculed by Juvenal:—

"Tis mortal sin an Onion to devour,
Each clove of Garlic has a sacred power.
Religious nations sure, and blest abodes,
Where every garden is o'er-run with gods!"

Before *A. sativum* was cultivated by our ancestors they were well acquainted with some native varieties of the Garlic. It is thought the name is an Anglo-Saxon one, having allusion to the spear-like growth of the leaves in some species. The Isle of Ramsay, so Ray suggests, was probably named from the abundance there growing of the broad-leaved Garlic or Ramson, which would make itself conspicuous by its snow-white flowers, and also apprise the nose of its presence should the by-passer step upon it heavily. The leaves, however, were gathered about

May, cooked in broths, or eaten raw after they had been soaked in water. Even now some folks, it is said, gather for salad the leaves of another British species, *A. vineale*. We have no proof that the Garlic of warmer climes was planted in England before the reign of Henry VIII., but it may have been, although unchronicled. Of its early history as a London vegetable a reminiscence is discoverable in a locality on the banks of the Thames. There was a landing place at a little bay or bend by the city, which was called Garlickhithe, because on the rising ground just above Garlic was commonly sold. This historic fact suggests that the vegetable thus vended may have been grown on the Surrey fields across the river and brought to town by boats. One of the numerous little hills in the vicinity of London has the old name of Plowgarlic or Ploughgarlic Hill, pointing back to a former cultivation of the plant thereabout. The earlier books upon gardening advise the setting of Garlic during February or March. Tusser, however, expresses a different opinion; he recommends November, near or at the anniversary of St. Edmund the King.—J. R. S. C.

DALKEITH.

ON my visit northwards I spent a very enjoyable day at this noble place. The Palace itself, with its Ivy-covered walls, is worth a journey to see, with its clean-shaven wide expanse of lawn. It is very pleasantly situated, and surrounded with fine timber, some trees being apparently 150 feet high. The grounds are well kept, and must afford great pleasure to the public, who are admitted free two days weekly when the family is not residing there. The chapel—St. Mary's—adds to the homeliness of the estate, and, though inside the park walls and private property, is also thrown open to the public, and is well attended. After a tour through the grounds with Mr. Dunn I went through the houses. In the first vinery I found a good useful crop of various Grapes, the best being Gros Colman well coloured.

Camellias were clean and well set with buds. In this house were several plants of the double *Tropæolum Hermine* Grashof, good. Cucumbers were healthy, bearing a useful crop; and growing in the same house were some good specimens of High Cross Hybrid Melon, also good fruit of Colston Basset. James Veitch Strawberry is valued for its productiveness and large fruit for second forcing. A very good lot of stout-crowned plants were growing in pots. Chrysanthemums looked very promising half plunged in ashes. Pines were very strong and healthy, especially Smooth Cayenne. Good handsome fruits were ripening from suckers less than one year old, and they seemed no trouble as grown here. In a small stove I found a very fine plant of *Anthurium Andreanum* with eight handsome spathes, very fine and bright.

Muscat Grapes were a good crop, quite heavy enough to colour well. Next was a good old-fashioned span house of greenhouse flowers. The Statice is very profuse in flowering here. The various old scented Pelargoniums were also in variety, not forgetting Lady Plymouth and Rollisson's Unique. Among Zonal Pelargoniums Henry Jacoby was particularly good, as also Lady Bailey, a good fine-flowered pink. Good fruiting specimens of the *Musa Cavendishii* were noticeable in the stove. Excellent fruit of Peaches and Nectarines were ripening in unheated houses, and Plums were particularly fine. Among the latter Transparent Gage stands very prominent.

I must not forget the fine ribbon borders, which are now at their best. The only irregularity is the back row of single Dahlias. These are grown from seed, and are generally good, some few extra fine, but they vary so much in height and constitution that they are really out of place. In reply to my question of raising by cuttings from selected roots, I was told this will not do, as they fail to make plants, being stunted in growth and not flowering freely.

The Apple crop was good, and my attention was called to a fine tree of at least fifty years' growth of the Ecklinville Seedling. There was no doubt about it, as young trees obtained of this variety and planted all bear the same fruit. Pears were a fair crop.

The kitchen garden was in good cultivation, and Peas growing very strong. The whole of the garden and grounds, together with the various houses, are admirably kept. I have made no attempt at giving a full description of the Palace and its domain, simply jotting down a few items which most took my attention.—STEPHEN CASTLE.

AN EXHIBITION IN CEYLON.

A LARGE Exhibition of plants, flowers, fruits, vegetables, and other products was held last month in Ceylon, and it may be interesting to English readers to note a few of the chief features of the Show as affording an example of tropical horticulture. A number of classes were provided in which money prizes or medals were awarded according to the relative merit of the exhibits, all that possessed in good qualities receiving some recognition. The first class was for "exotic garden perennials in pots," in which collections of Roses and Begonias were the principal shown. For "exotic garden annuals in pots" a fine collection of double Zinnias and other plants was staged. "Ferns in pots" brought a number of entries, Gold and Silver Ferns being the favourites. In "foliage plants" Crotons and Dracænas were shown by several exhibitors, but

strangely enough there was no entry in the class for "native wild plants in pots" when the Ceylon Flora includes so many beautiful plants. The cut-flower class contained Roses, Dahlias, wild flowers, bouquets, and table decorations. The class for vegetables grown in Ceylon by the exhibitor was a strong one, the following being represented—Potatoes, Carrots, Turnips, Peas, French Beans, Cabbages, Beetroot, Lettuces, Tomatoes, Vegetable Marrow, Onions, Yams, Jerusalem Artichokes, Gourds, Cucumbers, Ceylon native vegetables, Leeks, Rhubarb, Turnips, Bandakays, Breadfruits, Brinjals, Capsicums, and Sweet Potatoes. A class was also devoted to fruit grown in Ceylon by the exhibitor, and in this the contributions were numerous, including Plantains, Oranges, Pomegranates, Custard Apples, Pine Apples, Figs, Limes, Mangosteens, Rambutans, Peaches, Lovi-lovies, Papaws, general collection of fruits, and Seville Oranges. The largest class of all was, however, that for general food products grown in Ceylon, in which Tea, Coffee, and Cinchona formed very large and important features. Cocoa, Cinnamon, Arrowroot, Cane Sugar, Cardamoms, Pepper, Nutmegs, Cloves, Ginger, Tobacco, Cotton, oils, and native woods were all shown on a large scale, while classes appropriated to arts and manufactures were similarly well filled.

Referring to the general arrangement of this Show the *Ceylon Weekly Observer* remarks—"Never was the natural genius of the Sinhalese for the erection of ornamental temporary buildings more effectively displayed. Given a sufficient number of Areka and Bamboo poles, and with abundance of young delicate Cocoa-nut Palm leaves, Ferns, Cocoa nuts of different colours from emerald green to rich orange, Palmyra fruits, Pine Apples, and Screw Pine fruits, and the Sinhalese architects and artists will produce designs the most elegant and combinations of colour the most beautiful, such as, while they last, vie with the Gothic arches and pillars and the 'dim religious light' admitted through richly hued windows of the most celebrated cathedrals. The contents of the buildings were quite worthy of them; and although this is not the best season for fruits and flowers, we have rarely if ever seen the tropical wealth of Ceylon so well represented. The Ferns were especially luxuriant, the flowers were beautiful, and the Yams, Pumpkins, Cucumbers, and Gourds prodigious."

THE KILNS, FALKIRK.

FALKIRK is rather a famous place. The great northern Roman well passed through where it now stands in years long gone. Long after that it was the scene of what is called the battle of Falkirk, but what in reality was only the massacre of a small band of West Highlanders, headed by the ancestor of the present Marquis of Bute, by a powerful English army. Again after some more centuries armed hosts encountered hosts a little to the west of Falkirk, where the highlanders under "Bonnie Prince Charlie" encountered on foot and routed in an incredibly short space of time the best mounted troops the south could muster. As if to keep up its connection with warlike work, when Scots and Englishmen had joined hands in a union treaty and marched shoulder to shoulder against the combined foes of the Continent, it was to the sound of caronades cast at Carron a mile or two to the north of Falkirk. Later still, when shot and shell were hurled against the embattlements of Sebastopol, the shot originally came from the Falkirk Iron Works. Today no warlike material is made in the district that we are aware of, but if the Falkirk people have not exactly beaten their swords to ploughshares and their spears to pruning hooks, they now cast the best of grates and supply the world with sewing machines (for in the neighbourhood the Singer is made) and stoves, and I cannot tell what more; but horticulture is indebted to it for hot-water pipes, boilers, and coils.

But trees, Vines, and Orchids are what attract gardeners, and in Falkirk or near by are gardens well known for all these. At Mayfield there once was, and indeed yet is, though its arboreal glories are scattered, a unique collection of the finer trees and shrubs. Those who have seen Mr. Boyd's, of Callendar, exquisitely finished Muscat Humburghs at Manchester and elsewhere may be interested in knowing that they were grown within sight of "Carron blazes," and within one mile of the ancient town of Falkirk. At one time, too, and that not very distant, many pilgrimages were made to the seat of the late Provost Russell to see his famous collection of Orchids. That collection is now no more, yet Falkirk still boasts of one in many respects not the least in the kingdom. Within the last few years John Gair, Esq., of The Kilns, has been gathering together a goodly collection, and these, under the fostering care of Mr. Fairbairn, who was pronounced by one well able to judge, "the best Orchid grower in Great Britain," are rapidly assuming dimensions, as they already are in condition, that will cause them to be more heard of. My visit was but short, and time for taking notes was limited, so few names were noted. But indeed to note the names of all that are worthy in such a collection as this would be to compile a catalogue. I spent the time more profitably by sitting, metaphorically, at the feet of Mr. Fairbairn and learning all I could.

On entering the cool house the Masdevallias first attract attention. These are in magnificent health and growing like Leeks. Next follow *Odontoglossums*, and such *Odontoglossums*! Orchid growers will have an idea of their vigour from the fact that from the top of the bulb of *O. Alexandræ* spikes of flowers were issuing in various instances, while most were throwing spikes that were branched. Individual flowers $5\frac{1}{2}$ inches across have been measured of pure white flowers. "Grand variety!" the reader may exclaim. Decidedly, but good cultivation has a wonderful effect in changing varieties of Orchids. Flowers from a plant in poor health may look like an inferior variety. The same plant when in robust health will turn out a grand variety.

By-the-by, what a fine plant *O. Andersonianum lobatum* as grown here is!

Passing out of the *Odontoglossum* house we enter a very long one cram full from basement to apex with Orchids that will be overcrowded a year hence if they just do as they are doing. It is not a question of holding the ground here, with the aid of an occasional subsidy in the shape of imported plants. The question is, Where is room to be found for all these plants by-and-by? Yet Mr. Gair, with that enthusiasm that marks the true flower lover, cannot help adding more and more always. The first plant in bloom that attracts attention is *Cattleya guttata Leopoldii*, and beside it *Lælia elegans Schilleriana* and *superba*, with *Cattleya crispa superba*. In passing we notice *Dendrobium Walkerianum* with growths 3 feet high, and a *D. Wardianum* with 4-foot stems, which was brought to the place in a match-box only three seasons ago. Last time I called at the same place there were a few unpromising *Saccolabiums*, *Aerides*, and *Vandas* newly imported, now they are beautiful plants that anyone would be proud to own. One *Saccolabium Blumei Dayanum* has a spike at least 15 inches long, and one of *S. B. majus* we note as particularly fine. *Cattleya Dowiana* is in splendid condition, and a row of *C. gigas* all different and all fine. *C. Wallisii* was in bloom, some novel and very fine forms being among them; one almost pure white, with a beautiful rose blotch at the point of the lip, and lovely rose shading at the base of the segments of the perianth. It is to be sent to the recognised Orchid authority, who will doubtless consider it worthy to bear the name of the happy owner. Some very fine forms of *C. Eldorado* are also in bloom. There is also one plant here that nobody else has, and is prized accordingly. It is one of the best, if not quite the best, of the *Pescatoreas*, and is named *Gairiana*. It is in luxuriant health.

Some orchidists grow *Dendrobiums* well and only succeed moderately with others, *Odontoglossums* or *Cattleyas* are the forte of others. Few places can show everything thoroughly good, but The Kilns can. Hundreds upon hundreds are here, every one in luxuriant health such as we all like to see, but only a few seem able to secure. There is a secret or secrets in their cultivation. Part of the secret is that here the plants are thoroughly loved, and this by master and man alike. The consequence is that the one spares no expense necessary to secure their well-being, and the other grudges no labour spent. These are the secrets in all successful cultivation everywhere and in everything.

Mr. Fairbairn was, I believe, the first to use Fern roots instead of peat, and the first to demonstrate its superiority for that purpose. Mr. Brotherston advocates its use, and has referred to Mr. Fairbairn's success with it. Mr. Fairbairn showed us what his ripe experience has taught him to regard as the best kind of fibre to use. He procured it from a distance. It is the surface from off ground where in the woods *Lastrea dilatata* grows to the exclusion of everything else. This is cut just like common turf into tough mat-like squares, and after the soil is shaken from it there is left the best, sweetest, and most lasting fibre it is possible to secure. Better than peat, better than sphagnum, it may often be obtained by those who can secure neither. Mr. Fairbairn states that *Dendrobiums* and other Orchids which require to be kept dry at certain periods, and which are apt to shrivel when grown in sphagnum alone, remain plump when Fern fibre is used. He said he thought that the dried sphagnum had the effect of sucking the juice out of the plants by the roots. The opinion was hazarded that possibly the bulbs were better conditioned, got more material out of the fibre, and therefore had more substance and less pure water, and therefore did not so readily shrivel. He said that might be the explanation, but the fact remained the same.

Besides the *Odontoglossum* house and the large one where the bulk of the *Vandas*, *Cypripediums*, &c., are grown, other two houses are devoted to Orchids. There is also a fine collection of Ferns under glass, a stove, a greenhouse, and two vineries. The latter have considerably improved of late. Mr. Fairbairn has been using lime and also Thomson's manure. Doubtless both have had something to do with the improvement. Some very fine bunches of Abercainey Black were ripening at the time of our visit. In flavour and in the appearance of the wood this very much resembles Black Alicante, but the bunches are much more Black Hamburgh-like in appearance, are handsomer, and is found there to be a better keeper. By some Black Alicante and this are considered one and the same. Seen here the difference is decided, and Mr. M. Temple, who is at present in the district, and is no mean pomologist, considers them distinct, and the Abercainey superior. It seems to be the case of *Vicomtesse Hericart de Thury* and *Garibaldi Strawberry* over again—both very much alike, but one superior; but the same thing often grown under both names are so misleading.

Though the Orchids have been especially noted it must not be supposed that there are nothing but Orchids about The Kilns. Supposing the glass houses were removed and the indoor plants scattered it would still remain a notable place. Leading from the house to the garden where the glass houses are, and which, by the way, was once a bog, the walk passes through a grand *Rhododendron* garden. The grounds are rich in splendid shrubs and trees; even the hedges are uncommon. To screen off part of the lawn is a hedge of Golden Queen Hollies 8 feet high and 30 yards long, densely furnished to the very base, and in luxuriant health. The Yew hedges are kept in the best style possible, and in such a way as is only seen here and there. The flower gardening is not carried out on an extensive scale, but what is done is well done. Where once a gravel pit was is now a shady rockwork covered with luxuriant Ferns, and a goodly Rose garden nestles in a sheltered nook. The lawns are in a model condition, and altogether The Kilns is one of

those model places that are not of common occurrence. The influence of such places upon young men who visit such is to determine them towards the accomplishing of something deserving the name of gardening.—A. H.



FRUIT-FORCING.

FIGS.—Early Pot Trees.—These are now sufficiently advanced to admit of the essential operation of root-pruning and potting being attended to, which should be proceeded with at once. The trees having been plunged will have rooted abundantly into the material, and the surface mulching is full of fibres. If the trees are in 18 or 20-inch pots it will not be necessary to repot, but all the top-dressing should be removed from among the roots with a hand fork, and the strongest roots cut back. The drainage of the pots should be examined, the soil being then top-dressed with a compost of turfy loam three parts, and half part each old mortar and rubbish thoroughly incorporated and rammed firmly into the pots, giving a little water to settle the compost about the roots. Every particle of the fermenting material should be removed from the pit, and the pots stood on the open brick pedestals which it is advisable to have in order to keep the pots well up to the light and prevent displacement by the sinking of the fermenting materials. Trees treated in this way are less liable to cast their first crop of fruit than those shifted into larger pots; yet where it is thought advisable to increase the root space a good shift may now be given, employing the compost above named, and well moistening the balls before potting, ramming the compost well down so as to prevent the water passing through it without wetting the ball. The house should be kept cool, dry, and well ventilated until the time arrives for starting the trees early in December. Any trees in pots outside should be brought under cover without delay and treated similarly.

Trees Ripening a Second Crop.—Trees in succession houses ripening the second crop of fruit ought to be kept drier as the days become moister and shorter, a little fire heat being needed to expel damp, with free ventilation on all favourable occasions, as a dry and warm atmosphere is essential to insure well-ripened full-flavoured fruit.

Ripening the Wood.—Particular attention must be given to the exposure of the wood to sun and air, allowing the points of the shoots to stand out or find their way to the glass. Remove all useless wood, and thin out all soft wood now, removing decaying leaves as soon as they part freely from the trees. Watering trees in permanent borders should be discontinued after this, they having been well mulched and watered up to the present time.

Trees Growing too Vigorously.—Fig trees are gross feeders, and in rich borders make too strong growth, in which case preparations should be made for root-pruning or lifting as soon as the second crop is gathered. The drainage should be thorough, so as to allow of the free passage of the water needed in large supplies through the growing season.

MELONS.—Plants swelling their fruits should be encouraged by closing the house early, maintaining a day temperature of 70° to 75° from fire heat and running up to 85° or 90° with sun, night temperature 65° to 70°. Keep the growths well stopped, and thin so as to expose the fruits fully to sun and air. Water carefully, and when supplies are needed give them thoroughly in preference to little and often. Plants with the fruit ripening should be kept rather dry at the roots, and have a warm, dry, freely ventilated atmosphere.

PINES.—Young Growing Stock.—Take advantage of every opportunity to well ventilate these plants, so that any present tenderness of growth may have the full benefit of favourable weather for hardening it before dull weather commences. With a further view to this object it will be necessary to keep the glass clean both inside and out, so as to allow of the sun's rays not being obstructed. The temperature for these plants should be still continued at 60° at night, or a few degrees less in cold weather, 65° to 70° artificially in the daytime, and 80° with sun, with 80° at the roots. As the days decrease in length reduce the atmospheric moisture proportionately; but a dry atmosphere is extremely pernicious for these plants such as that of large houses, which for these plants, if they must be accommodated in such, can hardly be kept too moist, but pits or small houses with fermenting beds are decidedly preferable. Plants that have already made a good growth and need to be kept gently moving preparatory to their being started into fruit should have the full benefit of all the sun and light possible at the present time. If such plants are at a distance from the glass they should be brought up to it and given plenty of room.

Fruiting Plants.—In order to obtain a genial condition of the atmosphere water should be freely sprinkled on the paths and walls to encourage growth in the fruit. Let the temperature range at night from 70° to 75°, and from 80° to 90° during the day, ventilating from 80° slightly, and close at 85° when the sun is declining. Watering will require to be seen to once a week. Supply plants requiring it with tepid water, to which has been added a little guano or some other stimulant.

STRAWBERRIES IN POTS.—*Autumn Fruiters.*—Plants that are ripening their fruits should have a warm sunny aspect, standing them on boards or slates in a "plant-protector" or span-roofed frame, with sufficient space between them to admit of a free circulation of air, which is essential to prevent damping and enhance the flavour of the fruit. Water should be given the plants when necessary early in the forenoon, so as to allow of the moisture drying up before nightfall. If the weather be dull the plants must have a light airy position in a house where artificial heat can be applied to cause a circulation of air, as a stagnant atmosphere is almost certain to result in the fruit damping off. All the plants intended to fruit in November and continue the supply to Christmas must be housed, and have the fruits thinned, feeding with clear liquid manure.

Plants for Early Forcing.—The early plants of such kinds as Black Prince, Vicomtesse Hericart de Thury, and La Grosse Sucrée to be started in November should, if the weather prove very wet, be protected with lights; but there must not be any attempt at closeness, as warmth and moisture when the pots are full of roots, the foliage ripened, and the crowns fully developed, are likely to cause a premature starting of the plants into growth. Under no circumstances must the soil be allowed to become dry.

PLANT HOUSES.

Show and Fancy Pelargoniums.—These plants, in whatever stage they may be, must from this time have a position in a light airy house as close to the glass as possible, where the night temperature will not fall below 45°. The early batch, if young plants and well established in 3-inch pots, should without delay be placed in others 2 or 3 inches larger. If done at once they will be well established again before winter, and can in consequence be kept in better condition when the days are short and dark than if they had a mass of soil about them in which their roots had not penetrated. In potting drain the pots liberally, and make the soil as firm as possible, which insures dwarf sturdy specimens. If the points of the plants have not been pinched out do it at once. The late batch of old plants have been retained and have only just commenced growth, shake them out and repot them, placing them again in as small pots as possible. Intermediate batches if they need it should be shifted from the small pots in which they have been rooted. These plants must not be syringed after this date except on very fine days, and then early, so that the foliage will be thoroughly dry before night. In order to have good clean unspotted foliage careful watering must be practised.

Mignonette.—Plants trained upon trellises must have a light airy position from the present time, where they can be kept safe from early frosts. If these plants have been well attended to the early ones will have covered their trellises. Give them a little Standen's manure at intervals of about a month, and occasionally clear soot water. Keep their growths well tied down as they advance, and remove all flowers directly they are seen. If a few plants are required to come into bloom remove the flowers from the points of all the shoots, or pinch them, and then allow them to come forward; by this means a regular head of bloom is produced, and the plants will be much appreciated in the conservatory towards the end of November. Those growing in 6-inch pots and still outside must be placed in a cold frame, which will be all the protection needed for some time. The lights should be well tilted at night when mild, and drawn off during the day when favourable. Watering must be carefully regulated in whatever stage the plants may be. The soil must not be saturated, and, on the other hand, should never be allowed to suffer by the want of it, or the foliage soon turns yellow and the growths become hard. If a frame can be spared place it without delay over the batch sown on the open border and just commencing to show bloom. This batch gives but little trouble, and will yield abundance of flowers for cutting this autumn. Not only do they require protection from frost, but from heavy rains, or they soon grow weak and straggling.

Cinerarias and Calceolarias.—If these plants require potting it must be done at once. The latest batches should now be out of pans and placed in pots, so that they become well established before they require to be moved from cold frames. The earliest of the former will have their flower stems advancing rapidly, and will be found most serviceable during November and up to Christmas, especially blue varieties, a colour which is comparatively scarce during those months. Give weak liquid manure and clear soot water alternately every time water is needed. The earliest batches of the latter must not suffer by the want of root-room, or their growth will soon be brought to a standstill and the plants be attacked by aphides. Dispense with shading, and give them a lighter position than they have needed up to the present time.

East Lothian and Intermediate Stocks.—Young plants, either pricked out of the seed pans or boxes into others a further distance apart, or placed in small pots and stood outside, will now be ready for 4-inch pots. Place one good crock at the base of the pot for drainage, and over it a little decayed manure, and then pot the plants firmly in good loam, a little manure, and sand. They can be stood outside again after potting for a few weeks longer. We have ours arranged where a mat or other protecting material can be thrown over them in case of frost. They are not injured by a slight frost, but it is preferable not to subject them to it. Where cold frames are plentiful they can be placed in them ready for protection, but the lights should remain off. Plants of this description should not be "coddled," at the same time they deserve every care.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 3.

A WELL-CONSTRUCTED bee hive to fulfil all the requirements of the present day must be a very different article to the frame hive of our early experience. When we commenced bee-keeping the Woodbury hive was generally accepted as the best for all purposes, and our first stock of bees was put into a home-made one constructed after the well-known description in "Manuals for the Many." Of course it had the defects of the time—rabbits, notches, space above the frames, floor board projecting up into the hive body, wood n crown board, and the inevitable window at the back, with a rebate of a quarter-inch between the hive sides and the glass. This latter feature was an improvement (?) of our own, and formed a beautiful space 8 inches by 4½ deep, which was each year filled with comb and honey, to be admired by friends and blessed (?) by our unfortunate selves when it came to removing the frames and cutting away the superfluous comb from between the ends and the glass. We had no "smokers" in those days, and manipulating with bees was a very different affair from what it now is. We, however, endeavoured to keep pace with the times, and as each step in the improvement of bee hives was made public we took advantage of it, till at last our original hive had its faults gradually "improved" away, and held an honourable place in our apiary for many years, with distance pins, quilts, and all the rest of it.

When Mr. Pettigrew's book first appeared we were much impressed with his method of management as therein described, and being always open to conviction gave it, as we think, a fair trial side by side with bar-frame hives for about six years; the result was that our straw skeps were eventually discarded.

The apiarian whose mind is bent on improvement and who has plenty of opportunities for practice is bound to find out the shortcomings in any hive he is in the habit of working. We have kept bees as a home pastime for seventeen years, usually working from twenty to forty stocks, and have endeavoured during that time to make our hobby a profitable one. We have realised in one year over £5 from one stock, so we know all about that phase of the subject. Our views on the folly of attempting to make a living out of bee-farming for honey in this country have already been stated, but we have managed all through to make our bees pay and leave a fair return for the labour. Our place of business has been for many years a sort of rendezvous for numerous bee-keeping friends, and to the best of our ability we have acted as general adviser to all comers in matters relating to bee culture. These personal details may savour of egotism, but they are recorded here simply to show that our experience has been wide and varied—not confined to our own apiary, but it has enabled us to see how things are managed by the ordinary amateur, and thus, we hope, adding some little weight to anything we have to say on the subject.

So much is written now-a-days on bee-keeping by young enthusiasts of perhaps two or three years' experience who are "going to do" such wonders, or by scientific bee-keepers who teach others how to obtain results never achieved by themselves, that it is misleading to a degree sometimes for those who read, and then tack their faith on words written by gentlemen, who, as W. S. Gilbert says, "mean well, but they don't know."

We have kept our bees in skeps large and small, have used frame hives with large frames and small ones, and the result of all we could learn concerning the merits and demerits of such is that the skep system is to the advanced bee-keeper a thing of the past, that the bar-frame hive is the ne plus ultra of apiculture, and that large frames have so many disadvantages in practice in comparison with small ones that we have been for some time gradually weeding out all large-frame hives and substituting shallow frames.

About ten years ago we first tried the Carr-Stewarton hive, and were much pleased with it in some respects, but the double boxes of which the stock hive consists were a great drawback to its general usefulness. If the bees were wintered in both boxes the combs in the lower one were always more or less mouldy before the winter was over in spite of every care in ventilation. They were also very favourable receptacles for moths, because as the bees clustered in the upper box a great portion of the time, the lower frames were at the mercy of every insect pest which chose to take possession. We afterwards tried the plan of wintering them in one box only, and this was a

great improvement; but the objection against it was that in spring, when breeding was going on and it became necessary to give additional room, this could only be done by adding the second box, so that the hive at one moment was made double its winter size, and this sudden enlargement of the brood nest, lowering the temperature too much, was too great a check in the uncertain weather of early spring. We need hardly say all this trial and experimenting was not likely to go for nothing, and convinced us that the shallow frame had advantages not to be denied, only requiring to be worked on right principles to make it better for all purposes than any other. It need not be stated here how many alterations and changes were made before finally fixing upon the form of hive which we intend to bring before our readers; so we shall, as shortly as we can consistently with making all clear for those who choose to make a hive on our principle, give a general description of the advantages we claim for it. In claiming these advantages we would specially emphasise the fact that it is after several years' trial with it in our own apiary to test its working in what may be called expert hands. It has been tried in the hands of novices, including lady bee-keepers, with equally satisfactory results. It has also worked just as well with the timid bee-keeper who fears his bees, as with the active apiarian who has no dread of them.

In describing the details it will not be necessary to give external measurements with mathematical correctness, because they are of comparatively small consequence so long as perfect accuracy is secured in the internal dimensions. In general appearance the hive resembles a double or twin hive, and the first impression is that it is too large. This can be accounted for by the peculiar arrangement of the wedge front for the floor-board. The latter forms an alighting board 4 inches deep for the bees in winter, and one of the objects we had in forming it so was to avoid an appearance of unshapeliness, which it certainly had without it. This will be readily seen when we say the body box is only 6 inches deep and 2 feet 5½ inches long. With the wedge front inserted the hive appears 11 inches deep, so the appearance, as we may say, is that of a much larger hive than it really is.

The amount of breeding space in the full hive is, on measurement, somewhat over that of eleven frames of the Association standard size. Here, however, the comparison ends, for we contend that the amount of breeding space is vastly increased by the adoption of shallow frames when the hive is properly used. This will be explained later, and we will give seriatim the full particulars of each part of the hive.—W. B. C., *Higher Bebington*.

THE STING OF BEES.

WITH reference to an article which appeared in your last week's issue I enclose you a paragraph taken from the *Christian Globe*, in which the writer mentions a very simple remedy for the sting of wasps, and thinks that the application of this remedy might also prove efficacious in preventing any ill effects from the sting of a bee. As I have not had occasion to apply a remedy of this nature I am not in a position to verify its infallibility. Should you, however, think it worthy of the attention of the readers of your Journal, some of whom may be unfortunate enough to require its application, you are welcome to insert the paragraph, with what I trust will prove to be beneficial results.—W. B. YOUNG, *Alnwick*.

"It will be in the recollection of our readers that two cases of death from wasp stings within a fortnight were recently reported in the papers. Noticing this fact a correspondent has communicated to *The Times* a remedy which, if it be as successful as it is simple, and he vouches, especially those who reside in the country will thank us for reproducing it. Immediately on being stung place the hollow barrel of a key round the sting and press it until it begins to hurt. On removing the key the sting will be found lying outside the puncture it has made, and inside the ring formed by the pressure of the key barrel. I do not recollect whence I first had this homely surgical operation, but it is effective. All pain disappears at once, no swelling takes place, and in a few minutes it is difficult to find again where one has been stung. The sting, in fact, is extracted before its venom has had time to get absorbed into the tissues. This remedy is simplicity itself, and if it applies equally, as most likely it does, to the sting of a bee, it is well worth remembering."

[This is a very ancient remedy, and not, we think, equally efficacious in cases of bee stings, as these are barbed, while the stings of wasps are not.]

THE HONEY HARVEST.—Reports from various parts of the south of Scotland concur in representing the honey harvest to be the most meagre that has been gathered for many years. The late spring necessitated feeding the bees, which, however, bred well and swarmed largely. During the summer the wet and dull weather which was experienced

proved unfavourable for the storing of honey, and, in addition to this, the bee-keepers cannot hope to make up the summer deficiency this season from the autumn Heather, as that has been found to yield very little.

TRADE CATALOGUES RECEIVED.

Kane, Kells, Co. Meath.—*List of Bulbs*.
 Barr & Son, 12, King Street, Covent Garden.—*Catalogue of Daffodils and Bulbs (Illustrated)*.
 Compagnie Continentale d'Horticulture.—*List of Palms, Orchids, and Stove Plants*.
 W. Lovel & Son, Driffield, Yorkshire.—*List of Strawberry Plants*.
 Ralph Crossling, Penarth Nurseries, South Wales.—*List of Bulbs, Flowering Roots, &c.*
 James Yates, Stockport.—*Catalogue of Bulbs (Illustrated)*.
 H. Cannell & Sons, Swanley, Kent.—*Catalogue of Softwooded Florist Flowers, Roses, and Bulbs*.



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

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

Address (*A. J. B.*).—We are obliged by your letter, also for your address with the particulars you have sent, and your request will be readily complied with. The qualifications, of which we had no knowledge before, are quite sufficient for the purpose in question.

Sowing Lawn Seeds (*A. M. B.*).—Occasionally when the seeds are sown in the autumn the young plants perish in the winter, but not always—not, perhaps, usually where the soil is well drained and the lawn is not swept during wet or frosty weather. As you only appear to need a small quantity of seed we should sow now, and then if it fails you can sprinkle on a little more in the spring. It sometimes happens that a term of bright weather in the spring prevents the quick germination of the seed and the rapid growth of the Grasses.

Filmy Ferns (*A. H.*).—It is quite impossible for us to say whether you can dispose of them advantageously or not, nor are we able to suggest any better course than advertising them with the object of ascertaining whether a great demand exists for these Ferns or not amongst cultivators.

Waterfowl (*A Dublin Subscriber*).—There is no doubt that many of our readers keep several varieties of waterfowl, but very few of them would undertake to estimate the "average prices" at which birds may be purchased. Your question involving a purely trade matter, the best advice we can give you is to write to Mr. Baily, Mount Street, Grosvenor Square, who will, we think, be able to supply you with the information you need.

Marketing Garden Produce (*C. E. S.*).—It is quite beyond our province to recommend either vendors of garden requisites or purchasers of garden produce; nor do we ever incur the responsibility of advising anyone what crops he should grow. Some persons find winter Cucumbers fairly profitable, others fail in cultivating them remuneratively; and we cannot advise anyone to attempt their culture for market who has not had previous experience in the work.

Worms in Soil (*J. W.*).—Worms in the soil which you are intending to use for Mushroom beds are an indication of its good quality rather than otherwise. In turning over the soil and applying it the greater number can be picked out, and the few small ones that remain will probably make their escape from the thin covering, and do no injury to the bed.

Lawn Patchy (*A. D.*).—You have no doubt indicated the cause of the patchiness of your new lawn—namely, shaving it too closely, and it may be the machine has dragged the grass somewhat in places instead of cutting it cleanly. The remedy is to scratch up the brown parts with a sharp-toothed rake, sow fresh lawn seed of the same kind as before, sprinkling on it a little sifted soil, and run a light roller over it. You may do this at once, and your lawn will soon have a green appearance. After the young Grasses appear you had better cease using the lawn mower for the season, using instead, if needed, a very sharp scythe, and not cutting too close to the ground. It is a mistake to shave lawns so closely as is customary in many places, both during dry weather in summer and on the approach of winter.

Heating Greenhouse (*Idem*).—The temperature that will be suitable for the bulbs, 45° to 55°, will also be of benefit to your Palms, Ferns, and Lycopods. Pelargoniums of the Zonal type, if healthy, and have

active roots, will grow and flower freely during the winter in the same temperature provided they have a very light position. Old plants that are not required to flower in winter may be kept tolerably dry, divested of a number of their leaves, and stored in the coolest position of the house. They will not be safe in frames. Plants that are getting too tall and taking up more room than can be afforded may be cut down, as they can then be placed more closely together on the stages or on shelves suspended from the roof; such shelves, however, will be of the greatest value during the early stages of the growth of your bulbs. Show and Fancy Pelargoniums should be wintered close to the glass; they cannot be safely preserved in a frame. You may cut down the shrubs and trees at any time from now till March, but the sooner you do the work the longer will be the time that must necessarily elapse before they start into growth again and assume a fresh appearance.

Cherry Plum (W. M. B.).—This is not the Mirabelle Petite, which is a small yellow Plum, useful for preserving and all culinary purposes. The Cherry Plum is quite different, and we cite the following description of it from the "Fruit Manual." "CHERRY (*Early Scarlet; Miser Plum; Myrobalan; Virginian Cherry*).—Fruit medium sized, cordate, somewhat flattened at the stalk, and terminated at the apex by a small nipple, which bears upon it the remnant of the style like a small bristle. Skin very thick and pale red, covered with small greyish white dots. Stalk three-quarters of an inch long, slender, and inserted in a small cavity. Flesh yellow, sweet, juicy, and sub-acid, adhering to the stone. It may be used in the dessert more as an ornamental variety than for its flavour, but it makes excellent tarts. Ripe in the beginning and middle of August. The young shoots are smooth, slender, and thickly set with buds. This is the *Prunus myrobalana* of Linnæus. It is frequently grown in shrubberies and clumps as an ornamental tree, where in spring its profusion of white flowers render it an attractive object." Fruit is occasionally seen in the market, but only in small quantities.

Tall Scarlet Pelargonium (*Idem*).—The plant to which you refer as growing in Brittany is *P. inquinans*. There are several strong-growing varieties employed for covering walls and trelliswork under glass. The strongest we know is the old Giant Scarlet, but we seldom see it now. Smith's Defiance is similarly robust in growth, but this also, we think, is scarce. This was followed by Punch, a variety raised by the late Mr. Beaton, and is useful for the purpose you name. We are unable to say which is the best variety for covering rockwork, as so much depends on the size and position of a rockery. Those we have named will cover space quickly, and in a suitable position flower freely.

Chrysanthemums for Exhibition (E. Y.).—If your plants finish well and are neatly trained they will be quite worthy of exhibiting at your local show, but you must secure the crown buds at once by removing the surrounding breaks promptly. You will thus have one good flower on each shoot, and this will be far better than three imperfect blooms; besides, the terminal buds would be too late, and the blooms from the crown buds, although your show is late, could, if rather early, be retarded, as large well-formed flowers continue fresh much longer than small flat examples. If you "take" the crown buds and manage the plants well, we think they will be in condition at the time of your show; but it is important to notice whether the crown buds are not weakened by the too great extension of the surrounding growths appropriating the support from the central buds and practically spoiling them. If this is so, then there is no option but to push on the growths and take the terminal buds as quickly as possible.

Pears (S. S.).—We should expect the varieties to answer on the aspect you name, but during a hot dry season Williams' Bon Chrétien might ripen prematurely, and would not probably be of the best quality. But if your soil is rather heavy and rich as well as deep that will be a distinct advantage. Souvenir du Congrès is a very fine Pear, and Clapp's Favourite appears to be increasing in popularity.

Violets (W. N.).—Many persons cut all the runners off Violets as if they were trimming Strawberries, and they undoubtedly obtain a profusion of fine blooms; but in the case of a new variety, or any variety of which it is desirable to increase the stock, we should certainly allow at the least a number of runners to extend and form plantlets, as we should not perceptibly weaken the old plants, while those from the young would produce a succession of flowers. You will not err by allowing some of the stoutest runners to extend and take root in the bed.

List of Useful Orchids (W. G.).—You will find the majority of the following easy to grow, moderately cheap, free, and handsome:—*Ada aurantiaca*, *Aerides odoratum*, *Brassia verrucosa*, *Calanthes Veitchii* and *vestita*; *Cattleya crispata*, *labiata*, *Mossiae*, and *Trianae*; *Cœlogyne cristata*, *Cypripedium barbatum*, *C. insigne*, *C. Sedeni*, and *C. villosum*; *Dendrobium crassinode*, *densiflorum*, *nobile*, and *Wardianum*; *Epidendrum vitellinum*; *Laelias anceps*, *autumnalis*, and *elegans*: *Lycaste Skinneri*; *Masdevallias Harryana*, *igneae*, *Lindeni*, *Veitchiana*, and *Shuttleworthii*; *Odontoglossums Alexandræ*, *cirrhosum*, *maculatum*, and *Pescatorei*; *Oncidium concolor*, *O. cucullatum*, *Pleione humilis*, *Sophronitis grandiflora*, and *Zygopetalum Mackayii*. The "Orchid-Grower's Manual," published by Mr. B. S. Williams, Upper Holloway, price 7s. 6d., post free 8s., will no doubt suit you.

Boiler Power (J. C.).—A terminal saddle boiler of the dimensions you give will heat close upon 2000 feet of 4-inch piping; but as a large margin must be allowed for the deposition of soot on the surface of the boiler, we should calculate the heating power of the boiler at 1500 feet of 4-inch piping. It would heat over 2000 feet, but the expense in fuel would not compensate for the working of the boiler to its utmost capacity, and is not only uneconomical, but from the heat generated from a highly heating radiating surface injurious to plant life.

Making Soot Water (L. W. S.).—If you place sufficient soot in a coarse canvas bag and immerse it in a tub of water, allowing it to remain long enough, it is bound to change the colour of the water and afford you useful liquid manure for your plants. Another plan is to first form the soot into mortar or paste, then place it in the tub, which fill up with water, stirring occasionally for a day or two, then allowing the soot to settle. A peck of soot will suffice for about thirty gallons of water. If a few lumps of fresh unslaked lime as large as your hand are placed in the tub this will clear the water, and all that will be requisite will be to clear the scum from the

surface before using. If your greenhouse is damp the tub of water would be better removed in the winter. What little water you need then can easily be made tepid in another manner.

Sub-laterals on Vines (East of Berwickshire).—It is usual to remove the sub-laterals from fruit-bearing Vines, nipping them off at one leaf as soon as that leaf is as large as a shilling, and stopping all succeeding growths at the first leaf that forms afterwards, keeping to that leaf throughout the season. It is a simple process of finger-and-thumb work, and is commenced even before the bunches expand their flowers. In the case of young Vines that have not produced fruit it is customary to allow the laterals to extend considerably with the object of encouraging the production of roots; and also in the case of fruiting Vines, if the principal foliage is injured by insects, scorching, or fumigation, it is highly advisable to encourage the growth of sub-laterals, but not to the extent of crushing and crowding the foliage to the extent of depriving the leaves of light and air. An extension of lateral growth on the part of weakly Vines with defective root-action is often advisable at this season of the year.

Lavatera arborea variegata (W. F., Knaresborough).—Although we have a plant that has passed two winters safely in the open air, it is in a sheltered position in the south of England. Young plants grown quickly from seed are thus made tender, and you would act imprudently by entrusting them in the open air in your district. It is only when they assume a ligneous character that they can be considered really hardy. We are glad you have found the plants so handsome. Those you have "3 feet high and beautifully variegated" will be attractive in the conservatory; and as you observe, the young leaves keep fresh a long time in water, they will be valuable to mix with cut flowers for room-decoration.

Gardeners' Dictionary—Seedling Pelargoniums (Young Gardener).—In addition to the "Cottage Gardener's Dictionary" there is Paxton's "Botanical Dictionary," which can be obtained through a bookseller. Its price, we think, is 25s. You cannot have a more useful work of the kind than the one you possess, but by all means have both if you can conveniently do so. The term you mention is an abbreviation of the word "inoculate," the meaning of which you can find in a dictionary. Although several of the seedlings you name would be similar to the parents, there is no certainty that all, or even a majority of them, would be identical.

Heating a Frame (R. P. K., Surrey).—Although some persons have succeeded in excluding frost from frames with the aid of petroleum lamps, other persons have injured the plants by that method of heating. Necessity being the mother of invention, we advise you to consult a tinworker, and together you may be able to devise a small boiler that can be heated by a lamp, this being placed on the outside of the frame. A small pipe passing from the top of the boiler round the frame and back into the lower part of the apparatus will insure a circulation of hot water through the pipes. These may be of tin or metal gas pipes, whichever are the cheaper. This would be the safest plan of preserving your plants, and such a small home-made apparatus would not be costly. A simple, efficient, and inexpensive method of excluding frost from frames and miniature greenhouses is much wanted, and if produced and made extensively known would meet with a good sale.

Leeks (J. Hood).—Cutting back or "topping" the leaves of your Leeks would only lessen the crop by paralysing the growth. If you had given us any particulars about the way you have treated the crop we might have been able to give you a more satisfactory answer; but if, as we imagine, your Leeks have not been transplanted as they should have been, in July at latest, they will be of no great value, as the stems will be all exposed, and therefore next to useless. If the whole are lifted at once and laid in so deeply that these stems are quite covered, they will be well blanched before spring. In doing so dig over the ground, making it smooth, and as you go along, every 18 inches or so lay the line along the dug ground and beat it smooth where the line is laid. Then cut a nearly perpendicular rut 6 inches or more deep, and in this rut lay the Leeks pretty much as you would plant Box or put in cuttings, and level up the earth against them, making it firm. Then dig another 18 inches and repeat the process. If, while the plants were still small, you had dibbled them in deeply, leaving the hole open, the process will not be necessary, and all that is necessary will be to draw earth to the stems.

Heating Pits (J. T. S.).—It is quite impossible that we can keep in our memory the nature and exact dimensions of structures that have formed the subject of past inquiries. We can only say that the top pipe should be the flow, the lower the return. The quantity of piping to be used depends on whether early forcing is needed; if so, two rows of 3-inch pipes would be advisable, but for having Melons ripe in July and August one flow and return 4-inch pipe would suffice. We are now writing on the assumption that your pit is low, in which case ventilators a foot wide would suffice. Ordinary deal is used for the framework of pits, but oak sills give them greater durability. The wires may be 9 inches apart, and a foot from the glass. If you desire to heat one division and not the other, you will need three valves, one each on the flow and return, and one in the waterway connecting the two pipes. You had better procure the services of a practical man to see the boiler and arrange the pipes. This would certainly be the safest course, and in all probability the most economical. A saddle boiler 2 feet long will suffice.

Late Grapes (H. S.).—Lady Downe's Seedling is generally conceded to be the best keeper of all late Grapes, and when well ripened and preserved is of very good quality. It does not usually produce large bunches, and the berries are more liable to scald than the majority of Grapes. The Black Alicante is a stronger grower, producing larger bunches and finer berries than the preceding, but in our opinion is not equal to it in quality. It is a very easy variety to grow. As regards quality of fruit, and also of appearance when well grown and finished, there is no late Grape to surpass, if to equal, Mrs. Pince's Muscat; but many persons fail to produce it in the best condition. In the vineyard at Longleat it is grown in the same division as Lady Downe's and Alicante, and surpasses them both in appearance and quality, though it may not keep perhaps quite so long as the former. It will succeed with Hamburgs as well as either of the others will, but none of the varieties mentioned might give you the same amount of satisfaction as the Hamburgs in the same house. We neither advise you nor dissuade

you on the matter, as occasionally we have seen every one of the varieties succeed with Black Hamburgs, while we have known all of them fail to give satisfaction. Very much depends on the house, the treatment that is given, and the skill of the cultivator. We answered your question on the ground vinery last week, on the same page on which the reply to your other question appears. The latter you have read, but appear to have overlooked the former. Examine the page again.

Cyclamens (*A New Subscriber*).—Cyclamens raised from seed now should be treated as stove plants. The seedlings should first be pricked out an inch apart in boxes of light gritty soil—leaf soil, peat, light loam, crushed charcoal, and sand being suitable—and placed close to the glass in a moist stove or Cucumber house having a night temperature of 65°. Eventually they should be transferred to small pots, using a rather heavier compost, still porous. At all times keep them moist, yet never saturated, as drought is fatal to them. Before the small pots are crowded with roots give them larger, the soil to be still heavier, a little dry flakes of cowdung crushed being a good addition. Apply water cautiously at first until the roots take possession of the fresh soil, then copiously. As the spring advances let them stand on a moist base if possible, syringe them according to the weather, and always keep them moist. When fairly established a night temperature of 60° will be suitable, and when growing vigorously 55° will suffice. With active roots, good soil, and plenty of moisture in both air and soil, with judicious ventilation, your plants will have no "limp" leaves, but stout leathery foliage, which is the certain forerunner of the best flowers the varieties are capable of producing. Defective root-action, the result of some check your plants received, was the cause of their unsatisfactory condition.

Herbaceous Calceolarias (*Idem*).—Prick out the seedlings in the same manner and compost as above advised for Cyclamens, but place the boxes or pans on moist ashes in a cool frame, taking particular care there are no slugs in it, or there will not be long any Calceolarias. Keep the plants regularly moist, and when they touch each other pot them carefully, using a little heavier and richer soil than before. They will still be better in a frame or pit from which frost is excluded, as these plants seldom thrive well on a dry open stage. As the roots protrude through the pots give them more room. This must always be done before the pots are crowded, and when the plants attain strength they will enjoy strong loam, yet open, and enriched with decayed manure. The pots should always stand on a moist base, a dry air being very unsuitable for the plants and very favourable to the increase of insects. These must be prevented, not allowed to appear and then destroyed, but must never be seen. This can be accomplished by very light fumigations at weekly or fortnightly intervals, so that there is always a smell of tobacco in the frame. Strong fumigations are dangerous, costly, and ought never to be required. The plants do not require heat, and will be quite safe if a night temperature of 40° can be maintained.

Names of Fruits (*I. A. C. S.*).—Your Apple is Duchess of Oldenburg (*Rev. E. Bertram*).—1, Nonesuch; 2, Gravenstein. (*G. C. E.*).—2, Loddington; 3, Hambledon Deux Ans; 5, Cornish Aromatic; 8, Fearn's Pippin; 11, Aromatic Russet; 12, Cockle's Pippin. (*W. A. M.*).—1, Margil; 2, Golden Pearmain; 3, Blenheim Pippin; 6, Cellini; 7, Fearn's Pippin; 11, Wyken Pippin. (*W. H. Divers*).—1, Duke of Gloucester; 2, Penny Loaf; 3, Sugarloaf Pippin; 4, Old Golden Pippin. (*Colville Browne*).—Early Violet Fig. (*H. H.*).—Duchess of Gloucester Apple; Peach, probably Barrington. (*J. F. L.*).—Figs: No. 1, Brown Turkey; No. 3, Brunswick. We are sorry we cannot name with certainty Nos. 2 and 4 without the fruit, but judging by the leaves we should say they are Brunswick. (*W. Laird*).—Dumelow's Seedling. (*W. Crowder*).—1, Yorkshire Beauty; 2, Duchess of Oldenburg. (*J. G. Trotter*).—2, Drap d'Or; 3, Coe's Golden Drop; 5, La Fameuse. A Blenheim Pippin Apple or Hesse Pear will suit you.

Names of Plants (*R. C.*).—We cannot determine the name of your Primula from roots alone. (*R. G. M.*).—The variegated leaf is Tussilago Farfara, the long one Chlorogalum pomeridianum. The Parsley would not be worth sending to London, as the supply is large. (*Monmouth*).—Sedum azoideum. (*W. W.*).—The specimens arrived in very bad condition, but we have identified them as follows:—1, Chrysanthemum maximum; 2, Helianthus trachelifolius var.; 3, Chrysanthemum carinatum; 4, Chrysanthemum tricolor; 5, Aster vimineus; 6, Abelia rupestris. The Impatiens is probably a variety of I. glandulifera, *Royle*, with which I. Roylei is synonymous. There are several varieties, varying in colour from white to rose. It is a native of India. (*Winchester*).—1, Gomphocarpus fruticosus; 2, Diplacus glutinosus. (*C. S. R.*).—1, Streptocarpus floribundus; 2, insufficient; 3, Pteris flabellata; 4, a species of Drymoglossum, but it cannot be determined without fruiting fronds; 5, Davallia novæ-zelanica. (*Inquirer*).—Dendrobium serra. (*S. J. W.*).—1, Polypodium vulgare; 2, Lomaria Spicant; 3, Athyrium Filix-femina; 4, Polystichum aculeatum; 5, Nephrodium Filix-mas; 6, N. spinulosum. (*T. S.*).—The long Grass is Alopecurus pratensis, the shorter one Cynosurus cristatus. (*Sambo*).—1, Solanum capsicastrum; 2, cannot be named without flowers; 3, Pteris cretica albo-lineata. (*W. B. S.*).—Mandevilla suaveolens. (*R. C.*).—Rosa bracteata, a native of China. (*J. R.*).—Nicotiana glauca, a South American shrub. The seeds are said to be much relished by humming birds. (*M. H. C.*).—The flower was very much crushed, but it resembles Brassia verrucosa. (*A. M. Grange*).—Specimen very poor, but apparently Peristeria elata. (*A. W.*).—Ulmus campestris variegata, a silver variegated form of the common Elm, there are others with golden foliage. (*W. W.*).—1, Bignonia radicans; 2, Myrtus communis flore-pleno; 3, Leycesteria formosa; 4, Anemone japonica alba.

COVENT GARDEN MARKET.—SEPTEMBER 26TH.

PRICES unaltered, business remaining the same.

FRUIT.		s. d.	s. d.	s. d.	s. d.
Apples	½ sieve	1 0	to 2 6	Grapes .. ..	.. .. lb. 1 0 to 3 0
"	per barrel	0 0	0 0	Melons .. ..	.. .. each 2 0 3 0
Apricots	box	0 0	0 0	Nectarines	dozen 2 0 6 0
Chestnuts	bushel	0 0	0 0	Oranges .. ..	.. .. 100 6 0 10 0
Figs	dozen	0 9	1 0	Peaches	dozen 2 0 10 0
Filberts .. ..	.. .. lb.	1 0	0 0	Pears, kitchen	dozen 0 0 0 0
Cobs	per lb.	1 0	1 2	" dessert	dozen 1 0 3 0
Lemons .. ..	.. .. case	25 0	35 0	Pine Apples, English	lb. 3 0 4 0

VEGETABLES.

	s. d.	s. d.	s. d.	s. d.	
Artichokes	dozen	2 0	to 4 0	Mushrooms	punnet 1 0 to 1 6
Asparagus, English	bundle	0 0	0 0	Mustard and Cress	punnet 0 2 0 3
Asparagus, French	bundle	0 0	0 0	Onions	bunch 0 0 0 4
Beans, Kidney	lb	0 3	0 4	Parsley	dozen bunches 3 0 4 0
Beet, Red	dozen	1 0	2 0	Parsnips	dozen 1 0 2 0
Broccoli	bundle	0 9	1 0	Peas	quart 0 9 0 0
Cabbage	dozen	0 6	1 0	Potatoes	cwt. 4 0 5 0
Capsicums	100	1 6	2 0	" Kidney	cwt. 4 0 5 0
Carrots	bunch	0 4	0 0	Radishes	dozen bunches 1 0 0 0
Cauliflowers	dozen	2 0	3 0	Rhubarb .. ..	.. .. bundle 0 4 0 0
Celery	bundle	1 6	2 0	Salsafy .. ..	.. .. bundle 1 0 0 0
Coleworts	doz. bunches	2 0	4 0	Scorzonera .. ..	.. .. bundle 1 6 0 0
Cucumbers	each	0 4	0 6	Seakale .. ..	.. .. basket 0 0 0 0
Endive	dozen	1 0	2 0	Shallots .. ..	.. .. lb. 0 3 0 0
Fennel	bunch	0 3	0 0	Spinach .. ..	.. .. bushel 2 6 3 0
Herbs	bunch	0 2	0 0	Tomatoes .. ..	.. .. lb. 0 6 0 0
Leeks	bunch	0 3	0 4	Turnips .. ..	.. .. bunch 0 0 0 4
Lettuce	score	1 0	1 6		



USE OF GREEN AND FODDER CROPS FOR VARIOUS PURPOSES.

(Continued from page 264.)

IN continuing our remarks upon the growth of Lucerne as a forage crop, dry soils with an open porous subsoil are for the most part well adapted for this plant, which allows the tap root to pierce the soil to a great depth. Deep loam with a chalk subsoil is also good, as well as sandy loams with a mild brick earth under; but in the endeavour to obtain a good tilth so necessary for strengthening the young plants at the earliest period, the land should be deeply cultivated by steam power in the autumn, after which it may be finally laid into stetches for the winter. In the early spring the cultivation must be continued until the soil is perfectly free from any roots of couch grass, black bents, onion grass, or any weeds which are known to be indigenous to the soil under tillage. The application of manure at first may well be artificial or hand manures, such as the bone superphosphate, 4 cwt. per acre of which should be applied just before seeding the land with Barley, of which a moderate bulk of straw is only required, for in case of the Barley crop being laid or lodged a regular plant of Lucerne cannot be expected. Some farmers apply all the manure before seeding the land for Lucerne, especially if drilled on a fallow surface; but we do not recommend this, for it entails an enormous amount of labour the first year with the horse-hoe and hand-hoe without any adequate return from the produce of fodder. When the seed is drilled at the distance of 14 inches across the drills of a Barley crop no extra cultivation is required the first year, yet the plants are gradually strengthening and preparing for the yield of a full crop the following season. It is in the early spring that we would apply the ammoniacal top-dressings, such as 1½ cwt. of nitrate per acre—in fact, 1 cwt. of the same may be applied immediately after each cutting, which will largely increase the produce and give one or more extra cuttings during the year. In the second winter a good dressing of stable or farmyard manure will have the effect of nourishing the plants and preserving them from the ill effects of frost and snow to some extent. If it is found that weeds prevail, horse-hoeing the first dry weather in the spring will be advisable, but generally under liberal manuring the successive crops will overwhelm all weeds.

Lucerne will yield valuable forage for a number of years. Some persons limit the produce to seven or eight years, but we believe if this occurred it would be in consequence of insufficient manuring, or horse and hand-hoeing, or the fact of sheep or horses being allowed to eat out the crowns of the plants. Where liquid manure is obtainable the plants may be preserved for many years if it is applied with liberality and regularity in the spring of the year.

The growth of Sainfoin must next engage our attention, and a most valuable plant it is, and deserves for general culture the highest position in our estimation, especially on the chalk or limestone formation; for although the surface soil may vary, as it often does even on a single farm, yet the fact of the subsoil being suitable to the growth of the plant will have the most important effect on its successful growth under any circumstances. We have for choice the use of two varieties of Sainfoin, the common or old sort and the Giant, the latter being a strong

vigorous-growing plant, yielding a heavy weight per acre, but of a coarser description, especially when made into hay, but as it yields a second crop for cutting it is important. It is also found to thrive upon a variety of soils other than chalk or limestone, and it is also frequently used in admixture with Red Clover instead of Rye Grass, but more especially where any probability exists as to the failure of the Clover plant; but in any case it keeps pace in growth with Red Clover both in the first and second crop. It also acts like Rye Grass in opening the Clover in the swathe whilst the hay is in process of making, enabling the hay to be carried to the stack at least two days earlier than when Clover is grown alone; a very important object is, therefore, obtained without depreciating the value of the hay either for sale or for consumption.

The common or old variety of Sainfoin is usually grown upon the hill farms where the chief object is that of farming upon the poorest and coldest hill, whether of chalk or limestone, as this plant is much more hardy than the Giant variety, but the old variety only yields one good cutting of excellent quality; whilst the after growth is much valued for grazing with the in-lamb ewes, it being generally esteemed as the best green food they can receive, for it has never been known to produce abortion when fed off by pregnant stock. There is, however, a drawback even in this system of feeding, for the stock when feeding are apt to eat out the crowns and crown buds of the plant, and thus injuring the succession for another year; in fact, when thus fed the plants are usually ploughed up at the end of four years or so, many of them having died off and decayed in the soil. It is, however, a plan adopted by some of the most careful farmers when grazing the after-growth to feed it only by a shifting fold and not allowing the animals to gnaw it down too close, which they are sure to do if not folded but allowed the range of the whole field in the early winter months. We notice that some seedsmen make no allusion to the Giant sort in their catalogues. Now this is an omission calculated to induce the belief in young men and beginners that there is but one sort. But to show the distinction and use of the variety, we a few days ago in the railway carriage met with a farmer from a southern county, who said he had just put together the second growth of 34 acres of Giant Sainfoin for hay, but he had 20 acres of after-growth of the common sort, which he said he did not like to feed with sheep in the autumn as it frequently destroyed the plants, and asked what he could best do with it. Our reply was, that although he could not safely feed it off with sheep or horses, he may, however, if the land was well fenced, feed off the grass by young cow stock, or otherwise leave it without feeding at all. Of this latter idea he said he knew nothing, and feared it would injure the successional growth of next year. We explained that it would be just the reverse, for the early frosts would cast the leaves, some falling on the crowns of the plants and others falling on the soil. The former would, however, protect the plants during winter and cause an earlier growth in spring, while the latter, as dead and decaying vegetable matter, would be drawn into the soil by worms, and thus manure the land for another crop. There is no doubt a misconception held by many as to how long this plant can be retained in growing and profitable condition, for if required, and the plants are treated like Lucerne by wider drilling, horse or hand-hoeing, and liberal manuring, in that case it would last for an undefined number of years, as the cause of its not being generally a profitable crop, if retained more than four or five years, was on account of its not being fairly fed by sheep without the land being kept clean and the crop properly manured.

Tares or Vetches demand notice next, as affording one of the oldest and most useful green forage crops, and much valued by farmers for growth on nearly every variety of soil as adapted for feeding cattle, sheep, and horses during the summer months. The varieties in general use are called Winter and Summer Tares. This, however, refers more particularly to the seed time, the winter sort being sown in the autumn and the summer variety in the spring. There is also a variety named the Scotch Goa, which is a stronger growing sort than either the ordinary winter or spring Vetches, and where the seed can be obtained easily and not too high in price they are much esteemed on account of their luxuriant growth, which almost resembles that of the late field Peas of the Maple variety, the bulk of food being very great and succulent, and therefore well adapted for cattle and sheep; but for the latter stock they should be in admixture with Oats, a half bushel of which sown with the Vetches per acre serve to hold the haulm up off the ground, and often renders the entire crop available for food without waste. The same mixture of Oats or Rye is advisable for all species of Vetches, but especially for Winter Vetches. It not only answers the purpose we have just described, but the leaves of any cereal crop will protect

the Vetches against injury by frost in the winter months—a matter of considerable importance in the chalk hill districts, especially on the north and north-eastern sides of the hills. The seed, however, on such situations should be sown not later than the second week in September.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are now assisted most advantageously upon the best managed farms by steam power. We have during the middle of the present month double-cultivated some of the Wheat stubbles which had been left in a foul state by the late tenant, and have also cultivated a long summer fallow after last cross-ploughing, which will complete the work together with rolling and harrowing in very satisfactory condition. As the work was done by steam power during fine weather, and the land in a dry state, the effect will be greater and more beneficial than ordinary horse labour, for the work is not only done without treading by the horses, but so much work is executed in so short a time that it becomes invaluable as an agricultural operation. In the Wheat stubbles which were foul with couch and weeds, a large quantity will be on the surface connected to some extent with the mould, it then becomes a question as to the most beneficial mode of reducing the clods and lumps of grass, and the disposal of them. The ordinary way of proceeding is to continue harrowing and rolling until the couch is freed entirely, or almost so, from the earth, and burn it as fast as it accumulates in small heaps about the field. We have a strong objection, based upon a long experience, to this mode of dealing with couch, but much prefer to do about half the usual labour in rolling and harrowing, and as fast as the accumulations or heaps are got together by the chain harrow, to cart them away to a large heap, and after being turned over once we have a quantity of valuable material for dressing pastures or parkland. We still hold to the idea that we never should burn any materials which can be converted into manure. It is often objected that the seeds of couch and weeds are still alive in the earthy materials, but we care not whether they are or not, for being always applied to grass land they cannot produce weeds, for on pasture land they could not compete with the living grass. We have never found even live couch grass when laid on pasture land would or could grow thereon, for the worms immediately set to work and draw everything applied into the soil, and turn it to good account as manure for the pasture. These are very favourable results compared with the attempt to burn the couch on the land, for even after very much labour in our fickle climate rains frequently occur and prevent the burning, and the couch has still to be dealt with and disposed of in the same or some other way, and in doing this more labour is often expended than when disposed of by heaping for manuring purposes as in the first instance.

Hand Labour.—Both women and men can now be fully employed in various ways. Hedge-trimming must be completed, and common decency requires the women to rake up the proceeds of the trimmings as well as border-cuttings, and for which there is always a use on the farm. Some threshing of Wheat and Oats must now be done for sale and for use; the former will be required for sale and for seeding, and the latter for feeding horses. This will employ men and women too, not only for winnowing the corn, but also in carefully stacking the straw, which is this year valuable for sale, fodder, and litter, and as soon as a stack is made thatching should be done immediately without a day's delay. Men and women will be employed also in connection with cutting and making into hay the after-growth of grass in the meadows, and if it cannot be made into hay through adverse weather, still the grass is valuable if laid and spread on the poorest pasture for manure to be pulled in by the worms, which are our friends frequently when some farmers only give them credit for doing mischief.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32 1/2 and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1883.										
September.										
Sunday	30.166	54.0	53.2	calm.	58.3	72.0	50.2	103.6	45.4	—
Monday	30.229	59.3	58.2	calm.	58.1	74.8	48.0	104.0	41.7	0.588
Tuesday	30.221	55.7	55.7	N.E.	57.9	75.3	49.2	101.8	44.9	—
Wednesday ..	30.144	61.5	58.8	N.E.	58.3	74.7	52.6	108.6	47.8	0.010
Thursday	29.788	58.2	56.6	N.E.	58.2	67.0	52.7	69.2	47.3	0.052
Friday	29.728	54.6	54.4	N.	57.7	63.3	51.8	87.9	45.8	0.112
Saturday	29.681	56.0	55.6	N.	57.0	61.5	49.0	88.4	44.3	—
	29.994	57.0	56.1		57.9	69.8	50.5	94.8	45.3	0.762

REMARKS.

16th.—Thick fog at first; bright warm day; clear moonlight night.
 17th.—Fog early, morning fine; very heavy rain with lightning and thunder 3.30 P.M. to 4.15 P.M.; misty evening.
 18th.—Fine, but rather close and warm.
 19th.—Hazy at first, fine warm day; lunar halo 9.30 P.M.
 20th.—Very dull and damp; rain during morning, finer after 4 P.M.
 21st.—Hazy and dull at first, rain after 10 A.M.; fine latter part of day.
 22nd.—Fine, but not very bright.
 A rather unsettled week, generally foggy or misty in the mornings and evenings, but frequently bright and pleasant during part of the day. Temperature remarkably similar to that of the preceding week and about 5° above the average.—G. J. SYMONS.



COMING EVENTS

4	TH	Apple Congress at Chiswick (4th to 18th).
5	F	
6	S	
7	SUN	20TH SUNDAY AFTER TRINITY.
8	M	
9	TU	Royal Horticultural Society ; Fruit and Floral Committees at 11 A.M.
10	W	

RENOVATING GRAPE VINES.

RENOVATING worn-out Vine borders, or re-invigorating exhausted Vines, is work in which many either will or should be engaged at the present time. There are numbers of Vines which, though apparently in excellent condition, yet require extraordinary assistance, or otherwise their decadence will soon commence. By extraordinary assistance I mean liberal supplies of liquid manure, top-dressings with fresh soil, or a renewal of much of the border. The two former measures may be sufficient for some comparatively new borders, but there are some which require the whole. No matter how well a border may have been originally formed, it must eventually become exhausted of several of the properties which rendered it suitable in the first place, and unless these be renewed it is very evident the quality and weight of the crops will soon be visibly effected. As I have recently had to deal with Vines in the worst possible condition I will first describe the renovating process adopted, and then suggest what I consider necessary in the case of Vines in fairly good condition.

When I first took charge of these gardens my employer not only gave me permission to, but suggested a wholesale clearance of two vineries. Having, however, previously taken an active part in the work of renovating a range of five large vineries, and noted the highly satisfactory results, I hesitated to destroy Vines that I thought could be reinvigorated, and I do not regret having preserved those I found here. It is true I to a certain extent marred my work by simply overcropping, yet on the whole I am satisfied with the results. One house was planted entirely with Black Hamburgs, and the other principally with Muscat of Alexandria. The latter were in much the worst state, and perhaps these should have been cleared out, but then a wholesale clearance of a vinery entails much work and expense in forming a new border and raising or buying new Vines. No crop would be obtained the first year, and in my case, owing to the peculiar construction of the house and other uses to which it has to be put, there would only be a partial crop the second season after planting; whereas by renovating we secure a partial crop the following season, and a full crop the second year, with less than half the labour and expense. It is in the autumn when the men can best be spared for extra work, and it is in the autumn when the Vine borders should be renewed, this being when the root-action is most brisk.

I entered upon my duties here early in the spring of 1881, and naturally soon turned my attention to the Vines. On inquiry I found that the borders (outside only) had been made upwards of thirty years, and also for the last seven years had received no solid or liquid manure of any kind, but a very small quantity of guano had been annually dusted over. As a consequence no healthy roots were to be found anywhere near the surface. My first proceeding was to bare the stems down to the main roots, and these were nicked and surrounded by a mixture composed of leaf soil, wood ashes, or rather "burnt bake," as the ashes from a burnt heap of

prunings and other garden rubbish is locally termed, and old Mushroom-bed refuse. As the result of this several of the Vines, Muscats as well as Hamburgs, formed a quantity of large lively roots. When this was observed a top-dressing of turfy loam, short manure, and a dusting of superphosphate of lime was applied. I ought perhaps to mention that the two houses are heated by good flues, these warming the border near the front of the house, and by covering the soil with light litter this heat was preserved. Had the houses been differently constructed and heated I should have formed a light hotbed along the front, as we must not expect old Vine stems and roots to emit early fresh rootlets when the surroundings are cold. The fresh soil was soon taken partial possession of, and a further mulching of leaf soil, than which no better root-enticer exists, was given, and the soil was kept moist.

As will be shown, we had a crop of Hamburg Grapes the same season, and these being all cut early in September we commenced to break up the border. Beginning at the front about one-third, or a width of 4 feet, was cut clean away and wheeled to where it was likely to do good. From this point the soil was forked away, every live root being carefully preserved, till we had reached the space previously top-dressed, and now fairly full of brittle white roots. The old roots which had been kept covered as much as possible and moistened frequently had all bruised pieces cut away, and those preserved, cleanly cut in order to assist their heating. The turf employed had been previously cut, but not long enough to be stacked, neither is it necessary. With this was used a considerable quantity of lime rubbish, "burnt bake," short manure, and some of the old soil, all of which were distributed between layers of turf with the grass downwards and about the roots. The whole was built to a width of 4 feet, made firm, and the roots distributed in layers, and as near the surface as their former disposition would admit. The same autumn I found several of the lifted old roots had formed fibres, and still more formed what I might term root buds, from which rootlets started the following season. These with the roots established in the top-dressing were sufficient to perfect a crop the season following, and now we have, in the case of the Hamburgs at least, a border crowded with roots, especially where I like to have them—viz., on the surface.

Not only were the roots in a bad plight, but the Vines also were in a bad condition. In the first place they had long been too much crowded, a blunder by no means confined to our case. For many years they had been infested with mealy bug and other pests, and this, too, in spite of various violent remedies applied, these much injuring the rods without affecting a clearance of the insects. When I took charge they had received their annual close pruning, cruel scraping, and dressing with some extraordinary mixture, and taking all things into consideration I saw we must endeavour to form new rods as well as new roots. The Hamburgs broke fairly well and produced a good number of bunches, which, thanks to the slightly improved root-action, finished better than hitherto. Of Muscats we secured only a few bunches; these were retained, but all the other shoots from the middle of the house or rods were kept closely rubbed out, also from near the middle to the front ridges of the house, my plan being to lay-in a young growth from the centre to grow to the top of the house, and another from the bottom to be taken up to and stopped at the starting point of the former. In this manner fairly good canes were obtained, and more than this, owing to the weak state of the Vines, I did not anticipate. While in full leaf the top portion or half of the rods, which it will be seen was destitute of young growth, were cut clean away, and if all had gone on well the remainder of the old rods, with the attached upper portions of young rods, would have been cut away the following season. Unfortunately we cropped too heavily, taking a full crop instead of, say, about two-thirds of an ordinary crop. As a consequence the lower young rods

failed to extend to the top of the house as intended, none of them swelled or strengthened as I expected they would do, and, worse than all, the heavy cropping also greatly interfered with the root-action. During hot weather the foliage flagged and shading had to be resorted to. This flagging was the result of the comparative rootless state of the Vines, but in spite of it we had a good crop, which finished and kept well, but the wood never ripened. This season the roots were much damaged by rats, and altogether we are not surprised at the poorer crop resulting. Next season other measures will be resorted to, but this will not interfere with the full crop we hope to secure.

In the case of the Hamburgs, finding they broke fairly strong, and especially as they were already much crowded, no young rods were laid in, but the spurs, or rather laterals, were freely thinned out by disbudding. The crop, however, shanked rather badly, and after careful examination I concluded it was principally owing to the bad state of the rods, and later events and important advice have convinced me I was correct in my surmises, though not exactly comprehending the way shanking resulted. In the autumn of the same year (1881) the rods were thinned while yet in full leafage, for if this operation is delayed till the winter or spring the wounds bleed seriously. During last year the Vines perfected a full and good crop, and in addition formed the requisite number of young rods. The latter were stopped about half way up the roof, were not shortened at pruning time, and this season broke evenly and well, and have given us much the best Grapes we have yet had, besides which they have perfected strong canes to the full length of the rafters. This autumn, or according as the bunches are cut from the growths preserved only on the upper halves of the rods are cut, the old rods will be sawn off.

The only mistake we have made with the Hamburgs was in cropping too heavily this season, but I do not think we shall suffer for this subsequently as in the case of the Muscats, the Vines being vigorous both at the top and roots. If instead of 130 good-sized bunches in a house 24 feet by 15 feet we had been content with 100 bunches the crop would really have been of greater value and no risks incurred. Is not the case somewhat similar in innumerable vineries? I consider overcropping Grape Vines one of the worst forms of "gardeners' greed."—W. IGGULDEN.

[We saw these Black Hamburgs two years ago, and they were miserable; we have seen them this year, and the Grapes were equal in every way to the Black Hamburgs at Longleat.]

BEGONIAS AS BEDDING PLANTS.

A CORRESPONDENT, on page 270, last week, recognised the fact that the time-honoured Zonal Pelargoniums cannot be relied on for imparting brightness to the flower garden during the showery weather that so commonly prevails about the harvest period of the year; and with the object of making good the defect he had planted somewhat freely the fine old *Gladiolus brenchleyensis*. This is a most effective plant where it thrives, but unfortunately *Gladioli* are, generally speaking, at least as uncertain as bedding Pelargoniums. On these latter plants let me say a word. Are not the newer varieties with huge trusses better adapted for a transient blaze of a few weeks than for continuing attractive over a lengthened period? Have the seasons changed, or were the smaller-trussing forms, such as Tom Thumb, Cooper's Scarlet, Indian Yellow, and Bonfire, more persistent bloomers, and less liable to damage by a rainy day than the modern varieties that have almost driven them out of cultivation? Certain it is the beauty of the beds is of shorter duration now than was customary some twenty years ago. We must, however, make the best of the varieties we have, and if they fail, as they too often do, to give satisfaction on account of their liability to succumb to a few showers, we must try something else.

The adaptability of Tuberous Begonias for bedding purposes has been occasionally alluded to during the past few years, and examples of success have been from time to time recorded; still we must recognise the fact that their employment for the purpose indicated is by no means general, and in fact they have

not made anything like the progress that they ought to have made considering their claims to attention, and the results that have been achieved by those who have been successful in their culture.

That these Begonias are well adapted for bedding purposes is beyond all question. They may not, perhaps, succeed equally well everywhere, but it may be said without hesitation that in nine cases out of ten, when failures occur, they are more the fault of the cultivators than of the plants. For some years past all the beds in a garden north of London (Mr. Law's at Southgate) have been occupied with Begonias, simply because they give more satisfaction than any other flower. I have seen them there growing luxuriantly and laden with flowers, while they entailed little more trouble in management than early Potatoes. "Oh!" but it may be remarked, "what will thrive near London will not succeed a hundred miles away." That may be true of some things, but the observation does not apply with over-powering force to these Begonias. Take a journey 150 miles west of London, and examine the beds in the beautiful flower garden of Sir Henry Scudamore Stanhope at Holme Lacy. From more than one source information has been received of the splendour of the Begonia beds there both last year and this. They have this year particularly been indisputably grand.

Lest that test will not suffice to convince the sceptical as to the suitability of Begonias for outdoor culture because of the presumed salubrity of the climate of Herefordshire, we will go further afield for examples. Instead of 150 miles west of the metropolis we will go 400 miles north. Most persons have heard of Drumlanrig, and its manager, Mr. David Thomson, is supposed to know something about flower gardening. He has written the best work on the subject in the language, but that was before the Begonia epoch, and has produced some of the finest examples of the work in hand—flower-gardening embellishment, that have been seen; both at Archerfield and at Drumlanrig his work made him famous. Would this gardener risk his fame by dabbling in novelties as such, and filling beds with plants that would not thrive? The idea is preposterous. Yet he not only employs these Begonias, but last year he planted the most prominent beds in the garden with them, and they astonished all who saw them by their vigour of growth, richness, and the wonderful way in which they endured the drenching rains of that rainy locality, and by continuing brilliant until the frost destroyed them. Similar results, I am told, are produced at Drummond Castle in Fifeshire; but the Drumlanrig test alone is quite sufficient to satisfy all who are not prejudiced that Tuberous Begonias rightly managed will grow and flower in the most satisfactory manner in the majority of flower gardens in this country.

As their success in the west and north cannot be denied, it may be supposed by some persons who have failed in other districts that the moist air of the localities above instanced must be specially favourable to the plants. Perhaps it may be, and if so let the hint be turned to account in growing the plants in gardens less moist. Let the surface of the beds be mulched and more water given, and then see what Begonias will do. It will, perhaps, be as well to tell what they will do—what, indeed, they were doing in not a naturally moist position in Kent a fortnight ago.

Not unknown in connection with these beautiful flowers is Mr. John Laing of the Stanstead Park Nursery, Forest Hill. His work in improving this splendid type of a great genus of plants is to be seen at home. It is a brilliant result. The houses are ablaze with magnificent varieties, the singles with flowers as large as single Dahlias, and if possible more rich; the doubles as large as Gueldres Roses, and some as pure; while others equal in size, form, and colour Turban Ranunculuses. It is a grand display, but we will step outside to an open quarter in the nursery and see what many persons will scarcely believe—some twenty beds, each about 50 yards long by 4 feet wide, completely filled with Begonias all aglow with their handsome flowers. In this great mass of 30,000 to 40,000, or perhaps 50,000 plants, scarcely a blank is to be seen, and if there is one it is, presumably, the result of some exceptionally fine variety having been taken out for "stock;" but the truth is the beds are practically as blankless as they are brilliant, and the result is an undoubted triumph of Begonias as bedding plants.

All these plants are seedlings, and, what is more, seedlings of the present year. The seed was sown in January, and 150,000 plants were first pricked out closely in very shallow boxes—that is, boxes not more than 2 inches deep, then transplanted more thinly in larger boxes, and from these transferred to the beds. If that does not represent the bedding-out process in its integrity it would be interesting to know what does. There the plants will remain till they are cut by frost, and the tubers will

be taken up and stored. In the meantime their colours are noted and the varieties classified. Although all of them are better than the best of a few years ago, only a few, the *crème de la crème*, will be named. The plants are about 6 inches high, with fat stems, sturdy, bushy, and covered with flowers. So far from these Begonias not being amenable for bedding, experience has proved that they make better tubers when planted out than they do grown in pots, hence the most choice and valuable of both home-raised and continental forms are planted out in rough frames with nothing now to cover them, and they grow like weeds.

It is not to be supposed that the inexperienced, and especially those who have not the best means for growing the seedlings, could succeed like a Laing in growing such plants the first season. It would be unwise to attempt this, or rather to rely on seedlings of the same year for filling the beds. Not one amateur or gardener in a hundred has the requisite conveniences for the work, but then scarcely one out of a hundred need fail, provided there are frames, greenhouses, or the usual conveniences for raising bedding plants that are usually prepared in gardens, if he grows his Begonias from tubers. Those of the size of Cobnuts will make good plants, but if as large as Walnuts they are better. They can be had cheap enough in mixture, the price, of course, varying according to size and the quality of the varieties.

A few of the secrets of success in preparing the plants and growing them successfully in beds—that is, if there are any “secrets” now-a-days, may perhaps be usefully divulged. These are the very essence of simplicity. Where persons fail is in over-preparing, over-nursing, or, to use a well-understood and expressive term, in coddling the plants in their early stages, then starving them afterwards. If we look at the plants and note their fleshy roots, succulent stems, expansive leaves, and large leathery flowers, it becomes apparent that they must have rich, free, generous soil, and abundance of water—that is, when they are in full growth. It is also clear that all plants of this nature from Balsams to Begonias are peculiarly liable to be drawn by excessive heat and insufficient light in their early stages. If anyone wants to see how stout and sturdy Balsams can be grown let him sow some seed in pots in May, and plunge these pots in a heap of fermenting materials in the open air. If he wants stout Begonias for bedding let him start the plants on similar principles of affording them gentle bottom heat, but not starting them so soon that they cannot have abundance of light and air to keep them dwarf and sturdy. The precise time of starting can only be determined by the means of growing the plants afterwards, but, as a rule, early in April would be safe for the majority of cultivators.

When once started the plants must be kept steadily growing. There must be no check, and as a rule they are far better if they are never potted. If Begonias are potted, as they often are, grown nearly a foot high under glass, then placed in a frame to “harden,” their pots at the same crowded firmly with roots, and eventually planted out, they will not flourish. Their owners wonder why they do not start and grow freely, concluding the plants are “not fit for bedding.” It would be a wonder if plants thus “prepared” did thrive. Even Calceolarias will not do so, as most persons have found out, and they adopt a simpler and more rational method of preparation. In order to succeed with Begonias we must go back to simplicities. Start the tubers in boxes, then if the plants when an inch or two high can be planted 4 or 5 inches apart in good soil on a gentle hotbed in a pit, or over which a frame can be placed, there to remain till planted in the beds, there can be no better preparation. Failing this they may be grown thinly in boxes, the compost being light and gritty, resting on a layer of decayed manure. Of this the roots will take possession, and in due time the plants can be quickly yet carefully planted in the beds with roots uninjured, stout, healthy, hungry, and ready to immediately extend into the soil in which they are placed. A root-bound plant cannot do this. It tries to do so, and a few fibres start from the wire-like roots here and there that are curled round the soil, but the growth is never free, and the plant struggles for existence. It may not die all at once, but it cannot make free progress, and then “Begonias are no use for bedding.” Better would it be to plant the corms in the beds on the 1st of May and leave them to take their chance, than to prepare them in this root-bound irrational fashion that more than anything else has brought Begonias into disrepute as plants for the flower garden.

Then the soil in the beds should be rich. At the surface it may be light and free to encourage a free start, but not far below it should be about as rich as for Celery. Then will the plants luxuriate and produce thick stems, large foliage, and clusters of wax-like flowers. But they must be sustained by

water, the necessity for the application of which will be materially lessened by covering the surface of the ground between the plants with a layer 2 inches in thickness of cocoa-fibre refuse. This is cheap enough, conserves the moisture, is an impediment to slugs, and imparts to the beds a neat appearance.

The same material dried is one of the best preservatives of the tubers. Mix it with sawdust, or use it without, and a layer of this and of tubers alternately in large pots or boxes will be found to answer the purpose of preserving the latter in a fresh sound state, and the packing medium may advantageously be dug into the beds, and, especially where the soil is strong, will be found highly beneficial; and what a convenience this method of wintering is to those whose glass accommodation is limited, for the stages and shelves are at liberty for other plants through the winter, the Begonias resting meanwhile like so many choice Potatoes.—EXPERIENTIA DOCET.

SOUVENIR DU CONGRÈS PEAR.

IN your last issue you mention two splendid Pears of this variety sent to you by Mr. Rivers. I purchased some trees in pots from that gentleman about nine or ten months ago, and among them was a Souvenir du Congrès, and the fruit has been splendid, not only for size but for flavour also—one Pear weighed $1\frac{1}{4}$ lb., and another was 1 lb. Beurré d'Amanlis grew very large, but the flavour was not rich. I consider Souvenir du Congrès by far the best flavoured large Pear I know.—J. W., *Liverpool*.

THIS is undoubtedly one of the grandest of autumn Pears, and as its merits become fully known it will be grown in most gardens where handsome fruit of high quality is cherished. It would be interesting to know whether the specimens alluded to last week had been gathered from trees grown in pots, and if so this would prove how satisfactory the system is. Pears so grown need no heated structures, but only want shelter from frost during the blossoming and setting period, the trees at all other times being stood in the open air. Such trees laden with fruit are handsome ornaments; and if such noble specimens as those alluded to can be produced the method would appear to be worthy of adoption. Still this fine Pear can be grown most satisfactorily against walls, and a tree will usually be found worthy of the space it occupies.—A FRUIT-GROWER.

THE HERBACEOUS BORDER.

COREOPSIS TRIPTERIS.—This is valuable for producing its flowers from September until stopped by frost, its large corymbs of bright yellow flowers with blackish-brown disc rendering it highly ornamental. It is 4 feet or more in height, having long, narrow, divided leaves, which give it a very distinct appearance.

ACONITUM JAPONICUM.—The deep purplish-blue flowers, borne in stout spikes, and its large, deep green, glossy leaves, render this very effective, and especially valuable from its late flowering, from the middle of September onwards. It attains to a height of $2\frac{1}{2}$ to 3 feet, doing well in any soil, but, like all the Aconites, it prefers a moist one. A. autumnale has spikes of light or lavender-blue flowers, and though similar to, is quite distinct from, A. japonicum. It grows 3 feet high, and is one of the best autumn-flowering plants.

TRITOMA UVARIA GLAUDESCENS.—One of the best, if not the best, of the genus, being very free flowering, with bright orange and scarlet flowers. T. grandis has truly noble spikes, 4 to 5 feet in height, but the spikes of T. nobilis are the largest, and it has the advantage of producing them very freely. T. pumila is dwarf in growth, and the spikes are dark red, not having the glow of the others.

GYPSOPHILA PANICULATA.—This forms a beautiful bush 2 feet high, and is simply smothered with its countless white flowers. It is not only a very effective border plant, but has a very elegant appearance in a cut state. It does best in light soil, and is best continued by seed.

STOKESIA CYANEA.—This commenced flowering at the middle of September, and bears a profusion of palish blue flowers, nearly 3 inches across, which are very effective on the plant and useful when cut. It grows about 30 inches high, and is one of the very finest of autumn-flowering plants. It requires a light well-drained soil, as it is not very hardy, but in a warm situation does admirably.

PYRETHRUM ULIGINOSUM.—A strong stool of this forming a bush 4 feet and more in diameter, covered with its large pure white flowers, 3 inches across, is a stately and beautiful object, and the flowers surpass all the Marguerites for cutting. It attains a height of about 4 feet. It is unrivalled as a late summer-flowering perennial, and does well in any soil, preferably in rich friable loam.

FRANCOA RAMOSA.—The long branching spikes of this are very effective, being borne profusely from September to frost. The flowers are pure white and useful for cutting. It requires a warm situation and a light soil, as it is somewhat tender, and does not succeed in an ordinary border unless well drained, and is best given

the protection of a frame in winter, being readily increased by division and seed.

ASTER VERSICOLOR.—The flowers are only small or medium-sized for a Michaelmas Daisy, white chiefly, changing to rose, some flowers being of that colour when expanded. The flowers are borne in dense clusters or masses, and are very numerous. It grows 4 feet in height, and commenced flowering early in September.

ASTER POLYPHYLLUS.—The flowers of this are only of medium size, white, and very abundantly produced. It commenced flowering early in September, and is a tall grower, 4 to 5 feet high.

ASTER AMELLUS has large purplish-blue flowers, with yellow centres. It is very free flowering and dwarf, not, or rarely, exceeding 2 feet in height. Fine as this is, it is not nearly so fine as *A. Amellus bessarabicus*, with its rich bluish-purple flowers and orange centres, it being unquestionably one of the finest, and is dwarf in habit, attaining to a height of about 2 feet. It is larger and finer than the species. It flowers in the middle of September.

ASTER DUMOSUS.—This grows about a yard high, and has bright purple flowers, produced abundantly at the close of September, and is one of the very best. All the Michaelmas Daisies do best in friable loam, and are readily increased by division.

The **COLCHICUMS** are flowering profusely, imparting quite a cheery appearance to the borders, giving hope of the autumn Crocuses, which are also appearing, and once seen are sure to be appreciated.

WALL PLANT—CLEMATIS COCCINEA.—This proves to be a slender grower, attaining only to a height of 6 feet, and is evidently herbaceous. The flowers are bell-shaped (not drooping), borne or supported by somewhat long footstalks. The flowers are bright scarlet, and the plant when covered with flowers is very beautiful. The sepals are four, but the flower opens very little, the segments being reflexed at the tip and black, the interior of the flower orange. The flowers proceed from the axils of the leaves, and at the extremities of the growths, and singly. It appears to do well in any light rich soil, and commenced flowering early in September.—G. ABBEY.

RENOVATING PEACHES AND NECTARINES— LARGE VERSUS SMALL TREES.

THE present is the time for renovating these trees indoors, and the season for planting is rapidly approaching; in fact, alterations in early and second early houses could have been completed before now where cultivators are not afraid of lifting their trees when in full leaf. It is surprising what beneficial results frequently follow the lifting of old trees. I think, however, it is even more general to find trees that should be in the prime of life brought into an unhealthy and unfertile state through negligent management. Experience has taught us that old as well as middle-aged specimens can be wonderfully improved, and will, after the work of renovation, if not delayed too late, and a season's careful cultivation, regain a healthy condition, and continue bearing good crops of fruit for a number of years. I have seen old trees which a few years ago were considered only fit to be burned, but after being lifted and given new soil are now grand specimens, that for fruitfulness, health, or vigour could not be surpassed by young trees; but how seldom, when young enthusiastic men take charge of houses in which are a number of old trees in a critical condition, do they decide to restore them, if possible, to their former health and vigour? The decision to root them out and plant young trees is often too hastily formed. There are many things to be considered before the work of destruction commences, for old trees can be restored with comparatively little trouble or loss of fruit. The last is an important consideration, and the primary object in the majority of establishments, and what can be expected from young trees before the third season? They can, of course, be fruited earlier, but when the object is to cover the trellis as early as possible with bearing wood, the development of the tree would take considerably longer if they were fruited in their early stage. The best system to adopt when fruit is wanted and the house must be established with young trees at the same time, is to plant the young ones after patching up the old ones to fruit, while the former fill the trellis. The old trees in this case must be cut away annually until the permanent trees are capable of bearing a crop.

Old neglected trees that have been undisturbed for years have roots that are generally almost destitute of fibres, and it is difficult to keep any fruit that may set upon them until after the stoning period. They not unfrequently swell irregularly after they are set, or they fall in stoning. If they can be retained to this stage success afterwards may be anticipated, as fibry roots will have formed along the bare woody stems and have taken possession of the new soil. After lifting, the crop if heavy should be well thinned, but cultivators must be guided in this matter entirely by the health and condition of the trees. Considerable care must be exercised to preserve every fibre possible. The roots in most cases will be found knotty and brittle, and break readily; but it is surprising how rapidly fibres are

produced by these woody stems after they are brought near the surface and laid amongst fresh soil.

Five years ago when renovating a range of Peach houses 260 feet long, two old trees were purposely retained for experiment, one in the early and the other in the second early house. From appearance these trees were of the same age and the same variety, differing only in one being larger than the other. These, as well as some of the other trees in the same houses, had been planted upon a stage formed of 10 or 12-inch pots, with very large slates laid over them, the roots as far as the stage extended being only covered with about 8 inches of soil. The tree in the early house was the largest, and was thoroughly lifted; the other had merely the contents of the stage beneath it removed, and the space filled up with the soil removed from the first-mentioned tree. The experiment ended last autumn, when it would have been difficult to draw a comparison between the two. The one that had been lifted thoroughly and rapidly recruited itself, and was in grand condition, with clean fibry roots, while the other had declined yearly in vigour. Early last autumn the latter was subject to lifting, and the tree shows already a marked improvement in strength and condition of its wood. It was allowed to carry a fair crop of fruit, which was superior both in size and quality to the fruit ripened the two or three seasons previous. This is merely referred to for the purpose of showing how rapid is the work of improvement even with old trees, for few, indeed, could be in a much worse state. I do not doubt that the tree in question would, if we wished to retain it, continue improving and produce crops of excellent fruit for many years.

The question arises, and is of vast importance at this season of the year, Whether large trees are preferable to small ones, or *vice versa*? Until very recently I had a great admiration for large trees, and was inclined to ridicule the idea of growing pignies. In houses say 60 feet long, I could not see the advantage of having five or six trees to fill the space, but thought three much better, or even two. In order to put these ideas into practice I planted three trees to fill the houses of 60 feet. In the second house I resolved that a healthy young tree of Royal George should fill the whole house. Its branches extended rapidly, and soon filled 30 feet of the trellis, and before now would have filled the whole house; but I discovered it was already too large, and instead of proving any advantage results had been quite opposite, not that I entertained any doubt that anything might happen to it, and thus leave the whole house vacant. The principal reason was that the enormous quantity of fruit that it was already carrying ripened too much at one time, and that if it was allowed to fill the house the supply would soon be over. It is clearly evident that to maintain a succession of fruit a number of trees are preferable to one, as varieties can be selected to ripen at different times. I still have a fancy for large well-developed trees, and am inclined to believe they do better on the whole than small ones, but for purposes of succession I believe that four trees in a space of 60 feet would be preferable to three, although I have only three in each of my houses. What say others on this subject?—WM. BARDNEY.

POTATOES.

LIKE your correspondent "H.," I am every spring seized by what he aptly terms an attack of "Potato fever." It is so very interesting to read the descriptions of the new varieties, to mark off a few of the most promising, and so pleasant to chuckle over the prospect of having a few dishes of Potatoes at the local flower show which will fairly distance all competitors. Results are indeed often disappointing, but I would warn "H." against being satisfied with the first year's trial. I gave 2s. 6d. for a pound of Mr. Bresee. On lifting I found a poor crop of small Potatoes, and was disgusted, so the following season I had this variety planted in a spare corner where the ground was poor and full of twitch. As the summer advanced I was much surprised to see the tops look so healthy and well, but on lifting a few roots early in July of that year I was astonished to find my despised Potatoes turn out the finest in the garden, and from that day Mr. Bresee has been one of my favourites. "H." would not complain about the tops, for although branching they are not tall. *Experientia docet*, and I have now about forty varieties which I have tried in my garden with good cultivation and in a field of very poor soil with poor cultivation, so that I shall be pleased to give others the results of my trials. In response to "H.," I would rather suggest that we start a company of gardeners, of which each member shall try one or more novelties, and give the result of his trial to his fellow members. All raisers of new Potatoes, &c., are apt to think their introductions of more merit than they actually are, and a seedling Potato of my own raising I think is about the best ever grown, but no doubt I shall learn that others think exactly the reverse.—H. S. E.

SENSITIVENESS OF EARTHWORMS.—In reference to the inquiries of "A. M. B." relative to the sensitiveness of earthworms, I may say that I have often noticed the same thing; for instance, when employed in moving plants in large pots or tubs, if there are worms in the soil they will sometimes come to the surface as if alarmed by the rattle of the

sticks and chains, used for carrying the tubs, against their sides. We had a gentleman staying here a little time ago who was a great angler, and when in want of worms for bait he would take a pointed rod of iron and insert it in the ground to a considerable depth, and then rapidly twirl it about in the subsoil, when the worms would immediately come to the surface all around. The fisherman on the Thames also tells me that in dry weather when he cannot get worms he has many sent from the neighbourhood of Nottingham, which are procured in the same way.—S. MORTIMER, *Purley Park, Reading.*

CARNATIONS AND PICOTEEES IN BEDS.

As the time is now drawing near for planting Carnations and Picotees in beds, I propose to give a description of the process, also naming the best varieties for that purpose. In the north generally they plant in beds, with the result that the flowers are very fine. If new ground is used a crop of Potatoes is taken off it, which brings out the wireworm in the Potatoes—one of the greatest pests the Carnation grower has to contend with, and which must be thoroughly eradicated before planting. The best time to plant is October and November if the plants are well rooted, whilst those which have not good roots can be placed in small pots 3 inches in diameter, a pair in a pot, wintering them in cold frames and planting out in the beds from the middle to the end of February, following with those of weaker constitution in 7 to 9-inch pots, a pair in a pot, using plenty of drainage to them. They want placing either on a bed of ashes or a wooden stage, so as to keep earthworms out of them. It is a good plan to dig the ground deeply, mixing in some good manure with the soil—that which has been used for a hotbed the same season. I plant my beds with pairs of plants in rows a foot apart and the stools a foot from each other. The beds consist of two rows, with a path between the outside rows of each bed, which are 2 feet apart. This leaves plenty of room to get amongst the plants for weeding and layering.

I do not layer many of the plants the first autumn after planting, as generally the finest blooms are obtained from the plants the second year. Of course, where the plants are very thick it is wise to layer a portion of them, which can be taken off for other beds. The second year after planting it is a good plan to layer all the plants, and lift them when ready, making new beds.

The following list includes a few varieties in each class most suitable for planting in beds:—

CARNATIONS.

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|---|---|
| <p><i>Scarlet Bizarres.</i></p> <p>Admiral Curzon(Easom).
 Fred(Dodwell).
 Edward Adams.....(Dodwell).
 Lord Napier(Taylor).
 Mars(Hextall).
 Mercury(Hextall).
 William Spoor(Adams).</p> <p><i>Crimson Bizarres.</i></p> <p>Rifleman(Wood).
 Harrison Weir(Dodwell).
 John Harland(Adams).
 William Murray(Adams).
 J. D. Hextall(Simonite).
 John Simonite(Simonite).</p> <p><i>Pink and Purple Bizarres.</i></p> <p>Falconbridge(May).
 Eccentric Jack(Wood).
 James Taylor.....(Gibbons).
 Unexpected.....(Turner).
 Sarah Payne(Ward).
 Stanley Hudson.....(Dodwell).</p> | <p><i>Purple Flakes.</i></p> <p>Dr. Foster(Foster).
 Earl of Wilton(Holland).
 Juno(Baillon).
 James Douglas(Simonite).
 Mayor of Nottingham ..(Taylor).
 Squire Meynell(Brabbin).
 Sporting Lass(a sport from Sarah Payne)</p> <p><i>Scarlet Flakes.</i></p> <p>Annihilator(Jackson).
 Clipper(Fletcher).
 John Bull(Dodwell).
 Dan Godfrey(Holmes).
 William Harland(Harland).
 Sportsman(Hedderley).</p> <p><i>Rose Flakes.</i></p> <p>Apollo(Fletcher).
 John Keet(Whitehead).
 Cleopatra.....(Hartley).
 James Merryweather ..(Wood).
 Sibil.....(Holmes).</p> |
|---|---|

PICOTEEES.

H, Heavy; L, Light.

- | | |
|---|--|
| <p><i>Red.</i></p> <p>Brunette (H)(Kirtland).
 John Smith (H).....(Bower).
 Master Norman (H)(Norman).
 J. B. Bryant (H)(Ingram).
 Thomas William (L)....(Flowdy).
 Thomas Jivens (L)(Flowdy).
 William Summers.....(Simonite).
 Violet Douglas (L)....(Simonite).</p> <p><i>Purple.</i></p> <p>Alliance (H)(Fellows).
 Alice (M).....(Lord).
 Mrs. A. Chancellor (H) (Turner).
 Zerlina (H).....(Lord).
 Rev. J. B. M. Camm (H) (Fellows).</p> | <p><i>Rose.</i></p> <p>Edith D'Ombrain (H) ..(Turner).
 Fanny Helen (H)(Niven).
 Lady Holmesdale (H) ..(Schofield).
 Miss Horner (H)(Lord).
 Mrs. Rudd (H)(Rudd).
 Ethel (L)(Fellows).
 Mrs. Adams (L)(Adams).
 Mrs. Alleroit (L)(Turner).
 Nellie (L).....(Rudd).</p> <p><i>Purple.</i></p> <p>Clara Penson (L)(Willmer).
 Ann Lord (L).....(Lord).
 Minnie (L)(Lord).
 Her Majesty (L).....(Ad lis).
 Master Nichol (L).....(Schofield).</p> |
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—G. RUDD.

WHITE ELEPHANT POTATO.

AS I had read so much about the Potato White Elephant being an enormous cropper and a disease-resister, we procured one peck from Messrs. Harrison & Sons of Leicester last February, and on the 31st of March planted them in heavy clayey soil, for which we understood they were suitable. They were cut into as many sets as possible, which were planted 2 feet apart and 3 feet between the rows. A slight trench was made, and a layer of light manure, strawy material, placed over them to a depth of 2 inches, each row following another as we dug and planted

as we went on. No more was done to them until they were earthed up early in June. The weeds were kept down, and on the 31st of August a monstrous crop was lifted. In all 37 stones of useful Potatoes, for there were no small ones, and not one diseased among them all. Many were of a great size, weighing above 2 lbs. each. We determined to try them as to their quality, and we found them to possess everything that is requisite for a good Potato, being light and floury, with a good flavour. No more was used, and we have reserved them all for seed next year should they keep during the winter. I looked at them yesterday and found them sound and good. I have no doubt that as soon as the variety is well known it will be much grown, as I think almost everything is in its favour.—H. HARRISON, *York.*

FRITILLARIAS.

THE Fritillarias belong to the section Tulipæ, including some of the showiest and most popular of our early spring-flowering bulbs, and from their botanical interest it is cause for regret that so few make a speciality of them. The Fritillaria is one of the few bulbous plants that readily suits itself to nearly any position, and requires no attention whatever other than staking when planted in exposed situations. They will not bear, however, being disturbed when once established, and to this very practice may be traced many failures that have from time to time been recorded. They are distributed over the greater part of the northern hemisphere, and number between fifty and sixty species with endless



Fig. 55.—Fritillaria armena.

varieties, and although not more than one-half are in cultivation, a few only of these can be recommended for general ornamental purposes.

Fritillaria armena, Boiss.—This is comparatively new to cultivation, having been found only within the last few years, and is not admitted as a species in Mr. Baker's monograph of the genus. In general appearance it closely resembles and falls between *F. tulipifolia* and *F. græca*, and is full of interest, from the fact of its forming a connecting link between the sections with entire and trifid styles. It is rather dwarf, seldom attaining more than a foot in height, and the flowers, which are of a lurid purple without any tessellation or chequering, make a beautiful contrast with the bright green lanceolate leaves. Grown in pots for the greenhouse it is very desirable, giving a colour much appreciated at this early season. It was first found about Erzeroum, at an elevation of 7 to 8000 feet; and a yellow variety was also found in the neighbourhood of Smyrna by Mr. Maw, which deserves a distinct name. It is being distributed by Mr. T. S. Ware under the name of the species, and is represented in the woodcut, fig. 55. Flowers early in April and May.

F. recurva, Benth.—The most beautiful of all the Fritillarias. It grows from 1 to 2 feet high, with spear-shaped leaves clasping the stem, and the bright red of the numerous drooping, recurved, bell-shaped flowers, interspersed all over the inside with cream-yellow blotches, far surpassing that of a Lily. It is a native of California, and belong

to the small section with Lily-like bulbs, from the small scales of which it is easily propagated, as it seldom ripens seed in this country. Flowers the latter end of April and May.

F. Hookeri, Baker, forms with *F. macrophylla* a group between Lillies and Fritillarias. They have both been referred to the former, although leaning considerably in favour, and now put into the latter. It grows from 1 to 2 feet high, bearing from eight to twelve large pale lilac Lillium-like flowers, covering more than a third of the whole stem. Found at from 9 to 10,000 feet, and is restricted to the Laching Valley, Sikkim. Flowers in May.

F. pallidiflora, Schrenck.—This, from its vigorous constitution and floriferous character, is one of the most remarkable of the group to which it belongs. The flowers are very large and numerous, of a dull creamy colour, with beautiful purple spots all over the inside. The leaves are broad, oval, and of a glaucous green colour. If taken in hand by some experienced hybridiser and worked with some of the finer varieties of *F. imperialis* the probability is that a plant intermediate between the two would be the result, and which would be very desirable for ornamental purposes. Native of Siberia. It was first introduced to France, and from thence to this country. Flowers March and April.

F. persica, L.—This grows from 2 to 3 feet high, bearing a spike with from ten to forty flowers, varying from dark purple to lilac, without tessellation, Campanula-like, and closely packed together on the stems. It is supposed to be originally a native of Persia, and to have been introduced into this country about 1573. It was cultivated in Gerarde's garden 1596, and at that time, he says, was a denizen of many of the London gardens. Parkinson informs us that "it was sent into us by the means of divers Turkey merchants from Constantinople." Flowers in May. Worthy of a place in every garden from its free habit.

F. imperialis, L.—The Crown Imperial, sent to this country about 1590 from the Royal Gardens, Berlin, is one of the earliest tall flowers of the spring, and makes a fine appearance in the flower border at a season when such flowers are much wanted for decorative purposes. It is said to emit a rank fox-like odour, although I have failed to perceive it; but the beauty of the plant, however, and the splendid magnificence of its various and richly coloured flowers, will ever secure it a place in the garden. The singularity of the nectary, too, in the form of a glandular cavity at the base of each segment, and which contains a drop of nectareous matter when the plant is in full vigour, cannot but engage the attention of the most casual observer. Another of the wonders of Nature, and which is by no means peculiar to this plant, may be observed in peduncles, which bend down when the plant is in flower, becoming upright as the seeds begin to ripen, lest they should fall too soon. There are over a dozen really distinct and desirable varieties, single and double, embracing a great variety of colours; but the most valuable for decorative purposes has three, sometimes four, whorls of pure yellow flowers above each other. Flowers in May. *F. Meleagris* is so well known that it does not need description.—D. D.

AMERICAN VINES AND THE PHYLLOXERA.

MR. WARD has stated that the Strawberry Grape was the first to be attacked with the phylloxera at Longford Castle, and hence concluded that American Vines are not phylloxera-proof. Without wishing to suggest that they are, may I ask what evidence your correspondent can adduce in proof of the Strawberry Grape being an American variety? It may be grown in America, and Vines may have been sent from there to this country. But is this Grape of American origin? I know it is somewhat commonly regarded as an American Grape, but I am of opinion that the Vine in question is not an American variety at all. I know the Grape very well, and its growth and foliage bear some resemblance to those of American Vines, but this is not sufficient evidence of its identity as an American Grape. It is well to know that it is not phylloxera-proof, and Mr. Ward has done good service in recording his experience on that point, as it will prevent persons using the Vine as a stock under the assumption that it is an American variety, and hence less liable than European Grapes are to be attacked by that destructive insect.—AN OLD GRAPE-GROWER.

[If the history of this Grape is examined we suspect it will be found to be of Italian origin.]

MR. WARD at page 446 mentions the fact of an American Vine (the Strawberry) being the first to be attacked by the phylloxera in his vineries, which he says is conclusive proof that American Vines are not phylloxera-proof. Before assuming this we must first know if the variety mentioned belongs to any of those species reputed to withstand the attacks of this insect. Many of what are termed as "American varieties" have much of the blood of *Vitis vinifera* in them. For instance, Mr. Haskell of Massachusetts raised a batch of varieties by crossing *V. riparia* with *V. vinifera*. Now, though these varieties should be attacked by the pest no wonder need be indulged, and neither is it logical to take it as proof that varieties of *V. labrusca*, *V. vulpina*, or any other of the nine species, all differing in constitution, are also liable to attack. Besides being successfully crossed with *V. riparia*, *V. labrusca* and *V. cordifolia* have also been successfully employed for crossing the ordinary Grape Vine. Though varieties from such parentage should fail it does not follow that any, far less all, of the pure species should do so.—A. HONEYMAN.

[In Dr. Schomburgk's report of the Adelaide Botanic Gardens, South

Australia, it is stated that "the Californian phylloxera-proof Vine (*Vitis californica*) has been found to succeed there, the growth being very luxuriant, the Grape making a palatable claret wine. It is found grown in the vineyards of California where other Vines have been destroyed by the phylloxera, but this species remains uninjured. Experiments seem to prove that it is too robust for the phylloxera to fasten upon it. The French Vine-growers are much interested, and are experimenting with it. Professor Hillyard of the Californian State University and others have reported favourably upon its merits."]

BEECH LEAVES AND FUNGUS.

I PERCEIVE that your able correspondent "Single-handed," in his most valuable paper on the care of manures, endorses what Mr. Wright had stated in his equally interesting article on leaf soil, that "soil formed from Oak or Beech leaves is much preferable to that from Planes or Elms." I had always understood that leaf soil from Beeches produced an influence in the soil harmful to most plants, a mycelium which attacked the roots. I have generally found leaf soil, made in the ordinary way of Beech leaves, full of this mycelium, with a strong Mushroom smell. In the case of standard Roses, where the stake has decayed and broken off at the surface and the rotting lower part suffered to remain in the ground, I have generally found that the Rose tree has gradually died, and on taking it up I have found the roots covered with mycelium, originating apparently from the decaying stump.

I now lever up all such stumps, and am careful in planting that no pieces of dead wood get in the soil among Rose roots; and when I found that what seems to be the same mycelium is produced apparently by decaying Beech leaves, I came to the conclusion that this was the cause of their being popularly considered harmful, and even wondered if this was the reason why the ground under Beech trees is, as a rule, barer of all vegetable growth than that under other trees.

Beech trees seem to me to be of a harder and more woody nature than others. They take much longer to decay. On this light soil I have seen them ploughed up again, after being buried a year, nearly as fresh as when they fell. In fact, the poor people here collect them to stuff pillows and cushions, which shows how tough they must be.

I think the old nut cases produce the mycelium more readily and abundantly than the leaves do, but it would be difficult to separate them, and I think the leaves, with their hard woody fibres, produce it also.

There are many Beeches in the neighbourhood of my garden. The dry winds of March bring the leaves from a distance and heap them in drifts all over the place. I have generally burnt them as much as possible, but I shall be glad to learn that I have been wrong in attributing harm to their use as leaf soil.—A. F. M.

CULTURE OF THE CHOROZEMA.

CHOROZEMAS are amongst the most useful and beautiful of winter-blooming plants, being also well adapted for house decoration; but when used for this latter work should not be allowed to remain too long in the house, or the plants would be permanently injured. Although of the hardwooded type it grows very freely, being of a rambling habit. It can also be grown into a good-sized specimen very quickly, and they will last for years if well attended to. Propagation may be effected either by cuttings or seed, but the best and cheapest way is to procure young plants from a nursery at the present time. The plants should be wintered in a rather warm greenhouse, but it is best to grow the plants in a well-ventilated greenhouse when they have attained a good size, as they will last longer in health. Plants procured now and kept in a warm greenhouse until March will then require a shift into pots 2 or 3 inches larger, using well-drained pots, as these plants, like all other hardwooded plants, will not succeed if the pots are not thoroughly drained. The compost should consist of lumpy fibrous peat, with a liberal addition of sand. Pot firmly, and keep the plants close until well established. On bright days and as the season advances syringe the plants lightly on warm afternoons, and shade from bright sun. Being a very loose grower it will require stopping rather frequently. The shoots should also be kept tied out. After the plants are well rooted and have grown so as to require another shift they should be repotted and kept growing as freely as possible until the middle of September, when they should be exposed to air and sunshine, but avoid cold draughts. If all has gone well they will bloom freely during the winter, after which they should be placed in a light position and repotted just as growth commences. Give the same liberal treatment as they received the preceding summer, when they will be good-sized specimens by the time their blooming stage arrives. After this season I do not think it is of any benefit to grow them in a warm house during the summer, but they should be kept under glass and syringed lightly on warm afternoons, and after blooming to be pruned slightly. They will last for several years if their requirements are well attended to, but a few young plants are always acceptable.—A. Y.

WASPS ATTACKING FRUIT.—I have no tomtits, and yet the wasps have nearly stripped my Pear trees, which bear very hard, round, green fruits. I have now tied long strips from old muslin curtains round the branches, and have made muslin bags for Pears on the standard trees, and so far have kept off the wasps, but I fear the covering will interfere with

the ripening. We have for many years protected out-of-door Peaches with thin muslin. It should be of a thinner kind than window curtains. We used to cut up old tarlatan ball dresses for the purpose.—F. R.

NEW PEAS.

ANYTHING that Mr. Muir writes, especially regarding Peas, must be read with great attention by all, and his opinion of Culverwell's Paragon and Giant Marrow coincides so well with what I wrote a few weeks back, that "Peas in 1883" was extra good reading to me. The fault that Mr. Muir finds with Day's Sunrise is one which will prevent this Pea from becoming a favourite with growers for market. I found the pods fill very slowly, and they had to be picked over several times, but it is a good cropping Pea. I quite agree in it being really cheaper in the long run to purchase new and good varieties when they first come out. For instance, I purchased a 3s. 6d. packet (a quarter pint) of Culverwell's Paragon. I sowed them very thinly, and the Peas grew 6 feet high and very branching, with a profusion of pods. A few only were picked for trial, and the other day I gathered the sere pods and shelled out the seed, which measured up three-quarters of a peck—a gratifying result. This Pea will probably be very little cheaper next year, when I shall be able to plant a good many rows and also part with a portion of my stock. Surely this is better than waiting until next year to purchase a packet at perhaps a shilling less cost than this year. The results from my sowing of Culverwell's Giant Marrow, although very satisfactory, are hardly so good as with Paragon, and I consider the latter one of the best and most prolific Peas grown, being satisfactory in size, appearance, and to the palate.

May I ask Mr. Muir whether the Canadian Pea is procurable in England, for I should much like to try it?

EARLY MARKET PEAS.—May I inquire from your readers what Pea they consider best to grow for an early field crop for market? What is required is a hardy very early Pea, of medium height, with fairly large pods, of good colour, well filled with peas of good table quality. If the pods fill all together so much the better. I have tried several kinds, but all have proved unsatisfactory in one way or other. Kentish Invicta, pods are too small; Early Champion, ditto; Ringleader, ditto, and in addition too long in podding; Sunrise, too long in filling, and then not many at the same time; William I. is rather tender with me. The kind called Sickleback hereabouts (otherwise White Scimitar) is the favourite with most of my neighbours, but although satisfactory in other respects the peas are small and of poor quality.—H. S. E., *Great Totham*.



TO-DAY (Thursday) an interesting sale of HYBRID SARRACENIAS will take place at Mr. Stevens' Rooms, Covent Garden. These are from the collection of O. O. Wrigley, Esq., of Bury, who has become famed for his success with these plants, both in a cultural point of view, and in raising distinct and beautiful hybrids. The entire stock was, it appears, purchased by Mr. G. Toll, and by him they are now about to be dispersed. They comprise the results of crosses between variolaris and purpurea, purpurea and flava, Drummondii alba and flava, variolaris and psittacina, flava picta and Stevensonii, and many others. The principal named hybrids are Swaniana, Atkinsoniana, Tolliana, Wilsoniana, Maddisoniana, and Mitchelliana.

— A CORRESPONDENT, "T. S.," asks, "What will prevent sheep GNAWING THE ROOTS in Ash, Oak, and some other trees in winter, also occasionally in summer? Since the hard winters of 1879, 1880, and 1881 every nauseous dressing that can be thought of has been tried without effect." We shall be glad if those of our readers who may have prevented animals breaking fruit or other trees will state what pigment they used successfully.

— "J. B. H." writes—"Would your correspondent 'A Scotsman,' who has so severely criticised the EDINBURGH GARDENS, kindly inform me how the fifteen lines of plants filled in the ribbon border style should be placed so as to produce the best contrast, and also the most pleasing harmony? Of course red or white cannot in every case be the first line. What should then occupy that place?"

— WE have received from Messrs. J. Laing & Co., Stanstead Park Nurseries, Forest Hill, a box of TUBEROUS BEGONIA flowers remarkable for their substance and diversified colours, but especially noteworthy as having been cut from plants growing in the open air after the cold night of Monday last. This would suggest that these plants are as hardy as

Dahlias, and such brilliant, chaste, and pure clusters as those before us must be an ornament to any garden in which they are grown. The adaptability of these Begonias for culture in the open air with a method of preparing and growing them successfully will be found in another column.

— "C. S. R.," Redhills, Cavan, writes, by way of answer to "Saxoring," page 259, concerning WASPS DEVOURING UNRIPE PEARS:—"I would say that when in Derbyshire in 1879 I was plagued in the same way. This year we have suffered similarly in Cavan, as the Plums and early Pears are gathered the wasps have taken up their abode on the late trees."

— IN the intermediate compartment of the new range at Kew an interesting and pretty plant is now flowering. It has been provisionally named BEGONIA PICTA, but there is a little uncertainty about it at present. One peculiarity is that there are two very distinct forms, one with light green rough heart-shaped leaves, the other with very much darker leaves of similar shape, but heavily blotched with a deep shade of green approaching black. The flowers on both are alike—a soft clear pink, the petals broad, and the outline neat. They are also dwarf and compact in habit.

— THE Cape house, which adjoins that above mentioned, now contains several pretty plants in flower, and amongst them very notable is COBURGHIA INCARNATA, which was well figured in Sweet's "Flower Garden" some years ago, and is not, therefore, a novelty, though rarely seen. It is similar in habit to other Coburghias with broad strap-shaped leaves, and bears heads of three or four flowers. The corolla tube is 6 inches long, narrowly funnel-shape, very bright scarlet, lighter at the base, and the outer surface of the lobes is blotched with dark green. Like others of the genus it succeeds well in a cool temperature and an ordinary compost of loam, sand, and leaf soil.

— WE receive many CURIOUSLY ADDRESSED LETTERS during the year, and often wonder how many of them reach their destination. The Post-office officials deserve credit for delivering letters addressed as follows:—"Lexton's Fillbasset Beis, High Holborn, W.C., F.G., Cuens Sessman, Cartress, London, England." Which being interpreted means Messrs. Carters, Queen's Seedsmen, High Holborn, London, and was sent, presumably, in answer to an advertisement of Laxton's Fillbasket Peas.

— "B." writes as follows in reference to EXHIBITS BEFORE THE FLORAL COMMITTEE OF THE ROYAL HORTICULTURAL SOCIETY.—"It is regrettable that some exhibitors of flowers take such little trouble to send or stage them in a suitable manner. It is by no means uncommon to see sprays of plants with no names attached, either carelessly placed on the tables half hidden by other exhibits, or in some obscure corner. Occasionally, too, exhibits brought by members of the Committee are shown at the table and removed when their duties are concluded; while some liberal exhibitors give any choice flowers away hours before the stated time of removing them, so that visitors who arrive late have no opportunity of seeing them."

— IT appears that HIGH PRICES FOR RARE ORCHIDS are still obtainable, for we are informed that recently at a sale at Mr. Stevens' Rooms, Covent Garden, a plant of a new Aerides, offered by Messrs. Sanders & Son, was purchased by Sir Trevor Lawrence, M.P., after a spirited competition at £246 15s. This is an extraordinary price, and appears to have attracted the attention of a daily contemporary, which compared the present demand for Orchids to the Tulip mania, and recommends speculators to turn their attention to the matter.

— M. E. ANDRE, in "Le Tour du Monde," writes as follows on GATHERING CAOUTCHOUC IN EQUATORIAL AMERICA.—"The tapping of the trees they had discovered was being actively carried on. The adventurers, clad in ragged pantaloons, the body naked, were behaving like demons under the supervision of their chief round the gigantic Figs (Ficus), whose bark they were tearing off by slashing it with their hatchets. The operation reminded me of the process of gathering resin in the Landes of Gascony. But here, instead of zinc cups to receive the resinous juice, the caucheros placed Heliconia leaves, on which the precious latex flowed white as milk. The liquid was collected and poured into calabashes (totumas), where it soon coagulated and formed caoutchouc, ready to be packed and exported."

— MR. G. HAWKINS, Ewenny Priory Gardens, Bridgend, sends us the following note on CUCUMBERS:—"I have grown Wheeler's

Empress of India since it came out, and many others alongside it including nine varieties, this summer. It is a model for a long Cucumber, and I cannot find any to excel it for exhibition work and flavour. The other two best for general use are Pettigrew's Cardiff Castle and Garraway's Clifton Perfection. Those three ought to be grown by everyone who has not tried them."

— PART 7 OF THE TRANSACTIONS OF THE ESSEX FIELD CLUB has been forwarded to us, and proves by its completeness how thoroughly this Society is doing its work. The Club was instituted four years ago, and has been so well conducted that it is now in a most flourishing condition with over 400 members, and additions are being continually made. It has become of more than local importance, and the members now include a large number of distinguished naturalists in many other districts. The Transactions are edited by Mr. W. Cole, the Honorary Secretary, and the part now referred to contains "The Ancient Fauna of Essex," by Dr. H. Woodward; "The Macro-Lepidoptera around Maldou," by G. H. Raynor, M.A.; "On Deneholes," by T. V. Holmes, F.G.S.; the Address of the ex-President, Raphael Meldola, F.R.A.S.; "Primæval Man in the Valley of the Lea," by W. G. Smith, and several other smaller papers on various interesting subjects. Some of the above are illustrated with woodcuts. Lists of the officers and members are also given, with the rules and objects of the Club. It is under the patronage of the Duke of Connaught, Ranger of Epping Forest, and the President is Professor G. S. Boulger, F.L.S.

— MESSRS. CASSELL & Co. send us copies of the following monthlies. Part 56 "Familiar Garden Flowers," containing coloured plates of *Geranimum sanguinum* and *Potentilla alpestris*, the latter with descriptive matter, also including references to the principal allied species. Part 79 of "Familiar Wild Flowers" gives plates of the Woodruff (*Asperula odorata*), and the Kidney Vetch (*Anthyllis vulneraria*), both well-known plants. Part 38 of "Paxton's Flower Garden" has fine plates of *Amaryllis blanda* and *Grammatophyllum speciosum*, together with illustrated gleanings and memoranda concerning several rare or interesting plants.

— WE have received the schedule of the LIVERPOOL CHRYSANTHEMUM AND FRUIT SHOW, which is announced to be held in St. George's Hall on November 27th and 28th. A grand collection of blooms may be confidently anticipated, and good fruit and winter-flowering plants are sure to be staged. The prize of the widest import is a silver cup, value 10 guineas, given by Messrs. J. Williams & Co., manure dealers, for eighteen cut blooms of Incurved, and eighteen of Japanese varieties of *Chrysanthemums* distinct, the competition open to all England. The cup is now on view at the silversmiths', Messrs. Thomas Blundell & Sons, Great George Street, Liverpool. The conditions are stated in the schedule, which may be had from the Secretary, Mr. Joseph Gore, 34, Ullett Road, Liverpool.

— WE are informed that at the INTERNATIONAL EXHIBITION to be held at NICE from the 1st of December, 1883, to 1st of June, 1884, the two following grand special prizes will be offered in the horticultural section. First, the medal of the Minister of Agriculture and a thousand francs for the exhibitor who has contributed most to the splendour of the Exhibition by a continuous display of plants, and, secondly, the medal of the City of Nice with five hundred francs for the exhibitor who has contributed to the success of the Exhibition by maintaining the best supply of cut flowers; and similar prizes are offered by the Principality of Monaco for the best collections of fruits and vegetables, and by the administration of the Exhibition for the best display of garden structures and accessories to horticulture. Owing to numerous applications for space the time for entries has been extended until the 20th of October.

— MESSRS. J. J. THOMAS & Co., 362, Edgware Road, have recently had on view some extremely beautiful ROSE TEMPLES AND ORNAMENTAL WIREWORK, intended for the Calcutta International Exhibition in December next, and they will undoubtedly constitute an important feature there, for we have never seen better samples of such work. Eight temples will be sent, six of these being of the ordinary type, which have been frequently shown at London and provincial exhibitions, but two are much larger and more elaborate in construction. One, designated a pavilion, is 21 feet high, the roof being dome-shaped, of handsome proportions, the open wirework being of a delicate mauve tint, the uprights and main framework

coloured chocolate and gold. The other is 18 feet high, with an octagonal centre and four elegant porches; this is coloured in two shades of green, light and dark. The most remarkable piece of work is, however, a magnificent aviary for small birds, which is valued at 100 guineas, and is probably the finest example of the kind ever produced. It is 6 or 7 feet high, somewhat in the style of an oriental palace with three domes, the centre one circular and the others long, and the whole of it is constructed of polished brass. In addition to these a variety of flower stands, bird cages, mosquito helmets, and numerous other useful or ornamental articles will be sent to represent the general work of the firm.

— GARDENING APPOINTMENT.—Mr. George Miles, foreman to Mr. W. J. Clarke, Spring Grove, Bewdley, has been engaged as gardener to W. H. Anderson, Esq., The Firs, Kidderminster.

— PART 6 OF HARDY PERENNIALS AND OLD-FASHIONED FLOWERS (170, Strand) gives a continuation of descriptive and cultural particulars of various plants of more or less interest, from *Ourisia coccinea* to *Saxifraga ccratophylla*, several illustrations accompanying the letter-press, some being fairly good, and others, as of *Phlox frondosa*, being very indifferent. Capital initial letters are still employed for the specific names in the cross-headings, but in the body small letters are mostly used, even where by established custom capitals are the rule. The latter, however, are employed for the names of places, such as *Primula Carniolica*, *P. Tirolensis*, where small letters are now used, and in two places "*Primula Cashmirianum*" occurs.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

"A COUNTRY GARDENER'S" letter on page 277 says what I desired to say, but did not, and he says that very much better and clearer than I could hope to do. I can quite understand that the tone of my letter would sound so greedy and selfish to the Secretary of the Gardeners' Royal Benevolent Institution that he would consider it a waste of time to argue the matter with so grasping a person. It was very far from my feelings was this avariciousness of spirit. What I desired to know is just what "Country Gardener" very fairly and clearly asks, and that is, What guarantee has a subscriber of ten guineas or a subscriber for ten years, that he will be elected when his life trials come upon him? If it depends, as it appears to do now, on the accident of his possessing sufficient patronage to recommend him for a pension, that does not appear to be a very desirable or encouraging state of things, and certainly one not full of stimulation to anyone to contribute. This is what we country gardeners desire to know before we can be expected to either give special donations or subscribe to the Institution either annually or with a life membership.—P.

I WAS very pleased to observe in the Journal of last week (page 277), that "Country Gardener" has called attention to this Institution. I have been looking for an answer to the first letter on page 175, and I trust now there is a second that the Secretary will answer both fully. I entirely agree with your correspondent that a benefit society is really necessary for gardeners. I for one would be pleased to join it. I, like your correspondent, would contribute to the "Royal" if I knew the benefits to be received by doing so. I trust some of our leading men will take the question up, and not let it drop until something is settled.—ANOTHER COUNTRY GARDENER, *Hants*.

BROAD BEANS.

THESE are favourites with many, and they are easily grown and useful. The varieties are now very numerous, but really good ones are not plentiful. The best of all is the Aquadulce. The first season I had this variety, now some years ago, the pods were long and handsome, but it was not so prolific as could be desired; but by selecting seed year after year I have now a strain which is wonderfully prolific. This year these commenced podding when 9 inches high, and some of them which were stopped when 18 inches high matured eight, ten, and twelve pods from 9 to 15 inches in length. The lower pods were resting on the ground, and they were much admired. I have seen nothing in the way of Broad Beans to equal the crop, and shall take care to perpetuate the stock. Some of the pods were 16 inches in length, and the average length was a foot.

Biddle's Monstrous Longpod was spoken highly of, but with us the pods though numerous were too short, the longest not exceeding 6 inches; and considering its recommendation I was disappointed with it. Nettle-ship's Prize Bean, which I had from a seedsman in the west of Scotland as being the most extraordinary variety ever seen, failed altogether to equal what was said of it. It is short-podded, and has been placed far down our list.

Seville Longpod would be found very much superior to the majority of Broad Beans we find specially recommended. Leviathan is a fine one to produce long pods, but it lacks in prolificness. The Windsors, although having a pedigree, are far behind several sorts. Mackie's Monarch Long-

pod is an impressive name and a fertile Bean, but it is very short as Beans grow now-a-days.—A KITCHEN GARDENER.

GRAPES AT CLOVENFORDS.

MUCH has been written respecting the Grapes grown at this noted establishment, so when northwards I availed myself of the privilege freely accorded me by Mr. Thomson to visit and note for myself what is being done. Briefly, then, will I describe as fairly as I can the condition of the varieties.

LADY DOWNE'S.—This valuable Grape, which is highly esteemed by Mr. Thomson, was first examined. The crop looks noble. Fancy span houses 200 feet long, proportionately wide, and very high pitched, the roofs covered as regularly as can be imagined with bunches of Grapes. The Vines are 9 feet apart, each carrying three rods, and there are twenty or more bunches of a good size for keeping on each rod. To my mind medium bunches of 1½ lb. or 1¼ lb. are prettier than the larger ones. The Grapes were colouring well. I did not observe many laterals with two bunches, but where those were present I could see but little difference in quality or size of bunch or berries. Really this Grape when thus excellently grown has a very superior appearance. I particularly noted that the majority of large bunches were grown on young rods run up last year. Some bunches would turn the scale at 4 lbs. and had no shoulders. Again, some bunches were so broad across the top as to resemble Alicantes. Mr. Thomson assured me that he intended bottling about 1000 bunches. The laterals were strong and not at all close, and the foliage was good. Houses of this variety presented a sight not soon to be forgotten. Attention is required when the bunches are in flower to get them to set evenly. There is little scalding, as might be expected in such lofty well-ventilated houses. Doubtless plenty of fire heat has somewhat to do with the success attained, there being, I believe, six rows of 4-inch pipes on each side of the houses. There are three houses of this Grape, and the crops represent something considerable, especially when it is remembered they are not used until the other var. Grapes are cut. This Grape will keep well on Vine until March.

BLACK ALICANTE.—So good are the crops of this Grape I really fail to see why rods were cut out to make way for the preceding. The bunches are noble, some I think weighing 6 lbs., and all of good colour, though the berries might have been larger by a little more thinning. The bunches being large were of course less numerous than those of Lady Downe's, yet I feel sure some of the Alicante rods carried nearly double weight of the other. Alicante is of little use for keeping after Christmas, the fruit being so watery, though good cultivation improves them in the latter respect. I left these (being rather interested in this variety) with a very favourable opinion of it. This a very hardy Grape, and sets very freely—too freely for some persons.

MUSCAT OF ALEXANDRIA.—Of this I consider the crop too heavy to finish well; the rods, being only 3 feet apart, have not sufficient space for the fruit to ripen and colour early. These, though grown extensively, do not pay for growing in proportion to Alicante. Some fine pieces were hanging with good berries, still they gave me the idea of not being quite happy. This, however, only confirms the opinion of good Muscat growers that this Grape requires very special treatment to grow it well. Then the question arises, Will this special treatment pay for market purposes?

DUKE OF BUCCLEUCH.—I had seen this Grape exhibited at the Edinburgh Show the day previous in grand form, and expected to see it growing extensively at home, but I was too late, as the bulk of the crop was cut. However, sufficient was left to exhibit the high character of this noble Grape. Tasting is always considered a test for quality, and I had the pleasure of tasting in liberal quantity, and very superb the quality was. The berries are so large that one is a mouthful, and the skin thin. This Grape must command attention, and whoever has it once will certainly want it again. No doubt it is a great success here, and there is no spot which occurs in some places. This is a very early variety, and I do not suppose will keep long with any certainty.

GROS COLMAN.—This is the Grape at Clovenfords, and of itself worth a journey of 400 miles to see. The two spans, 200 feet long, were a picture. I do not wish unduly to flatter Mr. Thomson respecting this the grandest of all market Grapes, but must say the crop is very encouraging to a small grower like myself. Invariably the bunches were without shoulders. The reason is not far to seek. First, for keeping we know such bunches are far the best, but the most important point is the ripening, a bunch without shoulder being comparatively easy to finish, and when finished can be packed safely and securely. The owner of these grand Grapes speaks with experience when he says the Gros Colman takes two months longer to finish than Alicante. Plenty of fire is required for this. I did not expect find this quite so late, still there is no doubt about it being

right, as my experience tells me it will colour and finish very late in October. In lean-to houses this variety was ready for cutting, but then the crop was lighter than in the span houses. I should not advise the planting of Gros Colman extensively in lean-to or in mixed houses. I brought home sample berries measuring fully 4 inches in circumference. The flavour I know is faulty, still the noble appearance will always command special attention. The Vines were planted 8 feet apart, but the rods were about 3 only asunder; foliage good, but presenting the usual characteristic of this kind—namely, curled edges, slightly coloured, with the usual touch of red spider. This, though slight, requires attention, and Mr. Thomson thinks sulphur on the pipes helps to keep it in check. No other Vines take this pest so freely, so growers should be on guard. I took particular note of the general crop all through, and observed that no matter how light the crop, which of course colours quickest, the bunches do not come any larger. I have left, say, from six to ten bunches on one rod and twice that number on the next, yet there was no great difference in size of bunches; the berries are, however, the largest on the light-cropped rod. I do not think it wise, therefore, for cultivators generally to attempt very heavy cropping, as a rod bearing from, say, 18 lbs. to 20 lbs. will give more satisfaction than a crop will of twice that weight. I came away with the impression that Gros Colman with three or more rods is better than when limited to a single cane. I note, however, that Mr. Thomson is averse to a very rapid extension for this variety. Astonishing growths of young cut-backs of Gros Colman planted in other houses will doubtless create a sensation some time.

GROS MAROC.—I saw one Vine of this Grape well cropped, berries very good, and covered with fine bloom. I believe Mr. Thomson is only waiting to test its keeping qualities before deciding on the merits of this variety for market. I may have something to say respecting it later on.

I make no attempt at fully describing all that is to be seen at this large establishment. The Orchid growers, however, would have a treat, for these plants are grown very largely. I have purposely avoided the manure question, but ere I finish let me give a word of praise to the Vine manure as made by Mr. Thomson. It is a Vine manure, yet so harmless and withal beneficial that every Orchid, Fern, or plant for which it is employed can be detected. Naturally Mr. Thomson is proud of this, and the conclusion I came to after examining the borders, both inside and out, was that the soil itself is but a poor sample of stiff hungry loam, such as is soon worn out. All the houses were as clean and orderly as in a nobleman's garden, which is not always the case in commercial establishments. My thanks are due to both Mr. W. Thomson and his son for their very hospitable treatment of a stranger, and I trust this first visit may be the beginning of a series of future enjoyable visits.—STEPHEN CASTLE, *West Lynn*.

TEA ROSES IN WINTER.

CHARMING unfolding buds of these Roses are always welcome, and appear to be especially valued in the late autumn and early winter months. In the spring they can easily be had by forcing by all who have the necessary means for producing them. During the closing months of the year flowers can be had with little forcing, provided healthy plants are established in pots. Such plants that have been outside for some time past will have their wood thoroughly ripe, while others have broken back, producing new growth which will in a few weeks yield abundance of useful buds. These, if housed in a light position where the night temperature can range from 50° to 55°, with a rise of 10° during the day, and the house closed early while the sun is upon it, will give some very useful flowers after those in the outside borders are past. Those that have not commenced growth should have the thin weak wood removed and the stronger shoots partially shortened before they are started. Those that have already started can, if too early, have the buds removed at once, and they will quickly make short growths and produce buds in quantity. With strong plants, and these given careful and judicious treatment, the supply of useful buds need not fail between now and Christmas.

If any of the plants are much rootbound they may with safety be transferred into a little larger pots. Others should be well top-dressed or given a little Standen's or Crown manure, which acts quickly and beneficially upon Roses whether in pots or planted out. Young plants in 6-inch pots that were rooted from cuttings last spring should be removed from the cold house in which they have been growing, and placed in the same genial temperature above mentioned, and they will well repay the care that has been devoted to them. Be careful that red spider does not exist upon the plants when removed indoors; but the moment it is seen wash them thoroughly with soft soap, in which has been mixed a little sulphur.—CULTIVATOR.

ANCIENT BRIDAL WREATHS.—It appears that the Roman bridal wreath was of Verbena, plucked by the bride herself. Holly wreaths were sent as tokens of congratulations, and wreaths of Parsley and Rue

were given under a belief that they were effectual preservatives against evil spirits. The Hawthorn was the flower which formed the wreath of Athenian brides. At the present day, in our own country, the bridal wreath is almost entirely composed of Orange blossoms on a background of Maidenhair Fern, a sprig here and there of *Stephanotis* blending its exquisite fragrance. Much uncertainty exists as to why this blossom has been so much worn by brides, but the general opinion seems to be that it was adopted as an emblem of fruitfulness. According to a correspondent of *Notes and Queries* the practice has been derived from the Saracens, amongst whom the Orange blossom was regarded as a symbol of a prosperous marriage—a circumstance which is partly to be accounted for by the fact that in the East the Orange tree bears ripe fruit and blossom at the same time. It has also been suggested that this flower was introduced into our wedding customs by French milliners, having been selected for its beauty rather than for any symbolical reason.—**THISTLETON DYER** (in *Cassell's Family Magazine*).

THE ESSEX FIELD CLUB.

FOURTH ANNUAL CRYPTOGAMIC MEETING, SEPTEMBER 29TH.

ENTHUSIASM of more than ordinary strength seems to be one of the especial characteristics of the members of the above fast-growing and admirable Club, as, though the afternoon fixed for the annual Fungus foray in Epping Forest proved as unfavourable as possible, yet the gathering at the rendezvous, High Beach church, was very large. They commenced their explorations undeterred by the heavy rains, which soon rendered the Forest more suitable for amphibious animals than human beings, and a stranger unfamiliar with the objects of the Club and the self-denying spirit produced by a devoted study of botany, might have been reasonably surprised at seeing such a party assemble. Macintoshes, leggings, ulsters, cloaks, and various other protective articles were in strong force; baskets, bags, and satchels of all shapes and sizes being similarly numerous to contain the spoil that was so eagerly sought. Fungologists of world-wide fame were there duly armed, and soon plunged into the moist fastness of the Forest, undismayed by possible rheumatism or influenza. Ladies, too, delicate and fair, most bravely faced the dangers and discomforts, imparting the sunshine of their presence to the expedition, and served in no mean degree to lighten the gloom, especially as regarded the younger and more susceptible gentlemen members of the party. Fully equipped they commenced their explorations shortly after half-past three, and for a period of two hours and a half, during the greater portion of which time rain was descending in torrents, the recesses, nooks, and glades were diligently searched for choice, rare, and peculiar Fungi. The leading members proved very successful, Drs. Cooke and Wharton conveying to the head-quarters, "The Roebuck," at Buckhurst Hill, a good representative collection of the principal species found in the district. Others also contributed, and considerable space was covered with the interesting but unsavoury exhibits.

Nearly one hundred members and friends assembled at the Roebuck, and after a substantial tea had been partaken of, with the keen relish which only hungry naturalists experience, they adjourned to the exhibition room to discuss the finds of the day and the numerous miscellaneous contributions. The room is a large one, and four tables extending nearly the whole length were devoted to botanical and other specimens of considerable interest. One of the principal exhibitors was the President of the Society, Professor Boulger, who showed some complete collections of Essex Cryptogams, including *Jungermanniaceæ*, and Fresh-water Algæ, in addition to about twenty species of British Orchids, representatives of the family *Rhizocarpaceæ*, including *Marsilea*, *Azolla* and *Salvinia*, and a collection of British Ferns, all well preserved and carefully named. Another very remarkable exhibit was a collection of Epping Forest Fungi from Mr. J. English, prepared and preserved in the excellent method described in his little manual upon the subject. By this process the form, colour, and characteristics of the species are admirably preserved, and, being mounted upon small square blocks of wood, they have a life-like appearance that is very striking. Some recently collected living Fungi were also shown, and a species (*Polyporus umbellatus*) previously unknown in Great Britain, but found by Mr. English in Epping Forest, July 19th of the present year, attracted much attention. It is of very distinct appearance, a number of small brown or blackish cups being borne on small whitish stipes arising from a common stem. Mosses were also shown by the same exhibitor. G. P. Hope, E-q., Havering Chase, sent a complete collection of Essex Algæ; Mr. H. Bennett, eleven cases of British Characeæ; an album of British Ferns beautifully mounted by Miss Marion S. Ridley; Epping Forest Mosses from Mr. E. Forster, and eighteen cases of British flowering plants from the Club museum, prepared in Mr. English's method. A grand collection of Lepidoptera, in fifty-seven glass cases, was also shown by Messrs. W. B. G. & H. A. Cole, representing a large number of British and foreign species, some extremely rare, and all in a fine state of preservation. Plans and sections of the Loughton Camp, very cleverly executed by Mr. D. Cole, occupied one end of the room, together with cases of pottery, flint flakes, flint axe, and other curiosities found during the excavations at that camp. Several members also kindly brought microscopes, with specimens of Cryptogams prepared to show the peculiarities of their structure. Upon the walls were hung a series of diagrams and drawings illustrating the fructification of Cryptogamic plants. These were remarkably good, being distinguished by the clearness of definition distinguishing Mr. David Houston's work.

Dr. R. Hogg sent specimens of the so-called Ginger-beer Plant, which somewhat resembles large irregular grains of boiled sago. They were shown to several of the leading botanists and fungologists present, but very little appears to be known about it. Dr. Cooke states that he has frequently examined specimens sent him to be named, but he could only determine it to be a cellular vegetable body similar to some other low forms of Fungi such as the Yeast and Vinegar Plants, but apparently distinct from them. He regards it as an immature form of some species which, when placed in the sugar-and-water mixture usually employed in the manufacture of the "ginger-beer," is under unnatural conditions, and cannot develop its normal characters. The best plan, he considers, would be to endeavour to grow it comparatively dry, as then probably it would assume its proper form. Mr. W. G. Smith stated that the Fungus was well known in several districts, and that it is occasionally sold in small bottles as a curiosity, but from a cursory examination he had given it he concluded it was a form of Yeast. Mr. Jackson, Curator of the Museums at Kew, has had samples submitted to him, and is now trying it under various conditions. Dr. Silvester is also investigating its characters, and has found, as other experimenters also have, that ground ginger seems beneficial to the growth of the Fungus, which then decomposes the sugar more rapidly.

An ordinary meeting of the Club (Professor Boulger presiding) was held when the visitors had inspected the exhibits, and several new members were proposed and elected, and after some other official business had been disposed of, Dr. M. C. Cooke gave a few remarks upon "Recent Additions to the Fungus Flora of Epping Forest." He stated that since the last issued by the Club had been compiled over forty species new to the district had been observed, and several were also new to Britain. He especially referred to the *Polyporus umbellatus*, shown by Mr. English, which had been found in various parts of Europe, but not previously in England. Several others found by Mr. W. G. Smith and Dr. Cooke were also noted. Some Fresh-water Algæ were also mentioned, several of which had been discovered by the lecturer during recent researches amongst those minute plants. Mr. W. G. Smith followed with an interesting paper upon "The Lower Orders of Fungi," which will be published next week in these pages. Dr. H. T. Wharton read an elaborate paper upon "Fungi as Poisons," which was listened to with great attention. He stated that no hard-and-fast line can be drawn to distinguish eatable from poisonous Fungi, and the only method is, as with flowering plants, to obtain an accurate knowledge of the species themselves. The principal are readily recognised, and with close observation no difficulty will be experienced in detecting the noxious members of the family. He briefly enumerated the most remarkable of the injurious forms, but observed that there is much difference of opinion respecting the innocent or poisonous Fungi, some being described under the one head and some under the other even by eminent fungologists, and he advised all to abstain from testing species respecting which there is the slightest doubt. Even ordinary Mushrooms in moderate quantities affect some persons injuriously, and one man he knew always had a number of strange symptoms after partaking of a very small portion. He thought much depended upon the constitution of the individual, and also upon the state of their health at the time of eating the Fungus. Careful and thorough cooking is most essential, employing salt and pepper liberally, and possibly by this means some slightly poisonous species might be rendered safely eatable. In cases of poisoning by Fungi death may occur from a few hours to several days, but prompt remedies are important; an emetic administered immediately, followed by a strong dose of castor oil, is the safest antidote that could be recommended.

Mr. R. Meldola, Ex-President of the Club, and the delegate at the meeting of the British Association at Southport, read a report respecting the regulations of this Association concerning the appointment of delegates of local naturalists' societies and field clubs throughout the kingdom, by which it appeared that the privilege would be restricted to those of sufficient social status, and which publish their transactions in a printed form. Mr. W. Cole read portions of a lengthy report of the Committee appointed to investigate the pre-Roman camp at Loughton, and explained the diagrams and plants previously alluded to, but the complete report will be published in the "Transactions" of the Club.

Shortly after 9 P.M. the meeting was brought to a close, and the members and visitors dispersed damp, but not depressed, unanimously wishing that the next gathering may be more favoured by the weather.

MR. JOHN HOLLINGWORTH.

I AM sure that there are no lovers of the Rose who have ever come in contact with this veteran amateur but will rejoice to hear of his recovery from a long and painful illness, that at one time made his recovery very uncertain. He is the "doyen" of amateur Rose-growers. Of the exhibitors of the days when Mr. Hedge and a few others were the small phalanx he only remains. Ever ready to encourage the culture of his favourite flower, he still retains his ardent love for it, and rejoices to see the numerous competitors who now enter the list, and whom he is ever ready to cheer on in his hearty way, even though at the expense of his own success. In a visit I paid the other day to Maidstone (of which I hope to say something in an early issue of the Journal), I had the pleasure of seeing him. For nearly three months he had been laid by with rheumatic gout, and was two months in bed; but even then he had his beauties brought up for him to inspect, and rejoiced to hear of all that was going on in the Rose world. On leaving him he desired me

to give his kindly greeting to all rosarians. "Tell them," he said, in his cheery way,

"If bullets and the gout
But put the commodore about,

that I hope to meet them again next year." But it is not rosarians alone who will rejoice in his recovery. None know how kind and benevolent he and his good brother are (in Maidstone they are known as the Cheryble Brothers), and many will rejoice to think that, although the hand is still crippled, it is as open as ever, and that neither age nor illness has chilled his warm heart.—D., Deal.

ROOF CLIMBERS.

FUCHSIA PENDULÆFLORA.

MANY species and varieties of Fuchsia are admirably adapted for training to the roofs of conservatories, and the one represented in fig. 56 is especially good for that purpose. Its deep crimson-scarlet flowers are produced in loose pendulous clusters, and these are so numerous and



56.—FUCHSIA PENDULÆFLORA.

continually produced that the plant is beautiful during a greater portion of the summer months. The length of the corolla tube gives a very distinctive character to the flowers, and this Fuchsia is, considering all its characters, exceedingly attractive and useful. It requires no special treatment except that it seems to succeed in a higher temperature than most other species or varieties. Good substantial loam with a little well-decomposed manure, leaf soil, and sand suit it, and pruning will be needed occasionally to remove the weak and unripened wood.

Fuchsia pendulæflora is a native of South America in common with the majority of its allies, and was introduced in 1879. *F. corymbiflora* is related to it, but has smaller flowers, and several other species with long tubular flowers, such as *F. serratifolia*, are handsome plants for the roofs of houses.

LILIUM AURATUM.—Allow me to call the attention of your readers to the successful manner in which I have this year grown a plant of *Lilium auratum* from a bulb procured from Messrs. J. Carter & Co. of High

Holborn, London. I planted it in an 8-inch pot in turfy loam, with one-fourth of drift sand, covering the bulb an inch deep. Up to 15 inches high the stem is round, then it commences to flatten, and at 4 feet is 1½ inch in diameter, with dense foliage; it then divides into three parts, 4 inches higher, and bears a monster truss of thirty-two handsome spotted flowers. I have it in a window adjoining the street, where numbers of passers-by stop to admire it, some thinking it artificial. I have taken five first prizes with it. The bulb cost me 2s. 6d., and it is my intention to purchase half a dozen more with the object of endeavouring to grow them still more successfully.—T. MERRICKS, Stafford.

[Our correspondent has been successful, but the stem of his Lily is fasciated, and he must not expect that all others he may purchase would be of a similar character.]

THE PHYLLOXERA.

"A VINE-GROWER" asks, on page 268, if I will say how and from whence I got the phylloxera at first. In reply, I beg to say that having

had a Vine in a pot of the Strawberry Grape from a private garden some four or five years prior to discovering the insect in our new vineries in 1879, and having traced the progress of the disease during the interval from the house in which that Vine was planted, I therefore may reasonably assume that this was how we got the phylloxera at first. But failing to see in what way my naming the place whence I obtained the supposed infected Vine could possibly assist in furthering the object in view—viz., the extirpation of the destructive pest, I would, for this reason, prefer to be silent on that point.

The idea has just occurred to me, in connection with the stamping-out the phylloxera, of the advisability of appointing as an "Inspector of Vine nurseries," a man practically acquainted with the dreaded insect in its various stages of development, and whose duty it should be to visit all the nurseries in which Vines are grown for sale from about the middle to the end of August, for the purpose of examining the young Vines before being dispatched to various parts of the country, and without his "certificate of health" no firm be allowed to part with a Grape Vine; also, in the event of detecting phylloxera on the Vines in any of the nurseries so visited, he should order and witness the destruction of the whole stock in hand. If this were done, and I see no reason why it should not be, phylloxera in this country would soon become a thing

of the past. Nurserymen and gardeners would alike willingly contribute to a fund for defraying the expenses attending an annual inspection of Vine nurseries. This would not be very great, for if necessary district inspectors might be appointed.

Meantime, I would counsel those who may be contemplating the erection and planting of new vineries to plant in April or May, using Vines struck that spring, and which, previous to being planted, should be inspected by some gardener having experience of the phylloxera. In conclusion, I may be allowed to suggest what, in the first place at any rate, I consider the right plan for any gardener who may happen to have planted a new vinery with Vines obtained from the trade and infected with phylloxera to communicate with the vendors, and get an assurance from them that they will, at any cost, stamp it out, and that would be all that could and should be required of them.—H. W. WARD.

THE HERBACEOUS BORDER IN THE AUTUMN.

YOUR able correspondents, Messrs. G. Abbey, T. Entwistle, and others have been giving very interesting and seasonable articles on some of the best varieties of hardy plants in cultivation, but I will just briefly notice some of those which are most conspicuous in the borders here. For brilliant effect few, if any, equal *Gaillardia grandiflora*, the flowers of which are nearly 3 inches in diameter, and of a bright orange-yellow colour with dark crimson centre. They are produced in great abundance. *Scabiosa caucasica* is a lovely gem of more than ordinary merit; the flowers are large, fully 3 inches in diameter, and of a delicate shade of lilac-blue. *Rudbeckia Newmannii*, a very showy plant; flowers bright golden yellow with a dark centre. *Coreopsis lanceolata* is one of the very best hardy perennials, and is a most profuse bloomer, the flower heads being bright golden yellow. *Achillea Ptarmica* fl.-pl. and *A. serrata* fl.-pl. should have a place in every collection, supplying as they do for nearly two months an almost unlimited quantity of pure white flowers. Too much cannot be said in praise of the useful *Matricaria inodora* fl.-pl., which is now a mass of lovely white flowers. I find the best way to grow this plant is to insert cuttings every autumn, which make large plants about 2 feet through by the autumn of the following year. *Chrysanthemum maximum* is a stately bush fully 2 feet in height, producing an abundance of large white Marguerite-like flowers. *Pyrethrum uliginosum* is a grand back-row plant; flowers large, pure white; very useful. *Bupthalmium salicifolium*, a very free-flowering plant, producing an abundance of orange-yellow flowers. *Anemone japonica* and *A. japonica alba* should be grown in quantity. The singular flowers of *Echinops Ritro* are very interesting, presenting when in full bloom a perfect ball of lilac blue. A beautiful perennial is *Francoa ramosa*, but it is scarcely hardy in this locality, requiring protection throughout the winter, which it well deserves. Its long graceful spikes of pure white flowers are produced in great abundance for nearly two months; it is one of the most beautiful autumnal flowers in cultivation. *Lythrum Salicaria roseum* is resplendent just now with long spikes of lovely rose-coloured flowers.

Perennial Phloxes, Pentstemons, border Carnations, and others are making a grand display just now, while many of the spring and early summer-flowering plants, as if desirous to add a parting tribute to the waning year, are again flowering very freely. Some of the most prolific are *Ranunculus acris* fl.-pl., *Delphiniums* of sorts, *Campanula turbinata* on the rockwork flowering very freely, and *Polyanthuses*. Some plants of *Spiræa japonica* that were forced in the spring and afterwards planted out have on an average six spikes on each, and are very useful. Every attention should be paid to have the borders clean, and all plants that require it should be tied up to stout stakes, as the heavy winds and rains of autumn play sad havoc among the plants if they be neglected.—WM. MARSHALL.

LIFTING AND TRANSPLANTING FRUIT TREES.

THE time for carrying out this operation having arrived, a few remarks respecting the best method of procedure may be acceptable. The success of a fruit tree depends in a great measure upon its having had a good start. The first step to be taken in forming a handsome and fruitful tree without making a new and expensive border, is to determine the distance the trees shall be planted from each other against the wall. For Peaches, Apricots, Plums, and Cherries this should be about 15 feet, and for Pears 20 feet. Then having marked $3\frac{1}{2}$ feet on each side the position chalked on the wall for the trees, and 5 feet therefrom and in a regular curve from point to point, excavate the soil (assuming it to be unsuitable to the growth of the trees) to the depth of 3 feet, and for drainage provide a layer 9 inches thick of brickbats, elinkers, or stones, filling in the ehinks with a barrowful of gravel, and over that place a layer of turf. The soil, consisting of three parts good loam and one of old lime rubble and horse droppings mixed well together, should then be placed in the holes in readiness for the trees. This done, and assuming that wherever space between the permanent trees on the walls admitted of a few young trees from the nursery being planted annually to develop for a year or two—viz., until the extending branches of the permanent trees

render their removal necessary, we shall at once proceed with lifting and transplanting.

The trees should be taken up about the end of September or the beginning of October, to allow time for fresh roots to penetrate the new soil during the interval of planting and the trees shedding their leaves. They should be lifted with as much soil adhering to the roots as possible, so that the tree may experience little check. A trench should be opened around the tree about 3 feet from the stem, keeping a more or less distance from the latter, according to the size of the tree to be lifted, and deep enough to admit of the soil being worked away from underneath the tree with a five-tine fork without injury to the roots. When the ball of earth has been reduced sufficiently to allow of two or three men lifting the tree, place it on a mat, securing it round the ball of earth, and with a hand-barrow carry it to the station made ready for its reception.

In planting, sufficient soil should be used to allow of the tree being in its proper position as regards height from the surface after the soil had subsided 6 or 9 inches. The soil should be worked with the hand among the roots, the latter being spread out in a horizontal and slightly downward direction, and should have the points of any damaged or over-luxuriant shoots cut away. When the tree has been half planted, take hold of the stem with both hands, and give it a few gentle shakes in an upward direction to make sure of there not being any space left between the roots and the soil, then complete the planting, treading the soil, which should be moderately dry, well together. Secure the principal shoots loosely to the wall with nails and shreds to prevent their swaying, and then lay on 3 inches thick of short dung as a surface mulching. Trees thus planted, providing the after treatment and other circumstances be congenial to their requirements, cannot fail to give a good account of themselves in due time.—H. W. WARD.

A VEGETABLE KINGDOM EXHIBITION.

PERMIT me to adopt my own heading in referring to what is termed "the Proposed International Exhibition of Vegetable Products." That is not sufficiently concise for me, as it will not be for the public, however properly it may express the nature of the wonderful gathering that has been proposed to be held at South Kensington in 1885. Such an exhibition, fully representative of the industries that arise from the cultivation of plants in all parts of the world, would completely eclipse in magnitude and variety the present extraordinary display pertaining to matters in connection with the sea.

No doubt the "horticultural resources of the country are sufficient to fill all the space occupied by the present Fisheries Exhibition." But a very important question arises—namely, Would the whole, or half, or even a tenth part, be represented there? It is generally conceded that the great display of 1866 was the largest that has ever been seen, and many persons competent to judge are of opinion that a finer would not be produced now whatever inducements were offered. Yet the exhibits referred to would not occupy one-fourth the space that is now provided by the substantial erections in the Horticultural Gardens. And then that Show was only for a limited time, and it is a practical impossibility that by no amount of removing and "replacing" could its high character be maintained throughout the season. If Mr. Wills were master of all the gardens in the land there is no doubt the buildings would be filled to overflowing; but we must recognise the fact that owners of gardens are in the habit of refusing to empty them for the purpose of making a great public display. Very fine exhibitions of plants and flowers can no doubt be held periodically; but as to maintaining an unbroken exhibition of the magnitude contemplated, it is a question if it can be done satisfactorily.

To commence with, let us consider the resources for producing a spring show. The measure of such a show may be taken from what has been done in the past. Even if the spring shows of the Royal Horticultural and the Royal Botanic Societies could be joined together they would not occupy half the space of the entrance gallery alone. But these shows cannot be joined, for the simple reason that the bulk of the exhibits at one are removed and occupy by far the greater portion of the space at the other. But then it may be said the Dutch cultivators would bring Hyacinths, Tulips, and all kinds of bulbous plants which they grow so largely. They might bring some, but judging from their exhibits at the great shows which have been held in Belgium, they would not add materially to the magnitude of the Exhibition, however interesting their contributions might be. If they could bring their bulb farms there would be something to rely on; but the fact must be admitted that their exhibits of plants in pots would not half equal in magnitude, while they would be inferior in quality, to the best of our home productions. A great show could be provided unquestionably, and with permanent vegetable products and cultural and manufacturing appliances by this and other countries, there would be sufficient to attract the million. But to rely only on plants at one time, then "remove them and fill the space with implements and sundries" at another, would not meet the expectations of the public, and hence would end in disappointment.

To ensure success there must be a great permanent exhibition of vege-

table products and cultural appliances permanently arranged. Then periodical, national, or international displays of plants, flowers, and fruit on the largest possible scale, and these would induce the million to "repeat their visits" much more frequently and satisfyingly than by a mere interchange of plants and implements as suggested on page 266. The permanent exhibits must be on such a scale and of such a character as in themselves would attract world-wide attention, and the field is amply large enough to ensure this. The flower shows, like the musical *fêtes* of the present year, to be grand special attractions at intervals during the season.

The National Auricula Show might form the centre of a grand display in April. A magnificent exhibition of Azaleas, Rhododendrons, and Roses in pots could be provided in early May; then a gigantic miscellaneous exhibition might be opened on the 1st of June, with an international jury of adjudicators. The National Pelargonium and National Rose Shows would follow in July; in August the National Carnation with a second miscellaneous plant and early fruit show on an extensive scale would command attention, as would the succeeding National Dahlia and General Cut Flower Show in September. A National Potato and Root Show would be a success in October. Then the campaign might be brilliantly closed with a National Chrysanthemum and Hardy Fruit Show in November. In this way horticulture would be more fully represented than by any other means, and an ever new and ever widening panorama of attractiveness would be unfolded.

But can even all this be done? It would not be effected by a stroke of the pen. The Committees of these Shows would have to be satisfied, and the Crystal Palace and the Royal Botanic Society to be reckoned with; yet all this would be easier than maintaining one unbroken exhibition on a sufficiently imposing scale as to command public attention. There must be a series of distinct shows each to form a new element of interest, and the inhabitants of the metropolis would attend again and again.

As to the "proceeds for founding a horticultural college," &c., that subject is scarcely ripe for discussion; and to enter seriously on it now would savour somewhat of "counting chickens before they are hatched." Of more immediate importance is it to summon a preliminary committee of horticulturists and ascertain the views of the members: it is just possible that all these individuals may not be endowed with the same sanguine temperament as your correspondent of last week. Yet the time proposed is opportune and the means greater than ever they were before, and perhaps than will ever be afforded again, for providing an exhibition of vegetable products representing horticulture, forestry, agriculture and the cognate industries on such a scale as has never been attempted, and which adequately carried out could scarcely fail to prove a grand success.—EX-EXHIBITOR.

BORDER PLANTS IN IRELAND.

SEVERAL of these very useful and essential flowers have been mentioned lately by contributors to this Journal, but there are many others worth notice. One particularly deserving attention is *Patrina scabiosæfolia*, which bears effective bright yellow flowers about as large as a pennypiece on stems about 3 feet high. Another good yellow flower is *Helianthus multiflorus flore-pleno*, which is most useful in shrubberies and for cutting from. It lasts a long time in vases. *Coreopsis præcox* and *C. auriculata* are especially bright in large tufts, and can be seen a long distance, producing an abundance of flowers throughout August and September. *Phygelius capensis* is a striking border plant, while *Oenothera Fraserii* forms one of the richest edgings that could be imagined, a change from the close and formal edgings now so much in demand. It does well round beds of American plants, as it thrives well in peat. *Aster longifolius formosus* is a good variety and colour of this old-fashioned, but useful flower—forms a fine contrast mixed with the *Patrina* mentioned above. *Anemone japonica alba* and *hybrida* grow and flower charmingly here, producing large clusters of their valuable blooms.—J. PITHERS, *Summerhill, Co. Meath.*

THE APPLE CROP, WHAT SHALL WE DO WITH IT?

ACCORDING to accounts received from all parts of the country the average of the Apple crop is heavier than it has been for some years, and people are beginning to ask what shall be done with it. Those who have fruit rooms will of course fill those structures, and they will possibly discover that Apples will keep as well, if not rather better, than they do in a half-stocked room. Lofts, cellars, and even corners of bedrooms will be used for storing some out of the abundance of this most important fruit, and possibly it will keep as well in any of these structures as it will in the most elaborately built fruit room.

Two years ago we had a very violent storm in the beginning of October which knocked down most of our Apples. Our fruit room was small, and could only be made to accommodate the best of the fruit. Some was stored away in vegetable hampers for immediate kitchen use, and some five or six sacks of inferior sorts and those which were most bruised, were simply put in a heap on the grass between four sheep hurdles with the idea of speedily using them for cider. It was, however, the middle of

January before the cider could be made, and in taking out the Apples I was astonished to find how few of them had decayed. Scarcely any of them were too far gone for cider-making, and I have no doubt they were all the better for keeping, for the liquor produced was excellent. But the point which most struck me was that the decay was not communicated from one fruit to another; one Apple which was sound would be found embedded in the partially decayed pulp of one or two others, and although they were not choice dessert kinds so that I could not be sure about the flavour, yet as far as could be judged from tasting ordinary culinary Apples they had not deteriorated in this respect.

I have since heard of a number of villagers near by who make Apple-growing and Apple-keeping a speciality, who never move their fruit from the time it is gathered and placed in a heap till they want to sell it. Their theory is that handling the fruit does much more harm than leaving in a few which are decaying. It is generally supposed that exhalations from decaying or even ripening fruit is detrimental to the keeping of that which should ripen later. Here now, in the case of the Apple, is some evidence to the contrary, and it comes at an opportune season.

Those who are in difficulties as to what to do with their large quantities of Apples should do what experience has taught is the best with the choicest fruit. For the rest put them in a heap anywhere so that rats and mice can be kept from them, throw straw or other light covering over them on the approach of severe frost, and leave them otherwise to take care of themselves. If you want to spoil them as quickly as possible put them where they will be warm and dry. But there are many of your readers who know more about keeping Apples than I do, and now is the time when a record of their experience will be received with acclamation. An article on cider-making for amateurs from an experienced hand will also be welcome.—WM. TAYLOR.

NOTES FROM WOOD LAWN.

THE shrubberies here are looking gay, although we are now in the last week of September. A few heads of *Lilium auratum* are still to be seen. *Lilium speciosum* (*lanceifolium* of Paxton, but not the accepted *lanceifolium*, which is not in cultivation) is now at its best, and is well represented here by good clumps with from twelve to twenty stems, which have a noble appearance amongst the shrubs. It is a most valuable Lily in all its forms, on account of its flowering late. In mild genial autumns it continues in bloom for a long time. As a rule, in the north it is caught by frost before it has quite finished blooming, but it only shares the fate of all autumn-blooming plants. When well grown as a pot plant it is highly valuable for the conservatory previous to the Chrysanthemum season. In the border it loves a deep rich friable soil, well drained, and the small amount of shade which the shrubs afford to it seems to meet its requirements.

What a grand and useful shrub is *Hydrangea paniculata grandiflora*. It is liberally diffused in the shrubberies here, where it thrives admirably. No shrubbery ought to be considered complete without it, and the fact of its blooming at the end of summer and throughout the autumn months renders it one of the most valuable of all hardy flowering shrubs. Its great panicles of white flowers are highly useful for large decorations. Every branch terminates with one of these beautiful panicles, and if either gardener or employer wishes to spare the indoor bloom this will be found a most useful plant to cut from for a supply. I have grown this shrub both pruned and unpruned, and I am satisfied that close pruning is best for it, which operation should be attended to about the end of March. Here we have some well-developed specimens, as it has been grown for a number of years; indeed my employer was one of the first to introduce it to cultivation in this neighbourhood.

Kniphofia (*Tritoma*) *Uvaria* is too scantily represented here, nevertheless the few clumps growing in one of the borders have rendered assistance by their spikes of fiery scarlet blooms. Two forms of the double perennial Sunflower are to be met with in gardens about here, one with a very symmetrical-shaped flower, the other comparatively ugly. Both are forms of *Helianthus multiflorus*. The best of the two we grow here. It has been blooming a long time, and in my estimation it puts the now popular *H. rigidus* (*Harpalium*) quite in the background. The erratic habit of this latter plant mars its usefulness for a border of choice plants. To stroll from home 2 or 3 feet in one season is common to it. The flowers are of as bright a golden yellow as can be found among Composites, and are very beautiful, the blackish disk giving considerable relief to the conspicuous ray florets. For two seasons we have grown this in large pots buried in the border, with a view to keeping the stems in a more concentrated space. Last year we experienced good

results from such treatment, but this season it is not quite what it ought to be, and to turn them out of the pots this winter may not be unwise, and pot the strong eyes the following winter.

To revert to the shrubs again. With the exception of the Hydrangeas, various forms of Azalea and Mezereon, deciduous shrubs are absent from the shrubberies proper. Care has been taken in arranging the various kinds of shrubs. For instance, the planting of two deciduous sorts side by side has been avoided. Also on account of the somewhat limited extent of the shrubberies forest trees are absent, and the evergreens employed are such as have been considered most suitable for the purpose. Hollies, both variegated and plain-leaved, are well represented. The same may be said of the Golden Yew (*Taxus baccata elegantissima*); but the most noteworthy feature in the shape of a shrub is *Retinospora plumosa aurea*. This presents itself in its best form, and some striking examples are amongst the number. The type also is made good use of as a relief to the golden form. Rhododendrons are represented by all the best sorts, and the varieties judiciously distributed. The old *R. ponticum* is entirely absent. I can assign several reasons why the ordinary forest trees are absent. In the first place, they grow too large and also too rapidly, their naked appearance in winter is unsightly; in summer their spreading branches shade everything growing near them, and their roots ramify to such an extent as to aid materially in exhausting the soil, which would afford to the innumerable herbaceous plants and bulbs a most pitiable existence. Moreover, if we want to see forest trees, we have only to turn to our little sloping wood, which in the spring is covered with the Bluebell and Campion, and other beautiful wild flowers natural to the place.—T. ENTWISTLE.

THE GREENHOUSE AND ITS INMATES.

(Continued from page 183.)

RHODODENDRONS.

OF late years Rhododendrons have become fashionable for greenhouse and conservatory decoration, and grand plants they make in houses suited to their requirements. Many of our very finest species require greenhouse treatment, but most need plenty of space, and to be planted out in prepared borders. When they are grown in pots they are seldom in the robust health which is necessary to produce a pleasing effect. We have often seen large plants in fine health. Greenhouse Rhododendrons are not quite suitable for beginners, but we advise all amateurs to try and flower a few Rhododendrons of the hardy varieties yearly. Grow the plants outside, and only flower them inside. For this purpose a bed of sandy peat should be made for planting them in. This done, duplicate plants (to flower every alternate year) should be obtained in spring of the following varieties:—*R. Nobleanum* (rose), *Nobleanum album* (white), *caucasicum* (yellowish), *ciliatum* (pinkish white), *præcox* (lilac), *præcox rubrum* (red), and *multiflorum album* (pure white). These will all flower by January or February if treated as described below.

If a few are wanted for March and April the following should be grown:—*Altaclerense* (crimson), *Flambeau* (crimson), *John Waterer* (scarlet), *Lord Clyde* (crimson), *Mrs. John Clutton* (white), *Mrs. John Waterer* (pink), and *The Queen* (white). These should be planted so wide apart that the sun and air may play freely amongst them. Should a dry summer ensue watering and mulching may be necessary. By the end of October one of each variety should be placed into pots large enough to hold all the roots without crushing. Sandy peat should be used to fill in any necessary interstices. Watering should then be cautiously, yet efficiently, done, and the plants stood in a cold frame, which should be kept rather close for a week or two. By Christmas they should be transferred to the greenhouse, where they will soon reward the cultivator with their charming flowers. Of course care must be taken that plants having flower buds are lifted. After flowering is past the plants must be taken care of, and placed out again by the end of May, there to remain for two years to recruit themselves, when they will be again fit for lifting and potting. Next October the others should be lifted and treated in the same way.

SOLANUM CAPSICASTRUM.

This plant is grown for the sake of the profusion of bright scarlet berries with which it is clothed during the autumn and winter months. It is when well furnished most attractive, and it is, moreover, very easily grown. It may be raised from cuttings in spring, but it is better to raise the plants from seeds. Any light soil suits them, and the seed should be sown in the greenhouse, or, better still, in a pot placed on a hotbed. As soon as the plants have four leaves they should be pricked out 3 inches apart in boxes and kept growing. Pinching should be attended to in order to produce bushy specimens. When they become crowded in the boxes it will be time for planting them out. In the sunny south they will do very well outside, but in cold northern localities they will require to be under glass. The plants should be placed not nearer than 20 inches apart, and if they are in frames ventilating will require to be attended to. (When the climate does not suit them outside it is better to try one or two than to bother with them.) It will be necessary to syringe them occasionally with soft soap water or tobacco

water once a week to prevent insects injuring them. They will need to be lifted carefully and potted by October or sooner if frost is expected. After they are lifted they should be placed in a cold frame, and kept close and shaded from strong sunshine for a few days until they have fresh roots. They may be afterwards removed to the greenhouse. They make good table plants, the berries appearing to advantage by artificial light among the dark green foliage.

STATICE.

When well grown *Statice* are very showy plants. An ordinary greenhouse is warm enough in summer, but scarcely so in winter, unless the warmest corner is given to them. Good loam, leaf soil, or decayed manure, and a good dash of sharp sand or pounded charcoal, will suit them as regards soil. Syringing with soapy water to keep down green fly should be attended to. Care should be taken not to allow these plants to flower excessively. A good growth should be made in spring before any flower spikes are allowed to form. *Statice profusa* is the most generally useful variety, but *S. Holfordii* makes a finer exhibition specimen.

TACSONIA VAN-VOLXEMI.

There are several *Tacsonias*, all very good greenhouse climbers, very much resembling *Passifloras*, and requiring the same treatment. *T. Van-Volxemi* is the best, and is a most lovely climbing plant. It is a strong grower and requires plenty of room. No better plant is grown for clothing rafters or large spaces of back and other walls in a conservatory. It may be grown in a pot, but is much better planted out.

TEA ROSES IN POTS.

No matter how little accommodation one may have, room should always be afforded for one or two Tea Roses in pots for the sake of having a bloom or two in the late winter and early spring months. Or for covering a rafter or back wall what could be more suitable than a Tea Rose? The Rose *par excellence* for such a situation is *Maréchal Niel*. To do it justice it should be planted out in a prepared border either outside or inside the house. Proper drainage ought to be provided, for soil soured by stagnant water does not suit Tea Roses. The young shoots which spring from near the base and grow vigorously should be laid in at full length. The year following these will bear fine blooms in profusion. In pruning, all old twiggy wood should be cut out and the young clean shoots retained, for it is always from these shoots that the finest blooms come, although smaller shoots from older wood will bloom freely if it is properly ripened.

Roses require to be potted in good loam, with a little manure and bonemeal. When the soil is well filled with roots liquid manure is of great benefit, and top-dressings of rich manure ought always to be given. The plants should be kept cool through the winter to give them a rest, which is what all plants require. While resting they should be pruned. This, generally speaking, consists in cutting out useless spray and shortening back the good shoots to plump well-developed buds. The beginner should not introduce his plants to the house before the days begin to lengthen visibly, say in February. It is very well for gardeners having skill and proper appliances to force Roses all winter, but the amateur who has not a forcing house to forward his plants in and other structures to nurse them in afterwards should not attempt it unless he is prepared to buy fresh plants for another year, for Roses will not submit to it and remain in health; but Roses will do well for years if only forwarded a month or two each spring. Ordinary greenhouse heat will suit them at the period named. Green fly will be almost sure to attack them, but soapy water applied with the syringe will keep it in check. Should mildew appear, dusting the affected parts with flowers of sulphur is efficacious.

After the plants have flowered—say by May—they should be removed to a sheltered spot out of doors and plunged in ashes. If the pots are well filled with roots at this stage plenty of weak liquid manure should be given them, and the surface of the soil top-dressed with rich manure. Weakly shoots should be removed and strong wood encouraged. The plants may be shifted during summer if they are at all likely to become root-bound. A showery time should be chosen for this operation, so that no check may be suffered by the plants. All flower buds should be removed as fast as they appear. Sometimes the plants show a number of buds late in autumn, and the temptation is then great to remove them to the greenhouse where the buds may expand. If late flowers are more valued than early ones this may be done. In October the plants should be rested by being kept moderately dry and cool but safe from frost, and started gently in February again, after having been pruned.

TROPÆOLUMS.

Tuberous *Tropæolums* are beautiful easily managed plants. They should be purchased in the autumn when at rest. Good drainage must be given and comparatively large pots used, for "shifting-on" is too risky a process in the case of these plants for an amateur to attempt. Fibry loam, leaf soil, and a good sprinkling of charred refuse and sharp sand will suit them well. Potting should be firmly done, and the bulbs covered 2½ inches. Watering must be carefully attended to, just as much being given as will keep the soil moist and no more until growth commences, when it may be gradually increased. The very slender shoots should have a neat trellis to run on, and care should be taken to distribute the growths evenly, as they are apt to form a tangled mass. After the foliage decays water should be gradually withheld, and finally stopped altogether while the plants are resting. When resting they should be placed outside or in a cool shed. The soil must, however, be kept dry. *T. speciosum* and *T. Jarratii* are the best kinds.

VALLOTA PURPUREA.

This plant is indispensable to the amateur and gardener alike. Although an Amaryllis it is evergreen, and must be treated as such. It flowers in August or September. After the flowers have faded it should be freshly potted and kept growing slowly, with a moderate allowance of water all winter. By May it should be placed in a cold frame (or in warm localities outside) for the summer months, and duly attended with water. When the flower spikes show it should again be removed inside.

TULIPS IN POTS.

Tulips in pots require treatment almost similar in every way to Hyacinths, so we need not repeat our instructions. Six bulbs may be placed in a 6-inch pot, and a dozen in a pan 9 inches wide. They may be had very early in bloom. It is only the early Dutch kinds which are grown for greenhouse or window decoration. The following are all good and cheap and fit for any ordinary purposes. *Singles*: Due Van Thol—some half-dozen varieties (these are the earliest)—Joost Van Vondel, Proserpine, Keysers Kroon, Tournesol (two vars.), Queen Victoria, Vermillon Brilliant. *Doubles*: Due Van Thol, Tournesol, Le Candeur, Hereules, and Mariage de ma Fille.—A. H.

ZAUSCHNERIA CALIFORNICA.

DURING the present season this pretty perennial has been very notable on my rockery. It has been flowering all through the summer,



Fig. 57.—Zauschneria californica.

and is even now attractive. It is easily grown provided it is not planted in too damp a situation, and a moderately dry place can be readily found for it upon any rockery. It can be raised from cuttings or seeds, the plants obtained in the latter way flowering in autumn if raised in May.

The first plants were raised from seeds collected by Mr. Hartweg in fields about Santa Cruz in California, and received in England, May 11th, 1847, and plants were raised in the Horticultural Society's Garden. It forms a bushy perennial, about 3 feet high, clothed with ovate, sessile, toothed leaves, resembling those of a Gaura. Every branch emits from the axils of all the upper leaves one horizontal bright scarlet flower, about 1½ inch long. Its general appearance is

not unlike that of a Fuchsia, but the calyx tube has four stout ribs. The petals, which are inversely heart-shaped, spread flat; the eight stamens, with red anthers and a red four-lobed stigma, project beyond the flower.

There is a plant which I take to be a variety of this species very much smaller in growth and bearing smaller flowers, more tubular in form and deeper in colour. When I first examined the flowers I thought they were only pistillate, as the stamens appeared to be undeveloped, but now the stamens have advanced and produced pollen. It is therefore one of those numerous plants in which the pistil is mature before the stamens.—R. B. C.



KITCHEN GARDEN.

Seasonable Work.—A weedy kitchen garden looks bad at all times, and it is never the most profitable. Keeping gardens clean in summer is commendable, as the young crops thrive under such attention; but cleanliness is just as beneficial now and throughout the winter as at any other season, and we would urge everyone to see to this matter. The hoeing season will soon be over, as the ground becomes wet and unsuitable for this operation, but if thoroughly cleaned now it will remain in this desirable condition for some months to come. All old vegetable roots and stumps should be cleared from the ground. Remove decayed Peas, and save and store the freshest of the stakes to be used again next year. Seed of anything now maturing should be gathered before being blown out of the pods by strong winds or spoiled by drenching rains. Superfluous seeding plants should all be thrown away. It is better to have the quarters clear than occupied with useless stuff for which there will never be any demand.

Roots.—Late Potatoes, Carrots, and Beetroot should be lifted and stored for the winter without delay. It is an advantage of the utmost importance to have all roots placed under cover in a dry condition. We are busy storing everything we can for winter use, and when the bad weather comes, as more than likely it will do shortly, it will find us quite independent.

Cauliflowers.—Many of these are now turning in, and as a few degrees of frost may occur any night, care should be taken that the heads are not spoiled by this. The purest and finest flavoured Cauliflower heads are always had when a few of the outer leaves are bent over and broken to cover the heads from the time they are first visible, and the protection these afford prevents a slight frost from doing them any harm. Some cultivators are in the habit of allowing their Cauliflower heads to become from 1 foot to 2 feet in diameter before cutting, but this practice we cannot recommend. The heads should be cut when they are close, firm, white, and in the finest condition for the table. When the supply exceeds the demand the heads may be preserved for some weeks if they are cut with 6 inches or so of stem attached, the bulk of the leaves cut off, and the stems inserted a few inches deep in moist leaf soil or sand in a dark shed or cellar.

Winter Spinach.—Most of this is growing freely now, and as the plants are liable to become crowded, therefore thinning them out must be well attended to if large succulent leaves are desired. At the first thinning the plants should be left about 6 inches apart, and then allow all to remain until they meet again, when every other plant may be drawn out for use, and those remaining will furnish many gatherings throughout the winter and well into spring.

Vegetable Marrows.—These have been unusually fine and prolific this season, and plenty of growth and blooms are still being formed, but little or few fruits will set on those plants bearing many old Marrows. It is a common practice to allow the early fruits when not wanted for the kitchen to hang on until they become yellow and ripe, and they often remain long after this; but where late fruits are desired no fruit must be permitted to become large, and many of the superfluous shoots should be thinned out. Indeed, to grow Marrows properly they should be treated like Cucumbers in stopping and cutting off fruits and shoots. Marrows are much valued by many during the winter, and they are very easily preserved, as if cut just as they begin to grow yellow, and hung in a net in a dry room, they will remain in good condition for many months.

Parsley.—All rank-growing leaves which have assumed a yellow hue should be removed, and only the young green leaves which are chiefly confined to the centre should be allowed to remain to grow for a winter supply. In districts where it is necessary to protect it a number of the best young roots should be lifted now and planted in a cool frame where they will soon begin growing, and they will be found most useful during the winter. It is an advantage to lift the plants with a ball of earth attached to the roots, and they succeed best in a heavy soil.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Early House*.—*Pruning, Cleansing, and Tying-in*.—The trees in the early house that had the fruit ripe in May are now devoid of foliage, and should be pruned. If any shoots

have escaped notice during the season of growth that are now unnecessary, they should be cut out, and beyond cutting back any shoots that have ripened to the extremities to sound well-ripened wood, very little use will be found for the knife. The branches in a well-trained Peach tree should be 12 to 18 inches apart, and the branches upon those not more closely disposed. This will allow of the foliage and fruit having the full benefit of light and air. The trees being loosened from the trellis the woodwork of the house should be well brushed with soap and water, and the trees carefully washed with the same, being careful not to disturb the buds, and when they become dry dressed with some approved insecticide, applied with a painter's brush. The woodwork and trellis should be painted if needed, and the walls limewashed. The border must have the loose surface soil removed, and fresh rich material supplied if it has not been already done in lifting the trees. The lights may remain off the house until wanted for closing the house, having them repaired and painted so as to be in readiness when required; but if they have been replaced to ward off heavy rains the ventilators should remain open constantly, and if the house has fixed roof lights care must be taken to prevent the inside border from becoming dry, or it is likely the trees will cast their buds when they ought to swell for expanding the blossoms.

Root-pruning and Top-dressing.—This should be proceeded with in late houses as soon as the leaves give indications of maturity, and be brought to a close as soon as possible, as operations of this kind are best performed whilst a majority of the leaves are on the trees. Where young trees or those of some years' training have to be taken in from open walls ripening the wood may be facilitated by digging a trench a few feet from the stem and leaving it open.

VINES.—Late Houses.—Where late-keeping Grapes were encouraged in spring with fire heat and through the early summer, and artificial heat when ripening, the fruit will now be well finished, and the foliage showing the beautiful tints of colour peculiar to most of the late kinds, especially the thick-skinned section, which are a good indication of the thorough maturation of the wood. Every lateral should now be taken off down to the main buds. Ventilation as the days decrease in length and increase in moisture will require more careful attention. With the Grapes well in advance free ventilation, with slight fire heat by day is the best course to pursue, turning off the heat when the front ventilators are closed for the day. Should the inside borders become dry before the Grapes have coloured well, a good watering with weak tepid liquid manure should be given in the morning; and as the greatest danger to be guarded against is the condensation of moisture on the berries, it should be overcome by covering the border with dry clean litter or fern, with liberal ventilation at the apex, and a little extra fire heat. This will often cause the Grapes to colour up to the footstalks in a short time.

Houses of Ripe Hamburgs.—These will now require careful management. Keep the house dry and cool, ventilating freely when the external air is dry, and employing fire heat only to expel damp. Examine the Grapes occasionally for decayed berries, which must be promptly removed. Avoid anything likely to raise dust and causing it to settle on the berries, as sweeping and raking borders.

Covering Outside Borders.—All outside borders, especially those of early and late houses, should be covered with a good thickness of dry bracken, and place all available lights or shutters over it for throwing off the wet.

Early Houses.—The Vines in those that are to be started in November or December must be pruned at once, the Vines cleansed as well as every part of the house—woodwork, glass, walls, &c., having everything clean, sweet, and in thorough working order for a new start when the time arrives.

Early Vines in Pots.—Those intended for the earliest crop of Grapes should be placed in their fruiting quarters. Start, if possible, with a gentle bottom heat from fermenting materials, as three parts Oak or Beech leaves with a fourth part stable litter well worked and sweetened before placing in the bed for the Vine, which last should have the pots on pedestals of open brickwork to prevent their being displaced by the sinking of the fermenting materials. The materials should be brought up about the pots, but not to cause the temperature to exceed 70° to 75° about the pots. The ammonia vapour will assist the Vines in breaking; and as the roots will pass from the pots to the bed the berries will swell to a much better size than when the roots are confined to the pots. Sling the rods in a horizontal position over the fermenting materials to insure a good break. Start with a minimum temperature of 55° by artificial means, and 60° to 65° by day from sun heat, and maintain at the last-named by artificial means in the daytime as the buds expand and are expanding into growth.

Young Vines.—Those that were planted in spring or in early summer from eyes struck in spring will yet be growing freely, but means must be adopted to get them thoroughly ripened without delay by keeping the house quite dry and moderately warm by day with free ventilation, keeping the laterals constantly pinched, except it be a few at the extremities, so as not to give too severe a check to the root-action, and a low night temperature with free ventilation will soon make all right.

PLANT HOUSES.

Heliotropes.—Cold nights injure these plants very much, and even the slightest frost will destroy them. The plants we purposely prepared for flowering this autumn are now in frames. This position is becoming too cold for them, and they will be placed where a night temperature of

50° can be maintained. The plants required latest will occupy the coolest end of the house. Unfortunately these flowers do not last long after they are cut and placed in warm rooms, yet they are in constant demand, and appreciated highly for their fragrance. A batch of cuttings may now be rooted and grown gently through the winter for early flowering in spring, when they will be found most useful.

Double Petunias.—Some of the dwarf varieties grown in 5 and 6-inch pots are admirable for the decoration of the conservatory during spring and summer. If cuttings have not been rooted they should be inserted without delay, but for an early display they should now be established in thumb pots, and ready for others 2 inches larger. When in this condition the plants should be grown under cool conditions, but if only just rooted they should be encouraged in an intermediate temperature for a time. They require frequent stopping to insure dwarf sturdy specimens. The winter treatment that suits these plants is so similar to that recommended for French and Fancy Pelargoniums, that those who follow the advice given will be successful. The only difference in cultivation is, the soil should be a little lighter for Petunias than for Pelargoniums. Cuttings should be rooted from time to time for the purpose of forming a succession. Plants rooted about Christmas will follow those required for early flowering, and can be grown rapidly after the new year.

Celosias.—If these plants are in a backward state they should be pushed forward without delay in a little heat. Air must be given when favourable, and the plants arranged as close to the glass as possible, for they are very liable to become tall and weak if kept close and warm. A little heat applied judiciously is very beneficial in their last stages of development, as their plumes are brighter in colour than when developed under cool conditions. These plants require a good supply of water, but it must not be carelessly given, as their roots soon suffer, and the plants in consequence do not last half the usual time. These plants are amongst the most useful that can be grown for winter decoration, for their beautiful heads of gold and crimson will last in good condition from November until February in a temperature of 45° to 50°, provided damp can be kept from them, which is their greatest enemy in winter.

Dielytra spectabilis.—Where this beautiful and useful plant is appreciated for forcing, and grown at home for that purpose, the foliage has died down and the roots may be lifted. When lifting the dormant plants should be sorted, and the smallest replanted for next season's forcing; small pieces planted now in good soil make grand plants for forcing in one year. Roots that can be placed in 5 and 6-inch pots are large enough for the majority of decorative purposes. It is not necessary to lift them for potting with any soil attached; on the contrary, it may be all shaken from them. After potting place them in a cold frame until they are wanted for forcing.

Pyrethrums.—These are very beautiful when forced into flower in spring, and are very useful both for decoration and cutting. Where plants are not established in pots lift at once from the open borders while the foliage is green and fresh, and with soil adhering to the roots. After potting a thorough watering is necessary and a cold frame in which to place the plants, which, if shaded from strong sun and kept close for a fortnight, will have commenced rooting, and can then be subjected to cool treatment until their foliage dies. Do not allow them while at rest to become dry, but keep the soil moderately moist.

THE FLOWER GARDEN AND PLEASURE GROUND.

Preparing for the Winter.—Frosts will soon occur, and any tender bedding plants required for next season's stock should at once be placed under glass. All choice varieties of Pelargoniums, or any of which there may be an insufficiency of cuttings struck, ought to be lifted and potted. No ball of earth can be procured with them, nor is required. Many of the old leaves should be trimmed off, or otherwise they will damp off and perhaps injure the growths; the roots shortened, and the plants potted firmly in as small pots as can conveniently be employed. The more robust sorts may be placed several in 6-inch or 8-inch pots, or in boxes. The greenhouse and vinery shelves are the best places in which to winter the more delicate varieties. If not damaged by frosts more cuttings may yet be inserted, and any that have damped off be replaced. The variegated sorts are best wintered thinly in small pots, being very liable to damp off when placed in boxes. Keep all Pelargoniums on the dry side both before and after they are struck, as the less growth they make the better; and should any of the boxes especially become saturated with moisture large numbers of cuttings will inevitably be lost. It is too late to strike Verbena cuttings, and if there is not sufficient already rooted, a few old plants of each favourite variety should be lifted, taking care to preserve a small ball of earth about the roots. Give them good soil and pots rather larger than the balls, and winter in well-ventilated frames. If a good named variety or varieties of dwarf Lobelias be grown, such as *pumila magnifica*, Brighton, Blue Beard, and the white Princess of Wales, and which are preferable to seedlings, lift a number of old plants, trim off the bloom, and pack them clear of each other in well-drained boxes of good soil. These, if wintered in a greenhouse, pit, or frame, will in the spring divide into a great number of rooted pieces.

The best Ageratums for bedding are Cannell's Dwarf and Swanley Blue, but of these it is very difficult to procure cuttings. A quantity of each or any other preferred sort should be potted and wintered similarly to the Lobelias. Old plants of Heliotropes and Lantanas as a rule lift badly, but should they be required the attempt ought to be made. Preserve a ball of earth if possible, and when potted place them in a pit or frame, keep rather close, and water and shade carefully. During the

winter they will require rather more heat than Verbenas. Cuttings of *Gazania splendens* if dibbled in boxes of sandy soil root readily, and may be wintered in a cold frame. If a considerable number of plants are required it is best to prick the cuttings out on a prepared bed and to cover with a shallow frame, where they may remain till the spring. *Petunias* and *Phlox Drummondii* are much more effective when raised by cuttings; great care must be taken when lifting the old plants. *Abutilons* lift readily, and both the flowering and fine-foliage varieties may be found useful for conservatory decoration; a few strong untopped plants will give a great number of cuttings in the spring. *Cineraria maritima* also lift well, and are more dwarf and even when raised from cuttings in the spring. *Begonias ascotensis* and *weltoniensis*, and the tuberous-rooted varieties will also bear lifting, and providing a moderate-size ball of earth be preserved about the roots will flower for some time longer in a greenhouse. *Salvias* may be similarly treated, and are very bright during the late autumn and early winter months. *Ageratums*, especially the tall growing variety, lifted from the borders are very useful for the same purpose.

Iresines, *Coleuses*, *Alternantheras*, *Mesembryanthemums*, and *Sempervivums* of the arboreum type ought to have been long since struck. Failing this, old uninjured plants may yet be lifted. Small balls of earth, especially if heavy, should be retained, and only comparatively small pots be given them. The back shelves of heated houses are the best positions for all but the *Sempervivums*, the latter doing best in an intermediate temperature. *Kleinia repens* may be lifted, divided, and dibbled in rather thickly in well-drained boxes of light sandy soil. *Echeveria metallica*, *Pachyphitons*, *Aloes*, and other tender succulents ought all to be housed or otherwise protected from frosts. They do not require large pots nor much heat, and should be watered but little. The lower leaves of the flower stems on *Echeveria metallica*, if taken off and either dibbled in pans of light sandy soil or laid on a moist shelf in heat, will eventually form plants.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 4.

THE following are the particulars of the hive referred to last week:—

Internal Dimensions of Stock Hive.—This is 2 feet 5½ inches long, 14½ inches from back to front, and 6 inches deep. It gives accommodation for eighteen frames and two close-fitting dividers 1 inch thick, besides allowing an inch of "play" for the frames. The advantages of this inch are many and obvious. We rarely have occasion to lift out the divider, because lateral space is obtained by pulling it back close to the side of the hive. If we want to insert a broad frame with sections to get them started, we have only to remove one divider; it also does away with all the difficulties which arise when frames are made to fit tight, such as shrinking and swelling in the wood of the top bars, slight irregularities in the combs, the insertion of queen cages, &c. It also secures a very large platform above the brood nest capable of holding two crates or forty-two 1-lb. sections. We do not advise this use to be made of it, unless in exceptional cases; but it gives the great advantage of allowing nine frames, or one-half of the hive, to be manipulated while a crate of sections is worked on the other half.

It frequently happens that a spell of bad honey weather will follow after bees have got well at work in sections, and in such weather at such a time breeding goes on very fast. To lift off crates of sections every time we want to open up a hive is out of the question; but with nine frames of comb come-at-able we keep queens busy ovipositing, can help weak stocks with a few frames of brood, substituting comb foundation for those removed, and above all keeping up the "comb-building impulse," which gives to bees the appetite for work well known to all practical men. Another advantage is that queens are less liable to be lost while frames are being unskillfully handled. Mishaps of this kind are more frequent than is generally supposed; but if a queen is unusually nervous and inclined to run wildly about, as some undoubtedly are when hives are opened, they will generally take refuge at the end of the hive furthest from the operator, and thus be safe out of harm's way while he is examining combs and perhaps shaking the bees from them.

It would take too long to enumerate all the advantages which this large working space over the tops of the frames gives to the apiarian, such as slinging, doubling, &c.; but they will readily suggest themselves to a practical man, and we shall, in explaining the practical working of the hive, have to allude to it again.

Size of Frames.—Until the adoption of the Association standard frame we used the ordinary Carr-Stewarton size for our hive. Since the introduction and general adoption of the first-named frame we

have modified the size a little, and it is now 14 inches by 5½ inch, outside measure, with a top bar 17 inches long—in other words, an Association standard frame cut down 3 inches in depth.

Anyone who has studied the subject, and has worked with large frames, will have noticed that an inch or two of the lower side of the combs are very frequently unused by bees either for brood or honey; at the same time, 2 or 3 inches of the upper side are almost invariably filled with honey. Now, our contention is that the size of frame which will minimise these disadvantages (for disadvantages no one will deny that they are) as much as possible is the one which should commend itself to all.

The body of the hive should be the "brood-nest" in reality as well as in name, and should in the honey season only contain as much food as will supply the daily wants of the bees. All surplus is best stored apart and in such a way that the apiarian can remove it in saleable form. A shallow frame is generally filled with brood down to the bottom bar, and has but little honey stored at the top. We have had hundreds of frames filled with brood from top to bottom, and when giving a crate of sections we remove any outer combs which contain honey only, along with the divider, to the opposite end of the hive, so that the combs under the sections are full of brood. The combs removed are placed outside the dividers, thus crowding up the bees and rendering them more likely to enter the supers. In addition to this, the fact that there are few available cells for storing honey in that part of the hive compels the honey-gatherers, for some time at least, to store all they get in the sections above.

Shallow frames are better than deep ones for the following special reasons:—1, For fixing full sheets of comb foundation. With ordinary care anyone can fix a sheet of foundation 4½ inches deep without fear of its breaking down or sagging. 2, For transferring combs from skeps. Here there is an immense advantage. When cutting the combs to fit frames, pieces 5 inches deep are what we want to fit tightly into the frames; and this allows us to cut away the bottom or worst edge of the comb and just so much of the honey at the top as is best away, while laths under the combs are not needed. *Propos* of transferring, a well-known expert in our hearing was dilating on the evil effects of transferring which had come under his notice. He stated his opinion that foul brood was frequently caused by the bees clustering to the tops of transferred combs, while the brood in the lower parts chilled and perished—to become the forerunner of disease. With a comb about 5 inches deep to cover we need scarcely say there is no fear of the mischief occurring.

Spreading Brood.—This important feature in modern bee-keeping is one of the best that has been made known for many years, yet it has not come into general use. The reason of this is obvious, and is contained in the words of a rather extensive bee-keeper whom we met at a show last year. "After reading Mr. Cowan's book," he said, "I spread my brood once; but never again if I know it. Why, by dividing the brood with a sheet of foundation one part of it was entirely deserted by the bees, and all perished!" We learned afterwards that he used very large frames and had not taken the precautions necessary. Apart from this carelessness there is great risk attending the operation if large frames are used, and amateurs cannot be supposed to tell, as practical apiarians can, when it may be done with safety. The way to reduce the risk to a minimum is to use a shallow frame. If the bees only cover six of these we venture to say no harm will result from inserting a sheet of foundation in the centre at any time when breeding is progressing fairly.—W. B. C., *Higher Bebington, Cheshire.*

BEES SWARMING IN SEPTEMBER.

WOULD any of your able correspondents be so good as to inform me through the medium of the Journal whether it is unusual for bees to swarm so late as the second and last week in September? As we keep bees I am anxious to learn anything of interest concerning them. One morning during the second week in September one of the garden men informed me that there was a swarm of bees on the Elms in the park. I was surprised to hear it, and had the curiosity to go and see them. As our bees were put to rights for the winter I did not trouble to take this swarm, as I did not consider the bees sufficiently numerous to stock a hive of themselves. This evening (September 27th) I had my attention again drawn to a swarm, but as far distant from our own bees as it could be within the garden. This time I determined to give the swarm a chance and have hived it. I should be obliged for any information on the subject, as I consider the honey season ended with the Lime trees here, and our hives got lighter after these had ceased flowering.—C. WARDEN, *Wilts.*

TRADE CATALOGUES RECEIVED.

George Rudd, Bradford, Yorkshire.—*Catalogue of Auriculas, Carnations, and Picotees.*

Nabonnand, Golfe-Juan-Vallauris, Alpes Maritimes.—*Catalogue of Roses and Miscellaneous Plants.*



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

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

Plums (E. F. B.).—We are obliged by your reminder, and you will perceive the matter has been attended to.

Studies for Young Gardeners (A Foreman).—If you will send us your full postal address a letter will be sent to you on the subject of your communication.

Selling Fruit (A. B.).—We never answer such questions as you have submitted. You may possibly obtain the information by writing to Mr. Webber, Central Avenue, Covent Garden, London, W.C.

Narcissuses for a Graveyard (Mac).—All the stronger-growing varieties are suitable for the purpose, and these you will find enumerated in the principal dealers' catalogues at the lowest prices.

Vine Leaf Blotched (J. L.).—There is not much the matter with the Vine leaf. It is not unusual for the foliage to similarly change on the approach of autumn; still in all probability there has been a little scorching that might have been averted by a different system of ventilation. You do not say a word as to the general condition of the Vines—whether weak or strong, fruitful or the reverse, and it is impossible for anyone to judge of their state by one small leaf crushed into an envelope. Blotches in the leaves are sometimes the result of inferior glass in the roof.

Vine Roots Unhealthy (H. T. H.).—There is no evidence of the presence of the phylloxera on the portions of roots before us; but, as has been previously intimated in this Journal, portions of the fibrous roots should be sent, as it is on them that the insects congregate during the season of growth. Still, we do not think your Vines are attacked by this pest, and the fibreless state of the roots, with their partial decay, is quite sufficient to account for the condition of the Vines. They are much in the same state as the roots of some Vines of which Mr. Iggulden took charge two years ago, and which he changed and improved by the practice he has detailed in our present issue. You cannot do better than to treat your Vines similarly, and produce a mass of healthy surface roots; healthy and fruitful growth will then follow. You had better also note Mr. Iggulden's remarks on overcropping one of his vineries.

Heating Greenhouse (F. J.).—To heat a house of the kind you describe satisfactorily the boiler should be fixed behind the house, and sufficiently low to enable the pipes to be taken below the doorway, which, we presume, is at the end of the house. From beyond the doorway they may be raised a few inches above the floor, the top one for the flow, the lower for the return water, the two to run along the front and further end of the house, or as far as the door (if there be a door at that end also), and there connected by an elbow. By this arrangement 3-inch pipes would do; but if you can only arrange them along the front two rows of 4-inch pipes would be requisite, or three rows of 3-inch, a double flow and single return, and this would enable you to utilise your present piping.

Chrysanthemums (J. J.).—There is a rather small reflexed variety named Cloth of Gold, also a Pompon variety used to be grown under that name; but, so far as we are aware, there is no Cloth of Gold in the Japanese class. Julie Lagravère is not a Pompon, and is not properly eligible for staging in that class. We have occasionally seen small flowers of this variety in a stand of Pompons, but those who stage them run great risk of having their stand disqualified by the judges. Considering that there are so many varieties of Pompons it is not necessary and is unwise to associate with them at an exhibition any flowers of doubtful admissibility.

Grapes not Colouring (Lancaster).—Your Vines appear to have done as well as could be expected under the circumstances, seeing that you have had "good bunches and berries and no shanking as formerly." No more than this could be expected the first season after lifting, especially as you say you were unable to ripen the wood. With the wood matured this season and the increased root-action your Grapes will no doubt colour well next year if the Vines are not overcropped. We presume the soil in which they are growing is free and good; be careful that it does not become dry at any time, and should the laterals not be so strong as is desirable, nor the foliage so stout, an application of liquid manure given now might be of decided advantage. We have given liquid manure to Vines when they were quite at rest with the best results. Your Vines may, however, not need such assistance; of this you will be the best judge, knowing their condition and the composition of the border. We should lift the Alicantes immediately the crop is cut.

Midseason and Late Pears (Reader).—The following will probably answer your requirements:—Beurré Diel, Fondante de Charneu, Zéphirin Grégoire, Huyshe's Victoria, Glou Morceau, Beurré Sterckmans, Easter

Beurré, Josephine de Malines, and Bergamotte Esperen. These are not all large, but are good Pears, and will succeed as pyramids in your district. Assuming you have a bold central crown in your dwarf Hydrangeas you had better remove the side growths and reduce the supply of water. They should now be plunged in ashes in a cold frame, and no more water given than is necessary to keep the foliage fresh.

Warts on Vine Leaves (Abbot).—There is nothing whatever in the appearance of the leaves and wood you have sent us to indicate the presence of the phylloxera, and we feel sure your Vines are quite free from that pest. Your large deep and rich border has invited such vigorous growth as to distend, and in some instances to rupture the cellular tissue; but we do not apprehend that this will have any serious results, as there is plenty of foliage quite healthy or only slightly affected. Your object now must be to mature the wood by maintaining a warm dry atmosphere, with free ventilation; to this end fire heat will be economical, because effectual. Your border would have been better if it had been limited to 6 feet in width until this autumn, and it might probably with advantage have been firmer. It would then have been netted with fibrous roots, whereas now it contains a limited number of such; but the roots are of a luxuriant character, and supplying more sap than the leaves can properly elaborate and assimilate. If the border is light and loose make it firmer when it is dry, and only then, as to firm it when wet would be ruinous; and your Vines should be grown steadily—that is, not forced under a high temperature, while ventilation should be liberal night and day. It is just possible you have not always admitted air early enough in the morning. With care we think you will eventually have fine Grapes.

Vines Flagging (W. J.).—There is no appearance whatever of the attack of the phylloxera on the fibrous roots you have sent, and from the fact of your Vine having made a strong cane 20 feet long this year we do not suppose your Vines are attacked with the pest. Gros Colman though robust is a very tender-foliaged Vine, and unless special care is taken in watering, ventilating, and even lightly shading sometimes on the sudden return of bright sun after a week of dull weather, the leaves are apt to be scorched, turn brown at the edges, and fall prematurely. The Vine is also peculiarly liable to the attack of red spider. We suspect yours has been attacked by this insect, and the injury to the leaves and the premature defoliation of the Vine would necessarily affect the roots, and cause many of the fibres to decay. Do not keep the border too dry, neither must it be saturated now the foliage is falling.

Vine Growths Crooked (J. T., Bristol).—The rod being produced by an old Vine that was cut down some time ago there is no telling where the roots are; but this we know, they are not foraging in the good soil to which you allude, and they are not healthy. We should make no attempt to renovate such a Vine, as in doing so you would necessarily injure the roots of the others that are thriving satisfactorily. We should either dig up the old Vine, take out a few bushels of soil, add fresh, and plant a young Vine, or should train an extra cane from an existing Vine that is in good health. This latter plan would probably be the best, as a Vine will support two or more rods as well as one, and the space would be more quickly covered and a crop of fruit produced than by planting a young Vine. It is no use doing this in any case without adding fresh soil, as a young Vine rarely thrives in an old border.

Leather Parings (J. M. R.).—They are very good for furnishing nitrogen to plants, but nothing more. Of this nitrogen clean samples contain as much as does nitrate of soda; but it does not follow that they are therefore of equal value, as in the one the nitrogen is at once available but in the other it is not. Still, good samples are worth £2 or £3 per ton to manufacturers of manure, and if you could find a market for them the money they might fetch would be better spent by you in the purchase either of manufactured manure or ordinary dung, for by themselves they are not true manure. But if a tenth were added to ordinary manure, and overheating provided against by keeping the heap fairly moist, the value of the manure would be doubled. Allowing them to heat by themselves is almost certain to cause loss of nitrogen, as the sense of smelling would inform anyone; but in the bulky manure the ammonia would be absorbed and preserved. The fact that the farmers in your district will not have the material you mention for the carrying only proves the necessity there is for farmers becoming acquainted with agricultural chemistry. We could name a district where they will not look at sewage, but cheerfully pay for and convey long distances broken bottles, earthenware, tin cans, cinders, and a little town's dust! Tanned refuse, such as bark, is of little use except for mixing with heavy soil to render it lighter. The process of tanning adds no manurial value to anything. Fine leather shavings unmixed with other matter are used for fruit trees in the London market gardens, also for Filberts and Hops.

Seedling Grape (Clifton).—Your Grape very closely resembles the Black Corinth, the dried fruit of which is sold as the Currants of commerce. Though the berries are sweet and the colour good, the variety is not worth keeping except as a curiosity. You cannot have a better Black Grape than the Black Hamburgh for such a house as yours, and it is questionable if you can do better than train up an additional rod or rods from your existing Vine of that variety, and so occupy all available space. You would obtain quite as good fruit from three or four rods as from a solitary cane. If you particularly desire another black variety try the Madresfield Court, or if you prefer a white one plant Foster's Seedling; but the Black Hamburgh is the most useful of all for the position indicated in your letter.

Seedling Alpine Auriculas (E. Clapham).—If your seedlings are not overcrowded now they will not become so during the winter, as in all probability some of the leaves will decay, and these should be carefully removed. Place the box in a frame, but only place on the lights during wet or inclement weather, and at all times admit air in the absence of frost. Only give sufficient water to keep the foliage fresh, and do not apply it over the leaves. The great enemies to guard against in winter are damp and slugs. Immediately growth commences in the spring pot the plants, and eventually plant them out where they are intended to flower. In the event of a very severe winter in the north bank soil or ashes round the sides of the box, and cover the plants with perfectly dry leaves and they will be quite safe.

Tuberose Culture (*T. Mossman*).—The following simple method has been described by a very successful cultivator. Procure sound well-ripened bulbs as soon as you see them advertised. If in quantity divide them into two or three batches for succession. Pot the first at once, either three bulbs in a 32-sized pot, or one good bulb in a 48-pot. In either case use a rich loamy soil, or if the loam is poor add one-third of well-decayed manure that will pass through a quarter-inch sieve, and a little sand. Pot rather firmly, afterwards place them in a cold frame, or under the stage of a greenhouse where there is little or no drip from plants above, and cover them with cocoa-nut fibre refuse, fine coal ashes, or some other material that will run between the pots. This will keep the soil sufficiently moist for rooting to commence, which will begin in a fortnight. As they advance take them out, and for a few days place them in a position where they at first have but a moderate light, such as under the stage of a plant house. It will be seen that the young growth will gradually assume a natural colour, when the plants may have the full light and heat of an intermediate house. A stove heat is more than they need, and to have them in flower quickly a cool greenhouse is not sufficient. After making a little foliage the flower spikes begin to appear, and as they grow to from 2 to 4 feet in height and are very slender, a stake must be placed to each. Each spike if good will produce two dozen blooms in succession, pure white with a most delicious fragrance. When in bloom they are conspicuous if placed in the conservatory with the spike of flowers arising just above other plants, but they would be principally required for cutting. The perfume is strong, therefore for room or any part of house decoration too many must not be employed at one time. During growth the plants are subject to the attacks of green and black aphides, which infest the spikes of flowers. Liquid manure given twice a week will be found to benefit the plants, and by potting in succession they may be had in flower during the greatest part of the year. They are among the most useful for cutting for bouquets, wreaths, and buttonholes, as they are sweet-scented, pretty, and last a long time.

Temporary Structure for Chrysanthemums (*Lambridge*).—A temporary shelter for these plants can be readily constructed of wood and canvas, the dimensions being proportioned to the number of plants you have. Stout posts at the four corners, with connecting pieces at the top and back, form the essential framework, which should be preferably in the form of a lean-to house, and if it can be placed against a wall, the top sloping forward from it, it will be even less trouble. Ordinary rough deal will suffice if the object is to build the shelter as economically as possible, and the canvas may be hung round the sides and over the top at night and in wet weather, but during the day it can be removed from the front. Specially prepared waterproof canvas or calico can be obtained from some dealers, but the following is a simple mode of rendering such substances impervious to wet. Take pale linseed oil, three pints; sugar of lead, 1 oz.; white rosin, 4 ozs. Grind the sugar of lead with a little of the oil, then add the rest and the rosin. Stir the whole well together in a large iron pot over a gentle fire. Tack the calico loosely on the frame, and apply the mixture with a large brush.

Naming Fruit (*Jno R. Peill*).—It is impossible to name any particular day as you considerately suggest; send them at your convenience and they will be attended to as soon as possible. Only six varieties can be named at once, and if more are sent the surplus cannot be preserved.

Names of Fruits (*Reader*).—The Apple is Gloria Mundi, the Pear Marie Louise. (*E. F. Behrens*).—Sops in Wine. (*Rev. A. Fitch*).—Apple Trumpington. The plant is Lycium europæum. (*T. H. Sykes*).—1, Kerry Pippin; 2, Golden Winter Pearmain. (*N. C.*).—1, Longville's Kernel; 2, not known. (*Colville Browne*).—1, Marie Louise; 2, Red Doyenné; 3, Maréchal de Cour; 4, Beurré Bosc; 5, Vicar of Winkfield. (*Warrington*).—Burr Knot. (*E. J. Nicholson*).—1, Doyenné Blanc; 2, White Summer Calville; 3, Ord's; 4, Red Autumn Calville. (*David Smith*). The Pea is no doubt a sport from Laxton's Supreme, and is worth saving. The Apple is not of any merit. (*J. W.*).—Hollandbury. (*Dickson Brown & Tait*).—Warner's King. (*T. Buckerfield*).—2, Beurre d'Arenberg; 5, Chaumontel; 7, Nouveau Poiteau; 9, Glou Morceau; 11, Beurre Diel; 13, Marie Louise. (*C. Spider*).—1, Margil; 2, Golden Noble; 3, Franklin's Golden Pippin; 4, Cox's Orange Pippin; 5, Beurre Clairgeau; 6, Glou Morceau. (*Jas. Fletcher*).—2, Ribston Pippin; 3, Golden Winter Pearmain.

Names of Plants (*C. J. S.*).—1, Lythrum Salicaria; 2, Phygelius capensis; 3, Verbascum nigrum. (*J. W. M.*).—The plant was named Helianthus multiflorus plenus on page 263. (*J. C.*).—Chrysanthemum segetum.

COVENT GARDEN MARKET.—OCTOBER 3RD.

A SOMEWHAT brisker trade doing and prices better, good samples of Peaches being now in demand, as also English Pine Apples. Apple market heavy.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples ½ sieve	1	0	to	2	Melons each	2	0	to	3
" per barrel	0	0		0	Nectarines dozen	2	0		6
Apricots box	0	0		0	Oranges 100	6	0		10
Chestnuts bushel	0	0		0	Peaches dozen	2	0		12
Figs dozen	0	9		1	Pears, kitchen dozen	0	0		0
Filberts lb.	1	0		0	" dessert dozen	1	0		3
Cobs per lb.	1	0		2	Pine Apples English .. lb.	3	0		4
Grapes lb.	1	0		3	Plums and Damsons ..	10	0		13
Lemons case	25	0		35	Strawberries lb.	0	0		0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes dozen	2	0	to	4	Mushrooms punnet	1	0	to	1
Beans, Kidney lb	0	3		4	Mustard and Cress punnet	0	2		0
Beet, Red dozen	1	0		2	Onions bunch	0	0		4
Broccoli bundle	0	9		1	Parsley dozen bunches	3	0		4
Cabbage dozen	0	6		1	Parsnips dozen	1	0		2
Capsicums 100	1	6		2	Potatoes cwt.	4	0		5
Carrots bunch	0	4		0	" Kidney cwt.	4	0		5
Califlowers dozen	2	0		3	Rhubarb bundle	0	4		0
Celery bundle	1	6		2	Salsafy bundle	1	0		0
Coleworts doz. bunches	2	0		4	Scorzoneria bundle	1	6		0
Cucumbers each	0	4		0	Seakale basket	0	0		0
Endive dozen	1	0		2	Shallots lb.	0	3		0
Herbs bunch	0	2		0	Spinach bushel	2	6		3
Leeks bunch	0	3		0	Tomatoes lb.	0	3		0
Lettuce score	1	0		1	Turnips bunch	0	0		0



USE OF GREEN AND FODDER CROPS FOR VARIOUS PURPOSES.

(Continued from page 286.)

IN extending our remarks in connection with the use of Vetches it is not our intention to say much relating to their cultivation, because we have in this Journal written upon their cultivation in an article which appeared on the 12th of September, 1878. It is, however, necessary to refer to their value as fodder in their green state just as they come into bloom, as they furnish valuable food for sheep and lambs, but especially for the latter, in June and part of July. It is the custom in Dorset, Wilts, Hants, and various other counties for the lambs to run in advance of the ewes into a fresh fold daily, or, if there is no other change to Sainfoin or Clover, then a fresh fold is given twice a day, and it is in these folds that they get their trough food, such as cake, cracked beans, or peas. The Vetches are considered by practical men to furnish the most nutritive food grown on the arable land at the summer time, for although the winter Vetches will turn off for seeding in the first or second week of July, yet the succession of Vetches for folding is made continuous by the growth of the summer or "Goa" Vetches.

Although the growth of Vetches for sheep in the hill districts, but especially on chalk and limestone, are much approved, yet their strongest advocates are of opinion that they injure and seriously damage the preparation for Turnips, which are usually grown as a successional crop, as it is said to leave the land in a loose and hollow condition, especially of a dry season, when the young Turnip plants are sure to fall a prey to insects, such as wireworm and grub. On one occasion when we were present at a farmers' club meeting these objections were taken, although admitting the value of the crop otherwise by the introducer of the subject, and challenged the members to recommend a substitute, and we advised the growth of Trifolium with Mangolds cut and fed in troughs with some cake or other meal in admixture. The way to obtain the Mangolds for this system is either to pit them in the autumn on the field (where the Trifolium has just been sown) at convenient distances apart, or otherwise when the Mangold crop is removed to pit, and reserve in the field a certain portion of the crop, the remainder being removed for cattle feeding at the homestead. In this system the Trifolium is sown as fast as the Mangolds are pulled, which should be done by an early growth and early removal, thus giving the Trifolium a chance of being seeded in good time. It will be noticed that in either case whether Mangolds are thus used in connection with either Vetches or Trifoliums, that it affords an opportunity of improving the green fodder for the sheep. There is one objection, which will not occur with the lambs unless they are being fed for the butcher—viz., that many of them when near maturity as fat lambs frequently suffer from the stoppage of urine, and are lost in consequence of Mangold feeding. Still, when store sheep or breeding ewes are kept they do not feel any ill effects from this manner of feeding. Upon strong land seeded with winter Vetches as a preparation for Wheat they may be fed off just as they come into bloom with great benefit with any supplementary food which may be required in the troughs, after which the land may be sown with White Mustard, to be fed-off or ploughed-in as may be deemed advisable. In some cases, however, where there is any couch remaining, the land should lie fallow and receive autumn cultivation. Sometimes a late crop of Turnips is taken, but only on light and dry soils, as the Turnips could not be fed off with advantage on flat strong land. Vetches are, however, occasionally used as fodder for horses, and they are well adapted for the purpose, especially when the green pods are formed, for the teammen call them both green and corn food combined.

Vetches are not much approved of for ensilage, nor when used as hay, but if intended to be made into hay it is a good plan in stacking to introduce into the rick whilst building layers of sweet Oat straw, and the straw by the heating of the Vetches becomes impregnated with a pleasant aroma, and when cut into chaff together with the Vetch hay makes good dry fodder for farm horses, especially in the winter months. Buckwheat is frequently grown as food for sheep while it is young and just coming into bloom, and cattle also are fond of it, and young store cattle in the boxes are found to do well when it is used as green fodder. It seems of little importance how poor the land may be, for a good bulk of food may be raised on sandy land in particular, and is much valued if fed off by sheep. It is

frequently, however, considered desirable to plough under the haulm while green, and just about the period of blooming; for it is found that upon the thinnest sandy land it proves a valuable and lasting manure, as it adds to the staple of the land on decay. A kind of humus which not only enriches the soil for Barley-growing but enables even the most burning sands to withstand the effect of our hottest summers.

Buckwheat is neither adapted for ensilage nor hay, as it possesses too large a portion of woody fibre. It may, however, be sown as late as the middle of July for the purposes of green manuring. As an instance of sowing it to remain for seed, we remember seeing a valuable crop of seed produced upon a thin gravelly soil in a southern county in 1880, and a Wheat crop following produced six quarters and one bushel per acre of the Essex rough chaff variety, and a good average bulk of straw. The seed is well adapted for the feeding of any kind of poultry, and the crop is frequently grown by game-preservers for the enticing, feeding, and retaining on the estate where game is preserved, not only of pheasants, but partridges and grouse, affording as it also does excellent cover during the early part of the shooting season.

The Lupin is not so much used in the British Isles as it is on the Continent, especially in Germany, where it is grown and fed off by sheep in the green state at blooming time. There are two sorts or varieties commonly cultivated, one producing a yellow flower and the other a blue blossom, the latter being grown almost entirely, saved for seed and ploughed in; the former is grown principally for green fodder, but also for ploughing-in as manure for the production of cereals, like Barley and Oats especially, as it is seldom grown on our best soils and loamy land adapted for Wheat. Nevertheless, upon thin clay soils when well cultivated, and the haulm properly buried, to do this rolling is the first operation, and followed by the plough fitted with skim coulter, and drag chain with weight attached, a very large bulk of haulm very succulent, and yet containing much woody fibre, may be successfully buried; and when pressed at the same time the preparation for Wheat is first-rate, and will prove a lasting benefit to those poor elays containing but little mould or humus. We must not lose sight of the fact that the chief value of this crop lies in its thriving well on high and very poor sandy districts, usually producing Heather in the unentivated state, and where other forage plants of value can scarcely be grown, except Buckwheat, which may be called its only competitor as a forage crop upon the poorest sands.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is the most important part of practical agriculture as far as animal power is concerned, but we do not by any means undervalue ox labour. Still both these modes of animal power in cultivation must yield the palm to steam power when at fitting times of the year it can be done with benefit, simply because in our fickle climate it is important that so much can be done in so short a time, with the best effect, if we use our discernment and discretion aright in choosing our season for operations. It may be said that this applies with most truth on large occupations commanding steam power for all purposes to which it can be applied, and these are legion when properly attempted. Yet the farms of moderate size can be greatly improved by the use of steam power hired as a supplement to the horse power of the farm. This preface brings us to the points to be considered at this date, and in doing so let the home farmer remember the great difficulties of our climate, which alone prevent our following the even tenor of our work on the farm, especially at the seed time for Wheat. But do not let the peculiar difficulties of the Wheat season for sowing at certain times be forgotten, although it seldom happens so extremely unpropitious as to give us no real seed time for Wheat on the majority of soils between the 20th of October and the 20th of February, as was the case last year. Several seasons, however, we can recollect as being a near approach to it—viz., those of 1841 and 1872. This fact, however, brings to our mind that although the seasons may have been adverse, yet the farmers of the present day are not so well prepared for them as those of fifty years ago, for we well remember at that time it was common to see upon the chalk hill farms the young Wheat plant high enough to hide a hare as she sat in her form the first week in October; in fact, some of the fairs at that time, held the first week in August, were especially used for the sale and purchase of Wheat, the produce of the previous year, for seeding purposes. There were various reasons stated to justify the practice of this early sowing of Wheat, one of which was to prevent blight on the eve of harvest, and we have in our time seen numerous instances where the early-sown had escaped blight, where the Wheat sown in what is now commonly called the Wheat season suffered serious injury. The important point in our time to be considered, is the difficulty upon all mixed or flat-lying soils to obtain a dry time enough for sowing after the 20th of October. Here, therefore, is the lesson to be learnt, that in our culture and arrangements in preparing the land for seeding for Wheat, the work should be forward enough to finish sowing both fallow and lea ground by the date above mentioned upon any soil or climate.

Hand Labour.—In case of the hedges and fences not being finished, trimming them should be done while the sap is in the wood. Filling dung cart to be laid on the Clover leas where the second growth has not

been ploughed in and spreading it, will now be going on, for the sooner it is spread the better, as it can be ploughed under and buried better. The Turnips now, being large and full of foliage, are just in the best condition for breaking down and ploughing in for Wheat if not required for sheep-feeding. Threshing with the steam machinery will now be going on, and winnowing the same will employ some men as well as women to assist in the work. Finishing and topping the straw ricks as fast as the corn is threshed should be carefully done, and also thatching the same, as the best bright Oat straw for fodder will be valuable, as also the Wheat or Rye straw, and will meet a ready sale in the nearest town, for nearly every tradesman now keeps a horse and van for delivery of goods, as well for advertising, and we suppose it answers both purposes.

Live Stock.—Horses, we find on purchase, are still at rather a high price, especially animals of 16½ hands in height and stout in proportion, and we believe that all farm horses should be equal to deep ploughing in ordinary soils with two to a plough, or in summer time two to a double-furrowed plough. Sheep are still selling at very high figures, too high to promise profit in feeding for the butcher. Some of the best fairs in the south of England are just past, but others are nearing. The great fair at Weyhill in Hampshire offers some of the best Hants downs, as well as the best Dorset and Somerset horned ewes. The latter are sold in great numbers at this fair from the 7th of October to the 10th, on the last date principally the Hampshire down ewes and hoggets are offered. The horned ewes sold here are the very finest animals that can be found in the kingdom for the production of early lambs for sale in the metropolitan market at Christmas and on into January, February, and March, and we believe that it will be found that when sheep are very dear that these early-lambing ewes yield more profit than any other stock, for early lambs meet with no competition from abroad like sheep for mutton. In times like the present, when foot-and-mouth disease prevails so much, and is increasing in many counties of the United Kingdom, it is worth while to take account of the advantage to the home farmer who breeds all the animals he may require, whether of cattle, sheep, or swine. He will not only have the satisfaction of having for his purposes such animals as may be best adapted for the soil and climate of the farm, but will require to make no wholesale purchases of Irish or other cattle, which have lately gone far to spread the disease from one district to another, and, therefore, the farms on which the stock of cattle required are bred thereon, will have the greatest security against contagious diseases of every kind, but more especially if a strict look-out by the shepherd and herdsmen is kept, under the orders of the home farmer using his own caution and intelligence.

OUR LETTER BOX.

Kerry Cattle (R. B.).—The following numbers contain articles upon Kerry cattle. No. 958, August 7th, 1879, page 118; No. 1, July 1st, 1880, page 18; and No. 5, July 29th, 1880, page 105.

Lucerne and Dodder (W. L., Streatham).—The parasitic weed called the Clover Dodder is so named because it usually attacks such plants as Clover and Lucerne, the seed of which vegetates in the soil, but produce spiral shoots, which soon wind round any neighbouring plants, but especially of Leguminous plants, and then becoming disconnected from the earth derives its sustenance from the juices of the living plants of Clover, &c. The seed is generally furnished by foreign seed grown on soils to which it may be indigenous. It is not easy to remove it from the soil by ordinary eradicating appliances, for what would kill the seeds or germs of Dodder in the soil would also probably destroy other succeeding vegetation. We therefore recommend that the soil under the Dodder patches should be dug off clean from 2 to 3 inches deep and stife-burned—that is, charred by fire and smoke, which will destroy the Dodder seeds and germs. We do not do this in ordinary cultivation, for the Clover-cropped land comes up and is ploughed for Wheat; but, in this case, if it is desired to retain the land under Lucerne, the land may be burned where the Dodder has existed the first dry day or two, the ashes spread, and the vacant patches are re-seeded to Lucerne.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
September.											
Sunday	23	30.360	49.8	49.8	W.	55.2	66.3	41.4	97.4	35.4	0.185
Monday	24	29.685	57.8	56.8	S.	56.1	67.9	49.4	100.3	49.3	0.018
Tuesday	25	29.864	61.8	57.5	W.	57.0	68.8	55.2	110.3	50.3	0.119
Wednesday ..	26	29.673	62.9	61.9	S.W.	57.2	69.1	54.8	113.4	47.5	—
Thursday	27	29.674	59.3	53.7	S.W.	57.0	65.1	51.7	103.4	45.7	0.383
Friday	28	29.712	56.3	52.8	N.W.	56.3	63.8	49.3	99.7	45.0	0.182
Saturday	29	29.289	52.2	48.3	N.W.	56.3	59.4	48.0	102.4	45.3	0.653
		29.751	57.2	54.4		56.6	65.8	50.0	103.8	45.5	1.540

REMARKS.

23rd.—Thick mist and cold in early morning; fine bright day.
 24th.—Wet morning; fine afternoon; rain again in evening.
 25th.—Windy morning; fine day; short sharp shower at 1.45 P.M.
 26th.—Wet at first; bright breezy day.
 27th.—Very heavy showers with bright intervals.
 28th.—Fine bright morning; overcast afternoon; slight rain in evening.
 29th.—Fine at first, afterwards showery.

Very unsettled weather during the week.—G. J. SYMONS.



11	TH	Meeting of Fruit Committee at Chiswick. Sale of Vanda Sanderiana
12	F	[at Stevens' Rooms.]
13	S	
14	SUN	21ST SUNDAY AFTER TRINITY.
15	M	
16	TU	
17	W	

APPLES IN THE ASCENDANT—DOUBLE GRAFTING.

FOR the first time after the lapse of centuries the full value of the Apple has been recognised. At one bound it has risen from almost the lowest position in the schedules of exhibitions into the front rank; is even accorded, as it eminently deserved, a position such as no other fruit has attained at the head quarters of practical horticulture—historic Chiswick. A really national show of any kind of fruit such as the display now on view in the Royal Horticultural Gardens has never been held before, and those who have witnessed the great gathering will concede that not one national show of special garden products, whether of Auriculas, Roses, Pelargoniums, Carnations, Dahlias, Gooseberries, or even Potatoes, has equalled this in either magnitude or interest. Nor has there been equal evidence in any one case that the necessity for these special gatherings has been so great as for the truly national gathering under notice; and it follows, therefore, that from none of them has the benefit been so marked as will result from this remarkable Apple Congress. In stating this it is not intended to in the slightest degree detract from the special shows alluded to. All gatherings of this nature are direct incentives to higher culture, while they widen the interest in the different garden products and extend the industry of horticulture. Let them all flourish, and that they do so shows the more clearly—and this is why they are mentioned—the great, the almost surprising, neglect which the Apple has hitherto been fated to endure. What is best is most common, and perhaps on this account the Apple, like the Potato, has been so long left authoritatively unnoticed until by accident, private fancy, or carelessness the nomenclature of varieties is almost in a state of chaos, errors thereby having been multiplied, and orchards and gardens occupied unprofitably. A change having become urgent and the time opportune, an effort is at last made to do something towards effecting an improvement in the supply of this indispensable fruit, so that raisers and cultivators of trees and consumers of their produce may be mutually benefited.

This is the object of the extraordinary gathering that is more fully referred to in another column—a gathering that has astonished the promoters by its magnitude, and rendered the labours of the scrutineers even more onerous and difficult than was expected. They have, however, faced their task boldly, examined systematically, and a strong mark of recognition is due to one and all for their valuable services in the work in question. The complete results of their labours will not be immediately apparent, but that they will eventually be found of substantial service there cannot be a doubt.

There is much to be learned in connection with this important fruit, and those who have the most intimate acquaintance with it will be the first to admit this. Beyond the classification of varieties, determining the accuracy of their names, and acquiring information relative to adaptability of different Apples to various districts, a wide field for research

is open on the question of stocks. Broadly speaking, and for general purposes, competent nurserymen know as a rule the stocks that are suitable for certain varieties and different forms of culture; but the full importance of double grafting is not yet sufficiently appreciated, nor can it be ascertained except by extensive and carefully conducted experiments.

Working one Apple on another that is itself established on a Crab or Paradise stock has a marked influence on the tree both as regards vigour, productiveness, also the size, and even the colour of the fruit. On these points we have some evidence as the results of trials on a limited scale conducted over a series of years by Mr. Harrison Weir. The record of some of these experiments is before us, and in a few instances are striking and suggestive if not strange, and we may appropriately direct attention to them here.

Duchess of Oldenburg grafted on the Early Strawberry, a tree nearly dead with canker, revived the tree, which now makes vigorous growth, the fruit growing to a very large size, colouring beautifully, and ripening fully three weeks earlier than is usual with this variety.

Duchess of Oldenburg grafted on the Golden Winter Pearmain makes very thin wood, but appears healthy. The fruit is small and of a pale green colour.

Duchess of Oldenburg grafted on Reinette Van Mons makes very little growth, the fruit being hard and much smaller than the above, but very handsome in appearance.

Golden Noble grafted on the Golden Winter Pearmain does remarkably well, the fruit also being very fine.

Golden Noble grafted on the Hollandbury does not do well, the growth being poor and fruit very small. The same variety grafted on the Tower of Glamis succeeds fairly well.

Golden Noble grafted on the Ribston Pippin, a tree almost killed with canker, makes most vigorous and clean healthy growth, the fruit also being clear and fine; but the same variety grafted on the Striped Beefing is useless.

Lord Suffield grafted on Cox's Orange Pippin will not make any growth, neither does it succeed on either Reinette de Canada nor Reinette Van Mons. Neither is it quite satisfactory on the Golden Winter Pearmain, the growth being too weak and the fruit too small; but worked on the Hollandbury it makes clean healthy growth, bearing very fine fruit; while on the Sweet Rymer it makes little growth and fruits very heavily.

Beauty of Kent grafted on Reinette de Canada makes thin but clean growth and bears freely, but the fruit is smaller than usual.

Blenheim Pippin grafted on the Irish Peach does not succeed, being very much inclined to canker; on Omar Pacla it makes poor growth and bears very small fruit; but worked on the Sweet Rymer it thrives well, making clean vigorous growth and fruiting satisfactorily.

Cox's Pomona grafted on the Golden Winter Pearmain does remarkably well, the fruit being very fine indeed, but has no colour even in the sun, being quite green, and does not ripen so early as usual.

Cox's Pomona grafted on Reinette Van Mons does very well; the fruit is under medium size, harder than the above, but very handsomely coloured.

Cox's Pomona grafted on King of the Pippins, trees that were almost dead with canker, makes vigorous growth and produces fine fruit abundantly, but not having quite so much colour as the variety in common. Mr. Weir remarks that King of the Pippins and Golden Winter Pearmain are quite distinct with him both in growth and fruit, though they are classed as synonymous in the "Fruit Manual." Perhaps the trees are on different stocks.

Cox's Pomona grafted on Hawthornden, that does not do well in his garden, takes very freely, and the fruit is fine but very pale in colour. The same variety on Tower of Glamis grows vigorously, but has not yet fruited; on the Alfriston, which does not do well, the growth is healthy and the fruit fine, freely produced and handsome, while on the Reinette de Canada the growth is rather weak but productive,

the fruit, however, being smaller than the average, a few days later in ripening, but very highly coloured.

Those results are very suggestive. If the ripening of an early Apple, such as the Duchess of Oldenburg, can be accelerated by three weeks, the fruit being also large and beautifully coloured, that is an important point gained, and the same stock is worthy of being tried for other early dessert Apples such as Mr. Gladstone, also kitchen Apples, and if the results are equally satisfactory we shall be closely approaching the desideratum of having Apples all the year round.

The vigorous growth of Golden Noble on the Ribston Pippin "almost killed with canker," suggests the desirability of trying the Ribston on the Golden Noble thus established, with the object of ascertaining how far the stock will influence the old favourite in rendering its growth similarly free and cankerless.

That soil and climate influence the colouring of Apples is beyond question. The examples now on view from widely separated districts show this conclusively. From Kent, Middlesex, Monmouthshire, Dorsetshire, and Devonshire we find highly coloured fruit, whereas the same varieties from Lincolnshire, Staffordshire, Yorkshire, and Durham are practically colourless. This is only what might be expected; but few persons would anticipate that Duchess of Oldenburg grafted on the Golden Winter Pearmain should not colour at all, while on the Reinette Van Mons the fruit should be so handsome, nor that exactly the same phenomena should occur with Cox's Pomona worked on the same stocks, especially as Reinette Van Mons is not itself highly coloured. It is quite clear there is something to be learned on the question of stocks, and it is equally certain that much knowledge on varieties can be gained by an inspection of the 8000 dishes or more of fruit in the marvellous collection at Chiswick. It is a grand museum of Apples, and most instructive, especially as the correct and erroneous names are attached to the dishes where corrections were necessary. It affords such an opportunity for the study of the Apple as has never been seen before, and is not likely to occur again. All gardeners, and indeed everybody interested in this fruit, should make an endeavour to spend a few hours at Chiswick during the next week; and, as has been suggested by Mr. Harding, if advantage is taken of excursion trains from various districts to the "Fisheries," two wonderful Exhibitions can be seen in one day, and neither of them will soon be forgotten.

Nor must reference to the contributors to this remarkable display be omitted. There were neither money prizes nor medals to tempt them, yet from nearly every county in England fruit has come, with interesting consignments from Wales and Scotland. Perhaps especially noticeable is the great representative collection of 279 varieties from Tweedside, not only by the excellence of much of the fruit, but by the complete manner in which it was presented by Messrs. Ormiston & Renwick of Melrose. It is the produce of sixteen gardens, and was accompanied by an apparently unlimited supply of printed circulars containing lists of the varieties and notes from the several cultivators explanatory of the conditions under which the fruit was grown, such as altitude, soil, subsoil, and treatment to which the trees had been subjected. This must be regarded as a model consignment. Messrs. Jefferies of Oxford also collected and furnished fruit from several gardens and gave similar information; the Durham Gardeners' Institute also worthily shared in similar work. Other collectors probably assisted, and to them and to individual contributors the thanks of cultivators are due for the generous support thus given in rendering the gathering what it undoubtedly is, a decided success.

Mr. Barron is especially to be complimented on this satisfactory achievement, and the cheerfulness with which his assistants have discharged the extra duties that have devolved upon them merits approval, while Mr. Killick has worked assiduously in naming the fruit, his intimate knowledge of Apples rendering his services valuable.

It will be remembered that the collection remains till the 18th inst., and can be reached in half an hour from South Kensington, both Turnham Green and Acton Green stations on the Metropolitan District Railway, being about ten minutes' walk from the Gardens; Chiswick station on the London and South-western line being also within a mile of the Exhibition. It may be also remarked that the vinery in which the chief display is arranged is the finest in England, and the Grapes above and the Apples below form a spectacle unexampled and unique.

The immediate result of this Congress will be to stimulate the planting of Apples of the best varieties, thus the fruit supply of the future will be insured as better than that of the past, and assuredly there is room for improvement.

ORCHIDS IN AUTUMN.

As some of the most beautiful and useful of these choice plants need special attention now, a brief note on their requirements may, perhaps, be of service to those persons who are "trying their hands" at the culture of the most popular kinds, and are hoping to succeed in growing and flowering them well. At present I will confine my attention to three of the most useful genera—*Dendrobiums*, *Calanthes*, and *Odontoglossums*.

Dendrobiums.—Such kinds as *D. nobile*, *D. Wardianum*, *D. Devonianum*, and others that were started early and allowed to make their growth under the influence of plenty of heat, light, and air, will now be in a well-ripened condition. This condition must be reached before the plants are removed to cooler, drier, and more airy quarters. It is a great mistake to bring these plants to rest prematurely, for such treatment will not insure the best results. They must be carefully and gradually brought to a standstill to enjoy the period of rest so essential to their successful cultivation.

Calanthes.—These, if properly attended to during the summer, will be strong, and their flower spikes now throwing up rapidly. From this time they should enjoy a somewhat drier atmosphere than has been necessary during their growing period. Do not discontinue the use of stimulants until the first flower opens, and maintain the foliage healthy as long as possible. The glass of the house inside and out should be thoroughly washed if needed, so that every ray of light possible will reach the plants. Keep them close to the glass, as the colour of the flowers depends very much upon the light they receive when they are developing. If the early batches are coming forward too rapidly the temperature can now be gradually lowered, and the plants thus retarded.

Odontoglossums.—Many plants that have made strong well-ripened growths will be producing flower spikes. A sharp look-out must be kept for slugs at the present time, for if any are allowed to exist a good number of spikes may be ruined in a night. A little cotton wool placed round the spike is an admirable plan, but the safest is to suspend the plants from the roof until the spikes are firm and thus safe from the ravages of these most troublesome pests. Keep a sharp look-out for aphides, and eradicate them at once, for when they are allowed to establish themselves upon the flower spikes they soon injure and deform the blooms. I am no advocate for fumigating these plants, but remove these insects by means of a soft brush and a little weak tobacco water. Shading is often practised after this date by many growers, but ours is removed for the purpose of allowing those growths not yet fully developed an opportunity of becoming thoroughly matured. The plants must not be allowed to suffer by the want of water either at the roots or in the atmosphere. Keep them close to the glass and admit air freely when favourable, and the flower spikes will be stout and compact instead of weak and slender. Do not allow the night temperature to fall below 55°, and allow a rise of 10° during the day by sun heat.—W. BARDNEY.

THE ROSE ELECTION.

AN election of newer varieties, valuable as it is, necessarily means a small number of voters, and not a few of those who have so kindly assisted in previous years have returned their papers, honestly confessing that their experience of "newer" varieties was not sufficiently extensive to justify their giving an opinion. This is every way satisfactory; it proves that those who have voted in previous elections are for the most part growers who desire to record their own views founded on their own experience, and it is this collective recorded experience that is of value. Some, however, of the returns have had remarks attached to them not altogether complimentary to the general excellence of the newer Roses—for instance, one remark appended was that there were not more than a dozen worth cultivation. This perhaps is a little too sweeping, yet I fear there is a fair amount of

chaff along with one or two Roses that will rank very highly in any election return. It is true that in the general election of 1882 A. K. Williams achieved a most honourable position, and although it did run Marie Baumann very hard for premier position, I apprehend if the two Roses were pitted one against the other, the older variety would win easily, at least as far as my experience goes. In constancy of bloom, in soundness of constitution, and in perpetuality of good blooms late in the season, there can be with me no comparison as to the respective merits, and the gentleman must retire with the best grace he may. Others, perhaps, have formed a more favourable opinion of their respective merits. I only give my own, merely adding that if both were brought together in the highest perfection simply as exhibition blooms it would be a difficult matter to assign the premier position to either.

The returns in the present election show the necessity for a good Rose catalogue, such as we all hope the new edition of the National Rose Society's catalogue will prove to be. The ages of some of the candidates for honours have been put back, and not a few of these I have been compelled to exclude. Some Roses, too, I fear are getting "mixed"—for instance, Constantin Tretiakoff in two catalogues before me has become Fretiakoff.

But I must pass on to the results of the poll. In all there are thirty electors, nineteen amateurs and eleven nurserymen, and the table is given as usual, the first column giving the votes for each Rose as in the best six, the second as in the second best six, and the third as in the next twelve (amateurs). The same columns with an asterisk denote the same votes given by nurserymen.

RESULT OF THE POLLING.

No.	Name of Rose.	Character of Rose.	Year of Introduction.	Raiser's Name.	Amateurs' Votes.			Total.	Nurserymen's Votes.			Total.	Grand Total.
					A	B	C		A	B	C		
1	Alfred K. Williams....	H.P.	1877	Schwartz	19	0	0	19	11	0	0	11	30
2	Madame G. Luizet....	H.P.	1877	Liabaud.....	17	1	1	19	9	1	1	11	30
*3	Countess of Rosebery..	H.P.	1879	Postans	8	10	1	19	4	5	2	11	30
*4	Duchess of Bedford ..	H.P.	1879	Postans	15	2	2	19	6	3	1	10	29
5	Duke of Teck	H.P.	1880	G. Paul	6	3	5	19	5	0	4	9	28
6	Madame Marie Verdier	H.P.	1877	E. Verdier.....	4	5	7	16	6	1	2	9	25
7	Harrison Weir.....	H.P.	1879	Turner	1	6	10	17	3	0	5	8	25
**8	Charles Darwin	H.P.	1879	Laxton	5	6	4	15	2	3	4	9	24
9	Pride of Waltham	H.P.	1881	W. Paul.....	4	4	7	15	0	3	6	9	24
10	Mrs. Jowitt	H.P.	1880	Cranston	2	4	6	12	2	2	6	10	22
11	Madame Lambard	T.	1877	Lacharme	9	5	1	15	3	0	2	5	20
12	Violette Bouyer	H.P.	1881	Lacharme	2	2	6	10	1	3	5	9	19
**13	Mrs. Laxton.....	H.P.	1878	Laxton	0	7	8	15	0	3	1	4	19
14	Innocente Pirola.....	T.	1878	Madame Ducher.	6	4	5	15	1	0	2	3	18
15	Etoile de Lyon.....	T.	1881	Guillot	3	5	4	12	1	2	3	6	18
16	Madame E. Verdier ..	H.P.	1878	E. Verdier.....	1	3	8	12	2	1	2	5	17
17	Ulrich Brünner, fils ..	H.P.	1881	Levet	1	3	6	10	0	3	4	7	17
18	Catherine Soupert	H.P.	1879	Lacharme	0	4	7	11	0	0	5	5	16
19	Madame Isaac Perrière	B.	1880	Margottin, fils ..	0	4	5	9	0	2	4	6	15
20	Egeria	H.P.	1878	Schwartz	0	0	9	9	0	0	5	5	14
†21	Lady Sheffield.....	H.P.	1881	W. Paul & Son..	2	4	1	7	1	2	3	6	13
22	Rosieriste Jacobs.....	H.P.	1880	Madame Ducher.	0	1	6	7	0	0	5	5	12
23	Helen Paul	H.P.	1881	Lacharme	0	2	6	8	0	1	2	3	11
24	Merveille de Lyon	H.P.	1882	Pernet	1	1	3	5	2	1	2	5	10
25	Madame Ducher	H.P.	1879	Levet	0	2	3	5	0	2	2	4	9
*26	May Quennell	H.P.	1878	Postans	1	1	2	4	2	0	2	4	8
27	Constantin Tretiakoff.	H.P.	1877	Jamain	1	2	1	4	0	4	0	4	8
†28	Mrs. H. Turner	H.P.	1880	Laxton	0	1	4	5	1	1	1	3	8
29	Madame Welch	T.	1878	Madame Ducher.	0	1	6	7	1	0	0	1	8
30	William Warden.....	H.P.	1878	Mitchell & Son .	0	1	5	6	0	1	1	2	8
31	Madame A. Jacquier ..	T.	1879	Guillot, fils	0	0	6	6	0	1	1	2	8
‡32	Mary Pochin	H.P.	1880	Rev. E.N. Pochin	0	2	3	5	0	2	0	2	7
33	George Baker	H.P.	1881	G. Paul	0	0	5	5	0	0	2	2	7
34	Barthelemy Joubert ..	H.P.	1881	G. Paul	0	0	2	2	1	1	2	4	6
35	Souvenir de V. Verdier	H.P.	1878	E. Verdier.....	0	1	4	5	0	1	0	1	6
36	Alfred Dumesnil.....	H.P.	1878	E. Verdier.....	0	0	2	2	0	1	3	4	6

* Sent out by William Paul & Son.
 ** Sent out by G. Paul.
 † In Paul's catalogue, Postans, and William Paul & Son.
 ‡ Sent out by Turner.
 § Sent out by Cranston.

Of the untabulated Roses named, four received five votes; eleven received four votes; and amongst these I ought certainly to note H.T. Lady Mary Fitzwilliam, 1882 (Bennett), for three of these votes are first-class votes; nine others obtained mention three times, thirteen only twice, and twenty-three out of the total number named (ninety-six) have only a single vote—nearly a quarter of the number named! It is quite possible that some few of these ninety-six may have on the score of age no title to their votes, but I think this number is but small, as I have eliminated a large number. And here I may mention how deeply I am indebted to Mr. Ellwanger's book on the Rose for information as to dates and raisers' names. No other catalogue that I have yet seen approaches it in information on these points.

As all doubtless anticipated, A. K. Williams heads the poll, and is the only Rose that has in all of the lists first-class votes only. It is truly a glorious Rose, and, if it obtain greater vigour and strength

of constitution, must be universally allowed to be one of the brightest gems of our national flower. The Teas are not as high as they might be, or, I might add, as they deserve. Some electors have a difficulty in contrasting the two varieties, and they settle the difficulty by omitting the Teas altogether; but for this they must have obtained a better position. It is a difficulty I do not feel, for I should settle it by asking myself this question, "Which should I give up?" if forced so to do.

On the whole revision, one is driven to the conclusion that a few years hence a goodly number of these ninety-six Roses will have disappeared, and even among the three dozen tabulated there will be blanks. As some guide to value, and probable future of many, the first-class votes are valuable. Taking these votes only, the table reads thus—

- | | |
|--|-----|
| 1. A. K. Williams, 30. | } 4 |
| 2. Mad. G. Luizet, 26. | |
| 3. Duchess of Bedford, 21. | |
| { Countess of Rosebery }
{ Madame Lambard } 12. | |
| 6. Duke of Teck, 11. | } 3 |
| 7. Mad. Marie Verdier, 10. | |
| { Charles Darwin } 7
{ Innocente Pirola } | |
| Harrison Weir
Pride of Waltham
Mrs. Jowitt
Etoile de Lyon | } 3 |
| Mad. Eug. Verdier
Lady Sheffield
Merveille de Lyon
May Quennell
Violette Bouyer
and | |
| Lady M. Fitzwilliam. | |

Only nineteen Roses, and six of these receiving but three first-class votes, is not great promise of many "perpetual" varieties.

The following have kindly made returns. *Amateurs*:—Miss Watson Taylor, Headington, Oxford; Revs. C. Bulmer, Credenhill, Hereford; A. Cheales, Brockham, Surrey; H. H. Dombrain, Westwell, Ashford, Kent; and F. Page Roberts, Scole, Norfolk; and Messrs. George Baker, Holmfels, Reigate; James Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate; J. Burrell, Heighington, Darlington; John Choyce, Pinwell Grange, Atherstone; W. J. Grant, Ledbury; Thomas B. Hall, Rock Ferry, Cheshire; Edward Mawley, Addiscombe, Croydon; Wm. Moore, gardener at Caedreglan Park, Cardiff; George Mount, Harbledown, Canterbury; F. C. Pawle, Northcote, Reigate; J. D. Pawle, Wray Park, Reigate; J. Sladden, Badsey, Evesham; and E. R. Whitwell, Barton Hall, Darlington. *Nurserymen*:—Messrs. Bunyard & Co., Maidstone; B. R. Cant, Colchester; E. Claxton, Allerton, Liverpool; G. Cooling & Son, Bath; Cranston & Co., Hereford; Curtis & Co, Torquay; Dickson & Co., Upton, Cheshire; H. Frettingham, Beeston, Notts; Jefferies and Sons, Cirencester; H. Merryweather, Southwell, Notts; W. Rumsey, Joyning's Nursery, Waltham Cross.

To these many others besides myself will feel deeply indebted. One or two returns were useless, the dates taken no note of throughout, and received so late that I could not keep faith as to time of publishing if I had returned them. As it is, I have been sorely tried in doing so.—JOSEPH HINTON, *Warminster*.

P.S.—September 29th.—By this morning's post came Mr. G. Paul's return. It bore the motto "Better late than never;" but, alas! the outcome of the returns was already in the printer's hands. Yet I am sure all the readers of "our Journal" will be glad to see Mr. G. Paul's list, I therefore give it *in toto*; and it is interesting to note how very slightly it differs from the collective opinion of the thirty electors:—

- | | |
|-----------------------|---------------------------|
| 1. A. K. Williams. | 4. Countess of Rosebery. |
| 2. Duke of Teck. | 5. Mad. Lambard. |
| 3. Mad. G. Luizet. | 6. Duchess of Bedford. |
| 7. Merveille de Lyon. | 10. Mrs. Laxton. |
| 8. Charles Darwin. | 11. Marie Verdier. |
| 9. Mad. Eug. Verdier. | 12. Harrison Weir. |
| 13. Innocente Pirola. | 19. Violette Bouyer. |
| 14. Egeria. | 20. Ulrich Brunner, fils. |
| 15. Mad. Cusin. | 21. Madame A. Jacquier. |
| 16. Pride of Waltham. | 22. Madame Welch. |
| 17. White Baroness. | 23. Lady Sheffield. |
| 18. Helen Paul. | 24. George Baker. |

These twenty-four names differ but little from the collected twenty-four, except in position; Mad. Cusin, White Baroness, Mad. A. Jacquier, Mad. Welch, and George Baker being the only differences, and three of these are in the thirty-six.—J. H.

STRAY NOTES.

Eupatorium riparium.—This, although not quite as showy as its congener *E. odoratum*, is nevertheless a very useful plant for affording a supply of cut flowers and for decorative purposes during winter. It possesses

the great merit of being easily grown, and will stand almost any rough treatment, hence its great value. Cuttings taken in early spring, placed in heat until rooted, afterwards potted, and placed in close frame or pit for a few days. Harden them, and in May plant them out in some spare corner of the garden, occasionally pinch them to keep them in shape, and water when necessary. This is all the attention they will require until September, when they may be lifted and potted, afterwards placing them in a close pit until established in their pots, when they may be removed to wherever they are desired to flower. Such is the *modus operandi* whereby this species, also *E. odoratum*, may be grown, with a minimum of trouble and attention, into useful plants.

Impatiens Sultani.—A most useful and accommodating plant. It lives in either a high or medium temperature. Cuttings struck and grown in small pots make admirable little gems for associating with miniature plants of Gloxinias grown by us in small-size pots with two to three flowers on each plant, and small Ferns in the jardinières of the drawing-room.

Salvias.—Such varieties as Pitcheri, rutilans, splendens, gesneræfolia, and patens, are also very useful for winter work. Patens is going out of flower, but the remainder are coming into flower. Splendens and gesneræflora may be planted out where labour power is curtailed, and lifted and treated similar to the Eupatoriums.—J. U. S.

FRUIT-GROWING.

To a gardener who is strongly attached to his calling, especially if he happens to be what is generally termed "an all-round man," there is probably no work connected with his duties that is more interesting, or for which he has a greater fondness, than planting fruit trees. The falling of leaves and the ingathering of fruit announce to us that the season will soon be here for such work to commence. Where it has not already been done no time should be lost in making a close examination of every tree in the garden, at the same time noting all such as are in an unsatisfactory state, and deciding what remedial measures are to be applied in each case. It is seldom indeed that we find every tree in such a satisfactory condition as we desire. Where there is a tendency to over-luxuriance and the production of wood instead of fruit, root-pruning must be resorted to. When it so happens that the trees which are in this condition have been undisturbed for a number of years, it will in some cases take three or four seasons to accomplish the desired result, and the work must be proceeded with gradually—the first season operating on one side of the tree only; this being done by digging out a trench at a reasonable distance from the trunk, and cutting through all roots which come in the way. Work out all the soil from amongst the roots with a four-pronged fork, at the same time severing all the large ones taking a downward course. Afterwards cut off with a sharp knife all jagged ends and those roots which have been bruised during operations. Too much importance cannot be attached to this point. Fill in with the same soil, and tread it down as the work proceeds, finishing off with a mulching of half-decayed stable manure, and in the event of the soil being of a porous nature give a good soaking of water. The following year adopt the same plan with the other half of the tree.

When trees are comparatively young and unproductive they may with safety be entirely lifted and replanted the first season of their being root-pruned; but with old-established trees, especially if they are growing in what are termed strong soils, the treatment recommended above will be found much the best. Although we say this by way of an inducement to keep on the safe side, we have successfully lifted and transplanted old trees in one season; but of course more care and caution is required, otherwise the result might have been the reverse of satisfactory. With Apricots, Apples, Pears, and Plums there are probably more failures due to over-luxuriance than to any other cause. It should therefore at all times be regarded as a matter of the highest importance to adjust where necessary the balance of power between root and branch.

There is another source of disappointment besides the one we have alluded to, and by no means an uncommon one, and with which fruit-growers are well acquainted—viz., "the yellows," as it is termed in gardening phraseology. Peaches and Nectarines, owing, it may be, to their more tender constitutions, are more liable to this disease than any other kind of fruit grown in our climate. The causes of its appearance are various, but may be attributed chiefly to badly drained soils and to those of a hungry poverty-stricken nature. Subsoils of the worst characters are also a fruitful source of the disease. When trees are in this state they are very subject to red spider, the leaves fall prematurely, and the wood fails to ripen. In very bad cases the best plan to adopt is to destroy the trees and plant young ones; but if it is a mild form, or, say, of two or three years' standing, then undoubtedly the best and safest course to take is to lift the roots entirely, bring them nearer to the surface, and plant in fresh soil, which may consist of good turfy loam mixed with charred rubbish and a little well-decomposed stable manure. On Peach walls where the disease we are now dealing with has made

its appearance measures should be taken as soon as the leaves fall to prevent its recurrence for some years to come. This may easily be done, provided there is an ample supply of suitable material at hand when the time arrives for the work to commence.

Presuming that the border which it is contemplated to take in hand is well drained, the work should be begun at one end by taking out a trench 2 feet wide and 18 inches deep, taking a distance from the wall of about 5 feet. The top spit and the loose soil should be worked to the bottom of the trench, mixing along with it and filling up to about 6 inches above the surface with such compost as that recommended above; and in the event of the natural soil of the garden being of a highly calcareous nature a little peat, if it can be obtained, will be found good to add thereto. As the trenching proceeds tread down the soil moderately firm, lifting and replanting the trees at the distance of about 15 feet from each other, not forgetting to finish off with a mulching of stable manure. The branches may be tied up and slung to the wall, securing them in their positions early in the new year.

Concerning young trees received from the nursery we would strongly urge the importance of having the ground for their reception prepared beforehand, so that when they arrive they may be planted with the least possible delay. It is equally important to dispatch orders early; then the trees may be expected to come to hand early, and be planted before winter weather arrives. Neglect and dilatoriness on this point not unfrequently ends in trees arriving with roots very much frozen, and the ground in which they are to be planted frozen also, and altogether in an unworkable state.

Coming now to small fruits the Strawberry is perhaps the most important. The ground where these are to be planted should be trenched and heavily manured to a depth of fully 18 inches if the best results are desired, and such should always be the object in view, for, as the old adage says, "What is worth doing is worth doing well." July and August we have found to be a very good time for making new beds, making use of plants which have been forced. These get well established before winter, and yield a full crop the following season. Of course beds may be planted now, but they will not bear such a good crop next year as those planted earlier. Give them plenty of space, say from 2 to 3 feet each way.

Raspberries next demand attention. They often fail and yield the least satisfactory results from occupying the same quarters for too long a time. They like liberal treatment and rather a moist situation. With us the canes grow from 9 to 10 feet high, and are as thick as one's thumb, producing fruit of a presentable appearance and of good quality. Our *modus operandi* consists of trenching the ground 2 feet deep and giving plenty of strong manure, planting stools with two or three canes to each 6 feet apart each way as soon as the leaves have fallen.

Gooseberries and Currants are all the better for not occupying the same ground for too long a time. Young bushes always produce the finest fruit, but where it is not convenient to incur any extra outlay old ones may with safety be transplanted towards the end of this month. Now is a good time to insert cuttings of the latter, bearing in mind to pick out the buds from the lower part of the cutting, and in three or four years hence they will be large enough to replace the old bushes. In conclusion we would strongly impress upon the minds of those who contemplate planting fruit trees the importance of paying close attention to the following points—viz., avoid deep planting, stake and tie securely all such trees as require it as soon as they are planted, and give a mulching to the surface of 3 or 4 inches of half-decayed manure.—J. HORSEFIELD, *Heytesbury*.

EARLY OR SUMMER-FLOWERING CHRYSANTHEMUMS.

In the *Journal of Horticulture* for July 26th, 1883, a paper appeared by Mr. J. Udale, gardener at Shirecliffe Hall, Sheffield, the concluding paragraph of which, on summer and autumn-flowering Chrysanthemums, reminded me how little seems to be known of the progress made and being made in early-flowering Chrysanthemums. They are not all Pompons. Madame Castex Desgranges, at present the grandest white summer bloomer, is a large Japanese kind, quite as large, when well grown, as Elaine, but with the excellent quality of not growing more than half the height, and not being much more than half the time coming to perfection. Thus cuttings inserted at the beginning of May bloom during October, though if the earliest flowers are desired, the cuttings must be struck in June or July of the year before and wintered in cold frames kept from the frost, then they will bloom as early as the middle or end of May; in fact, from May onwards they may be bloomed any time. This has nothing to fear beside any of the late ones; it is a grand plant, one of the best ever grown. It is not new now. I have grown it four seasons. It is said to have been sent out in 1877, but the trade

in and around London knew little or nothing of it till 1880, when I first grew it and endeavoured to make it known.

Précocité is still, perhaps, the best early yellow, but the new yellow sport of Early Cassy is better in some respects. Chromatella, or Chrome Stella, is not a good plant. The new Frederic Marronet of this season is far before it in habit of plant and form of flower. It is the same colour—orange-yellow, a small Pompon, and came into bloom August 7th; a real little beauty. Frederic Pelé is in some respects the best of the colour, but it is a shy bloomer and has a delicate constitution. My red sport of Madame Piccol (syn. Mr. Piercy) is a much more profuse bloomer. Pompon Toulousain is another red, very early, very free and robust as well as dwarf. Early Cassy is not nearly so good as Madame Piccol, which is the same colour. Golden Button is simply worthless, while Scarlet Gem is of a very tender constitution, and only seems to do well on gravel subsoils. One of the very best new Pompons is Lyon. It is of French origin. Colour, rosy purple, much the tint of Madame Piccol, and makes the latter of little value, only that it is rather later. Lyon blooms in September from spring-struck cuttings, and is a superb Pompon in every respect; an admirable plant.

Nanum, the Sistou of the French, although old, is still in many respects the best early white, it is so dwarf and stout. Besides being the very earliest of all, it will bloom from plants struck the summer before by the middle of May, and under glass is of exquisite whiteness. Another of the best of the early whites is the new Mdle. Jolivart. It is very dwarf, and a profuse bloomer, with a flower of wax-like appearance differing from all others. The new Mrs. Cullingford resembles it a little, and is between it and Nanum, but does not bloom till September, and is a taller plant, but very fine. The little Petite Marie is another pretty white variety; it will bloom at 4 inches high and is very early.

The following are all good, early, and new—Virginia, white; Anastasio, magenta; Inimitable, orange; Curiosity, lilac white; Lavallée, white; St. Crouts (syn. Pollion), pink; Zenobie, orange; Secrétaire Daurel, Tresorier Lacoste, crimson and buff. Besides many others which I cannot mention now, I intend to publish a list of some of the best between now and November, and will write more if I find this is valued. I shall be glad to hear from anyone interested in early-flowering Chrysanthemums, or show my collection to anyone who will send me word when they will call. I have been growing, collecting, and studying them for the last seven years, and probably know something about them others would wish to know, and they are welcome to hear from me what they may wish.—W. PIERCY, *West Road, Forest Hill, S.E.*

NOTES ON PEAS.

PEAS have only succeeded moderately with me this season the earliest crops being by far the best, the midseason fairly good, and late varieties very indifferent. This is only what might have been anticipated, as the soil is a gravelly loam with gravel beneath, and in such soils it is useless expecting fine full late crops without making special preparations, as the growth has to be made when the days are hottest and driest, and the plants become stunted, producing a weakly haulm, whilst the peas are few in the pod, badly swelled, and are soon over, even if they escape attack by mildew. Not only was the above disastrous in its effects, but the caterpillars of the Y moth fed upon the leaves and ate the flower buds, whilst the maggots of a minute fly were most assiduous in their attentions. These between them committed great havoc; and as I have not had the same evil to contend with I shall be grateful for any information that would point to some mitigation of the mischief done by these pests. I think it likely that fir-tree oil syringed over the haulm might prevent the eggs being laid upon them, which I think takes place during the early part of June to early July, but I do not know enough of the life history of these insects to warrant any positive statement. Can any of your entomological correspondents enlighten me?

Happily the sparseness of haulm and the mildew can be successfully combated by strengthening the plant with a deeper soil. This is best done by taking out a trench 2 feet wide and a spade deep, putting in about 6 inches thickness of well decayed manure, forking this well into the soil at the bottom of the trench, and then returning the soil thrown out to its former position. This will form a ridge, and in the centre of these the peas may be sown. When the peas are sown, and by or before they are a foot high, mulch on both sides of the row with about half-decayed manure to the extent of 3 or 4 inches thickness and 18 inches wide, giving previously a thorough soaking of liquid manure if the ground be dry, and from this time forward a thorough watering must be given weekly if there is little or no

rain. This will give very much better results than leaving everything to the weather; indeed the labour and means will be amply repaid by a full supply of delicious peas, whilst the ground is undergoing an enriching process, fitting it for the carrying of almost any crop.

William the First was our best early Pea, and First and Best Early maintained its reputation for earliness, free-bearing, and good quality. Criterion did well, bearing abundantly, and like its prototype, Ne plus Ultra, was of fine quality. It certainly is one of the best second earlies, being a much earlier and dwarfer form of Ne plus Ultra. It grows 5 to 6 feet high.

Gladiator, one I believe, of Mr. Laxton's raising, purchased and sent out by Messrs. Veitch & Sons, proved a marvel of productiveness, having large pods exceedingly well filled with medium-sized deep green peas, which proved of excellent quality. It partakes somewhat after the type of Fillbasket, having a curved pod, but the quality is much superior and the season is longer. It is a Pea of such merit that it cannot fail to become a favourite with growers for market and those that cannot command long sticks, as this only grows 3 feet high and is remarkably prolific.

Marvel is a fine Pea of the Veitch's Perfection type, but comes in earlier and is very productive, the pods being large, as also are the peas, and has ten or more in a pod, which are delicious in flavour. A main crop variety, growing 3 feet high.

Telegraph did very much better than Telephone, filling its pods better and giving fully twice as many of them. The quality, it is needless to say, was excellent, as all the peas of Mr. Culverwell's raising are, size and quality being inseparable. The Giant Marrow gave its magnificent pods abundantly, and as an evidence of quality I may mention that not a pod was gathered 6 feet from either end of row, so much esteemed were they by those ever prone to test the quality of Green Peas. It is one of the very best late Peas, growing full 6 feet in height. I have had it half as much more.

Best of All surpassed Veitch's Perfection, which is saying much, filling its pods better, and is a medium grower (3 feet) of the highest quality, being good for main or late crops. Sturdy was of stout branching habit, and did not mildew nearly so badly as most, bearing an abundance of deep green peas, which keep in season a long time, having in fact the habit and size of pod of Veitch's Perfection, whilst the peas are like those of Ne plus Ultra, excellent in quality. A very desirable late Pea, producing pods successively; height 3 feet.

Ne plus Ultra was the best of the tall-growing late varieties, being, as it almost invariably is, unrivalled, standing the vicissitudes of late summer and autumn as regards climate better than any other, unless it be Emperor of the Marrows, which I may state has almost, if not quite, superseded British Queen.

These have proved the best with me, and I need not trouble anyone with enumerating varieties that have done badly, as another season may alter the estimate; still, those named I feel certain will hold their own. Mr. Laxton sent me some of his new Evolution, and the reputation of the raiser being so great it is certain the name would not have been given without justifiable reason. I expected much and have not been disappointed. It grew very vigorously and was much branched, yet only attained to a height of 3½ to 4 feet. The pods were produced in great abundance, twice the length of those of Omega, which it somewhat resembles in the shape and greenness, the pods containing in some instances a dozen peas, and the quality excellent. Sown at the same time as Omega, it was several days earlier, and from its branching habit afforded the crop successively. I think it will prove a very great advance on many second early and main crop varieties, and become popular in gardens and also for market purposes.—G. ABBEY.

MICHAELMAS DAISIES.

ASTERS have within the last few years made considerable advancement in public favour; and this is not at all surprising seeing they come into flower at a time when few other plants are attractive, together with their adaptability to furnish the necessary supply of cut flowers where the hardy outdoor plants are depended on. Ordinary garden soil is quite good enough to grow them in. They require, however, plenty of room, otherwise from superfluous root-growth they will become very troublesome unless divided every second or third year. They present a great variety both in height and the size and colour of their flowers, are suitable for nearly all purposes—the wild garden, shrubbery, the flower border, or rockery, and when judiciously planted in any or all of the above places have a very telling effect at this dull season.

I have selected from a very large collection a few that can be recommended for general culture, and likely to prove useful in gardens where from lack of space the cultivator is compelled to choose only the very best. The wild garden has been for some time engaging the atten-

tion of most of the leading horticulturists in this country; and a few large establishments, notably Kew, have already made a move in the matter, and from what we have seen are likely to prove successful. In planting the wild garden much care and management are required to successfully imitate Nature, and, before attempting it, it is necessary to have at hand a large and varied collection of plants from which to choose. A few of the stronger-growing Asters are very desirable for isolating; and the following, which grow from 5 to 6 feet high, are useful—

A. Novæ-Angliæ and its varieties; large heads of very showy rose and purple flowers. A. Novi-Belgii, very attractive, purplish. A. cordifolius, large spikes of lavender flowers; effective. A. lævigatus, much-branched, purplish mauve. A. multiflorus, dense spikes of small white; most attractive of this section.

In favour of planting such bold and attractive plants in the shrubbery little need be said. The following will be found suitable, the plants growing from 3½ to 4 feet high. A. amethystinus, rosy. A. polyphyllus, white. A. turbinellus, loose-panicked, large, light purple flowers; very pretty. A. patens, bluish purple; good. A. cricoides, pure white. A. diffusus and its variety horizontalis; very bushy, densely branched, whitish. A. vimineus, white. A. versicolor, various-coloured.

Plants suitable for the flower border, from 2 to 3 feet:—A. punctatus and A. dracunculoides, corymbose heads, blue. A. oblongifolius, dense heads of large pretty blue flowers. A. discolor, one of the most beautiful varied-coloured Asters; we have all shades from rose to pure white. A. lævigatus, var. minimus, fine rose. A. Amellus, large purple. Suitable for rockery, 1 to 2 feet:—A. dumosus, dense head, pinkish. A. spectabilis, purplish. A. cricoides var. Reevesii, pure white. A. linearifolius, purplish; very good. A. sericeus, very beautiful; glaucous leaves, purplish rose flowers.—D. D.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

I AM a country gardener, and wished to subscribe £10 10s. (or £1 1s. annually) to the Gardeners' Royal Benevolent Institution. Before doing so I asked a few questions respecting its benefit to me if wanted, or to my widow if left. The following is a copy of a letter I received at the time, and may possibly help some of my fellow gardeners.

"24th Oct., 1876.

"14, Tavistock Row, Covent Garden, W.C.

"DEAR SIR,—Your note to hand. In reply, I beg to inform you that by a payment of £10 10s. at once you become a life subscriber, and that when your attaining the age of sixty, provided such subscription had been paid for fifteen years, you would in the event of requiring the assistance of the charity have a prior claim over those who had not subscribed so long, or not at all, and that in the event of your death before that time your widow would, upon attaining the same age, stand in the same position, but in either case you would be required to conform to the rules. I am happy to say that our Society is in a very flourishing state, having a nice nest-egg of £10,750* put by in the funds. I shall be happy to hear from you, and would certainly suggest your paying £10 10s. at once, but, of course, you are the better judge of your own means.—Yours faithfully,

"EDW. R. CUTLER, Secy."

* The "nest-egg" on December 31st, 1882, was £14,750.—J., *Sussex*.

[Mr. Cutler writes to say that he never notices anonymous letters, but if any of our correspondents will favour him with their names and addresses he will be pleased to afford them any information in his power. We hope Mr. Cutler will not object to the anonymous letter from "J., *Sussex*," to whom we are obliged for his readiness to afford the information that is undoubtedly sought for in reference to this Institution, and which it appears the Secretary declines to supply in the manner in which it would be the most useful—namely, publicly.]

HOW ARE WE TO KEEP OUR APPLES?

BY doing what Mr. Taylor suggests on page 299. Store them, as I have done for years, in a damp airy cellar. Handle them as lightly as possible, and place in crates, bampers, or old cases with holes bored in the sides, so as to prevent the fruit from heating. On the approach of frost cover as directed by Mr. Taylor. Fruit treated thus will remain plump and good at least two or three months longer than if stored in a high and dry temperature. Before use develop the flavour by placing in a high temperature for twenty-four hours at least.—A. M. B.

PASSING NOTES.

Pansies and Violas.—I think it may be said with much truth that the bulk of English gardeners do not know or do not indulge in the wealth of beauty that our Scotch brothers do in the matter of Pansies and Violas, to say nothing of other plants. The drier climate of the south is against growing these flowers to the fullest development, and they are not sought after to any very great extent. It is a pity that this is so, for there are few hardy plants that can and do give such sweet and abiding satisfaction as do Pansies and Violas. A year or two ago I saw a catalogue of these plants from Messrs. Dickson & Co. of Edinburgh, and was somewhat astounded at the enormous quantity of both Pansies and Violas they were sending out. To know of them was in my case to have; and this year I have had from the plants I had from them, to the great pleasure and satisfaction of my young lady employers, plenty of most rare and beautiful blooms of both Pansies and Violas. I hardly know which of the two kindred families of flowers to give preference to, but this I know, that *Viola alba odorata* was not allowed to carry a flower long. They were picked as fast as they showed, "Because, you see,

gardener, it's the first time we have had a Pansy-like flower with the scent of Violets." That was the explanation to me by one of the young ladies on my observing that they seemed very fond of them. I say, then, to all gardeners who grow special flowers for the ladies of their house, and it is the pleasantest of all duties, Grow plenty of *Viola alba odorata*.

Blue Stone, a Pansy-Viola as it is called, being a hybrid between some of the varieties of *Viola cornuta* and some of the Pansies, I like so well that I have propagated it as largely as I could, and it will figure conspicuously in my spring flower garden next season all being well. Countess of Kintore is a blue with light-coloured edges, a capital grower and most attractive and interesting variety. I need not catalogue them, however; that is better done by vendors in their trade catalogues, which include all the best varieties of hardy border and florists' flowers.

Chou de Burghley.—As I have been cutting splendid heads of this new and most admirable vegetable during the past month I desire to record my testimony in its favour. "It is most excellent." That, however, is the testimony of the cook that I have to serve, and I can safely say that few know what good vegetables are better than she does. "But what is it?" she went on to ask; and before I could reply she added, "It's like a Cabbage and yet it isn't a Cabbage. It's like a Cos Lettuce almost in form, and boils just like a good Broccoli. I am sure it isn't a Cabbage because the water doesn't smell as Cabbage water does. What is it?" Then I said that it was *Chou de Burghley*, a new vegetable raised by Mr. Gilbert, gardener to the Marquis of Exeter of Burghley Park, and was the result of a cross between the Cabbage and a Broccoli, and as I had a lot growing I was glad to hear so good an account of it from her, "But," I said, "how do they like it in the dining-room?" "I have not asked," she said, "but I argue that they like it much, for there was not a scrap came out." So much for *Chou de Burghley*.

Potatoes (vide page 267).—"Amateur, *Cirencester*," is just the correspondent that I hoped would take up this Potato question. His is a very fair letter, the letter of a man with a mind of his own. Mine was not, I am bound to admit that, because, unfortunately, I write as I feel at the time, and being somewhat impetuous of disposition and temperament I rush in helter skelter, reckless of consequences. By this I lay myself open to the pens of such calm thoughtful men as "Amateur, *Cirencester*." I do not mind this when it is resultful of such communications, present and prospective, as his. I shall look out for his promised letter containing the outcome of his Potato experiment with considerable eagerness. I am delighted to hear that he intends to stick to Potatoes; so indeed do I in my way if I can keep my resolutions, and still gladder to know that he is trying to improve our great esculent by the raising of new varieties. I should like to make a personal appeal to him and say, Dear brother Potato lover, please remember we short-top people, we that must have two crops off the same piece of ground the same season, and not give a yard between each row either, we that want our Potatoes to be ready for the table and of first quality the very day they are lifted out of the ground and onwards, we that desire and strive to get a great crop of Potatoes off a small piece of ground. Just keep these ideas in mind, dear brother, and raise new varieties of Potatoes, and we will bless you with a deep and overflowing blessing.—H., *Notts*.

MR. HENRY HOOPER.

A WELL-KNOWN form will be missed, not only from our metropolitan, but from many of our provincial exhibitions, for I have just heard of the death of this well-known florist. Wherever there was an opportunity he was always anxious to display the results of his culture, and to show that in a quiet way he was doing his share in making horticulture popular. He did not pose as one who was doing it all for the good of the public, nor claim credit for disinterested labours; at the same time he was none the less a benefactor to horticulturists, for he has introduced in various classes of flowers, but more especially in Pansies, Picotees, and Pinks, some valuable varieties.

I have never, until this year, had the opportunity of seeing him at home. His nursery was indeed a strange one—rough and untidy, but containing a valuable collection, and the plants he sent out from it were always good and healthy; in fact, the garden was like the man himself, one of the old type of florists, no kid-glove gardener, but plain and bluff and honest—the very embodiment of good nature and kindness, and like his garden there was "good stuff in him;" fair and upright in his dealings; a good husband and father, and respected by the citizens of Bath who were interested in horticulture. His son, whom I saw, is an intelligent young man, and although I know nothing positively, yet I should imagine that the business will be carried on as usual, and the name of Henry Hooper will, I hope, still continue to remind us of his labours and successes.—D., *Deal*.

SINGLE DAHLIAS.

SO numerous have the varieties of single Dahlias now become that it is evident some method of classification is necessary, especially as several very distinct types have been gradually formed. Mr. T. S. Ware, Tottenham, has paid much attention to these popular plants, and has raised some thousands of seedlings during the past three or four years, and after a careful examination of these he has formed four groups, founded on obvious characters. The first of these includes those with "star-shaped flowers," a new section, of which about a dozen varieties have been raised at Tottenham. They are distinguished by neat, pointed,

flat florets, spreading widely from the axis, very slightly overlapping at the base, and as the points are free the flowers have a distinctly star-like form. The majority do not exceed 2 inches in diameter, and their neatness of form combined with their bright colour is fast rendering them great favourites. The woodcut (fig. 58) represents two of these, and show the characters of the type admirably. The shaded form is Magpie, the florets being light in the centre with a crimson margin; the other is an unnamed seedling, brilliant crimson in colour, and very free. A beautiful orange-scarlet-coloured variety, named Bedding Gem, in this group is also noteworthy, as the colour is a peculiarly distinct shade, and it is extremely free. Yellow, maroon, dark scarlet, "crushed straw-

are Sulphur Queen, brilliant yellow; Empress, pure white; Union Jack, white, edged with crimson; and Orangeman, rich orange.

AMERICAN VINES AND THE PHYLLOXERA.

In reply to your correspondents who ask at page 292 what evidence I can adduce in proof of the Strawberry Grape being an American variety, I have only to say that my experience of this Grape and the American Catawba is that they are one and the same variety, and Mr. Barron's description of the latter in "Vines and Vine Culture," page 237, goes to strengthen my opinion on this point, inasmuch as it agrees in every particular with the character of the Grapes grown here under the



Fig. 58.—MAGPIE.

CRIMSON SEEDLING.

berry," and many other shades are represented, but most of these varieties are at present unnamed.

The next group comprises those varieties with "flat florets"—that is, the florets radiate at right angles from the axis, regularly overlapping nearly to the tips, but the margins and apex do not fold or reflex in any degree. This section is readily distinguished, the florets being much broader than the last-mentioned, and the former may be considered as an improvement on the original single Dahlias. The two shown in fig. 59 (p. 317) are typical representatives of the group. Dr. Moffat, a greatly improved Paragon, recently certificated, and resembling the parent in colour, is a beautiful variety, more constant than the older form. The other, Danger, is a rich scarlet variety, wonderfully free and bright, quite unrivalled in its colour. Four other fine varieties in this section

names of the Fox and Strawberry Grape, and of which I send by this post a sample for your opinion. Hence my associating it with the American varieties of Grapes.—H. W. WARD.

[The Strawberry Grape before us is evidently a variety of *Vitis labrusca*, an American species, but was probably raised in Europe, as it was not known in America when M. Planchon made his exhaustive investigation of American Grapes. It is distinct from the Catawba, which, however, is a variety of the same species. The history of the Strawberry Grape is given as follows in Barron's "Vines and Vine Culture," page 229. "This singular Grape is generally assumed to be of American origin, on account, it may be supposed, of the great similarity in the leaves, and in the character of the fruit, to the native American Grapes. It is, however, we believe, of European origin. Lady Cave sent us some fruit from near Montreaux, on the Lake of Geneva, and stated that she found it in the market at Gray, on the Saone, west of Dijon, which almost fixes its nativity to that district."]



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, James McIntosh, Esq., in the chair, the following candidates were unanimously elected Fellows—viz., Geo. W. Clare, J. Hastings Duncan, James William Temple, Reginald Ward, and Mrs. Wilkinson.

— IT is proposed to celebrate the NATIONAL APPLE CONGRESS by having a dinner at Ashley's Hotel, Covent Garden, in the rooms of the Horticultural Club, on Thursday, October 18th, at 6 P.M., Dr. Hogg, F.L.S., in the chair.

— WE have received from Messrs. Jefferies of Oxford a box of blooms of the most beautiful unnamed SINGLE DAHLIAS we have ever seen. The variation of colour is remarkable, and every type of the flower is represented. The selfs range from white to the richest maroon. Some of the varieties have flaked florets, such as maroon streaked with rose, white marked and tinted with lilac, and purple veined with crimson. Others of the flowers have margined florets, one scarlet edged with orange buff being extremely bright, and another purplish puce margined with pale rose, very chaste; while the base of some of the darker florets is orange, forming a bright ring round the disc, which is effective. Several of the blooms before us are quite equal to the best named varieties, and all are good.

— A SHOW of ARTIFICIAL FLOWERS AND FRUITS is now being held at the Royal Aquarium, Westminster, and is in some degree interesting as showing the skill exercised in the imitation of their real prototypes. The flowers are formed of various substances—wax, wool, and a fine material resembling muslin. The Roses modelled in the first-named are very truthful representations, but the best case has suffered in transit; the form and colour of the petals have been more faithfully reproduced than by any other method. In the wool the majority have a very unnatural appearance, but some samples of Pansies are life-like in colouring and form; a plant of Lobelia in a pot is also an excellent sample of skill. The muslin-like material appears to be cut or stamped out, and is not very satisfactory, except in the case of Bonvardias and Stephanotis, which look fairly well. As to the kinds of flowers represented a large number are recognisable, but some are entirely artificial and do not exist except in the artist's imagination. One indeed that appears to be a favourite would be a welcome novelty; it consists of a small tubular corolla with three petals, purplish mauve, shading lighter in the centre, and crowded in dense clusters. The fruit is admirably modelled in wax, Cherries, Peaches, Plums, Apples, and Pears being reproduced with the utmost exactness. Unfortunately this is the smallest portion of the Exhibition. It, however, suggests what an interesting permanent pomological museum could be formed by taking counterparts in wax of all the principal varieties of fruits. How greatly such an institution would add to the attractions of Chiswick, for instance.

— "T. E." writes that "A fine specimen of RENANTHERA LOWII is now flowering at Ferrières, near Paris. Its long leaves, which measure a yard or more in length, appear small if compared with the length of the spikes of buds, which reach a length of 3 yards. Each spike—of which there are at present eleven—numbers 280 buds, all flowering at the same time, which are so different in appearance that side by side they may easily be taken for distinct species. It is reported from Italy that in the garden of the Marquis Corsi-Salviati at Sesto Fiorentino the Renanthera Lowii is also at present in flower, which is the first time that it has ever flowered in Italy."

— MR. THOMAS TWINING, the well-known author of several scientific works and schemes, has issued a description of a BOTANIC STAND, which is claimed to be "a means of agreeable instruction in the knowledge of the natural orders of plants." The plan consists simply of employing a shelf with a protective rail on each side, on the top of iron hurdles, so that a series of plants illustrative of the principal natural orders can be raised to a suitable height for inspection, thus avoiding, as Mr. Twining states, "the inconvenience of having to stoop very low to study

the majority of plants, whereby ladies' clothes are liable to get damp, rheumatism and the like being not unfrequently occasioned by imprudence of this description." It is always well to simplify matters as much as possible, and the Botanic Stand may prove useful in some respects; but those who undertake the study of natural history are generally prepared to face a few difficulties and inconveniences.

— WE learn that the GRAPE HARVEST IN SOUTHERN ITALY AND SICILY is very satisfactory. The first snow has fallen in the most elevated parts of the Abruzzi. Grapes are abundant, but rather later than usual in ripening, in almost all the provinces of Southern Italy. A fair Tobacco harvest is reported from Lecce, but those of Cotton and Figs are less favourable. In Sicily the Grape harvest is not only plentiful in quantity but also of a very superior quality. The Olive crop is very fair in the province of Palermo.

— A CORRESPONDENT writes that Dr. Domingo Freire, of Rio Janeiro, the discoverer of the YELLOW FEVER FUNGUS, has made the experiment of transferring this Fungus into the system of animals by injection, and has obtained satisfactory confirmation of his theory. The inoculated animals, after a very short time, showed all the symptoms of yellow fever, and on dissection their blood was found to be full of the germs of the Fungus.

— RESPECTING the WHITE PINE Professor Sargent says:—"The entire supply growing in the United States and ready for the axe does not to-day greatly, if at all, exceed 80,000,000,000 feet, and this estimate includes the small and inferior trees, which a few years ago would not have been considered worth counting. The annual production of this lumber is not far from 10,000,000,000 feet, and the demand is constantly and rapidly increasing."

— MR. G. HAWKINS observes—"Mr. J. C. Wheeler has sent out a great novelty in his GIANT TEN-WEEK STOCKS. We have garden parties here every week for three months, and the Stocks have been greatly admired by all. Some of the branches are as large as the central spike of ordinary Ten-week Stocks."

— THE HAMPSTEAD, CHILD'S HILL, AND WEST END CHRYSANTHEMUM SOCIETY will hold their third annual Exhibition on November 20th and 21st of the present year. The classes are numerous, three prizes being offered in the majority, ranging in value from 12s. to 2s.

— MR. JOSEPH MALLENDER, The Gardens, Hodsock Priory, Notts, sends the following summary of the WEATHER OF SEPTEMBER:—"The total rainfall was 5.09 inches, being more than has fallen here on any of the previous eight Septembers, and more than in any month since October, 1880. Rain fell on twenty days; 1.03 inch fell on the 10th. The mean temperature of the month was 56.0°; warmest day, 18th, 73.0°; coldest day, 30th, 50.1°; maximum in the sun on the 16th, 123.2°; minimum on the grass on the 9th, 33.9°; mean temperature of air at 9 A.M., 55.6°; mean temperature of soil at 1 foot deep, 57.4°; sunshine during the month, 106.2 hours, or 28 per cent. of possible duration. There were five sunless days. The highest reading of the barometer on the 13th was 30.321°; lowest reading on the 2nd, 28.656°. Wind mostly from northerly points; average velocity, 8.3 miles per hour."

— A NEW American monthly paper devoted to gardening is entitled "THE CONSERVATORY," and which it is said will contain each month "A review of the flower trade, trade news, and essays on floral subjects." The third number for September contains eight pages, the principal article being one on window gardening and sketch of the flora of Jamaica. It is published in New York.

— ANOTHER addition to horticultural literature has been started in the Channel Islands, and bears the title of the "JERSEY GARDENER." The second number is just issued, and though of a very unpretentious character, is somewhat an improvement upon the first; it seems, however, a little behind the times, and is suggestive of some of the earliest attempts at horticultural journalism in England. We hope it will go on improving and do good in its district.

— A PLANT that well repays the cultivator for any extra attention which he may bestow upon it is CODONOPSIS ROTUNDIFOLIA, *Benth.* It belongs to a section of Campanulaceæ, from the majority of which, however, it differs in habit, and is more nearly related to the beautiful and much-admired *Cyananthus lobatus*. It is of a climbing, or, more

properly, of a trailing habit, and is useful when planted to scramble over loose stones on the rock garden, where its large and beautifully marked bell-shaped flowers render it very conspicuous. Its requirements are few, and like most of the Himalayan plants, it grows luxuriantly and flowers profusely in ordinary loam and leaf soil in a rather shady situation. There is also a variety called *C. grandiflorus*, which is more ornamental than the above, the colour of the corolla being more variegated and with a more spreading calyx, the whole plant very much resembling a magnified Deadly Nightshade.

— A VERY novel and interesting industry has been started in the South Seas by an American firm—THE DRYING AND PRESERVATION OF LOCAL-GROWN FRUIT. The process used is called the Alden process, of which we have no details. The firm has 50 acres or more of Bananas under cultivation, and intend also to buy from outside planters. The Bananas are first thrown into boiling syrup, and then subjected to the drying process, the sugar crystallising upon the fruit and imparting a delicious flavour. If this plan of utilising this most nutritive and wholesome of fruits could be introduced into Queensland, thousands of acres might be grown for export, and the industry become most lucrative—(*The Queensland Planter and Farmer.*)

MR. GLADSTONE APPLE.

MR. GLADSTONE Apple was introduced to the trade by my father in 1868. It is a chance seedling, of which there are so many in Worcestershire. The old tree is, I should say, a hundred years old, and is located near here. It is much the finest early Apple we have, a sure bearer, and the old tree, although so ancient, shows no sign of decay. It ripens here about the 20th of July. If I am spared I will send you some fruits next season.—W. JACKSON, *Blakedown Nursery, near Kidderminster.*

GARDEN CHEMISTRY.

SOIL LOSSES.

IF manure be very thoroughly prepared, and be applied very near the surface, where it will be at once appropriated, the loss of plant-food will be reduced to a minimum, but there will still be loss more or less preventible. For generations it has been known that lime disappears from soil to which it is applied, and its periodical application is therefore necessary. How this happens has been explained under the head of "Lime and Liming," and therefore nothing further need be said on that matter. It may, however, be not so well known that applications of ammonia chloride and sulphate determine the loss of an equal amount of lime. In the soil these salts are decomposed, the ammonia is fixed, and the sulphuric acid and the chlorine liberated. These combine with the lime present, and form calcic sulphate and chloride—extremely soluble salts, which may be detected in the drainage water immediately after the first heavy rain following their application. The sulphuric acid and chlorine of potassic salts are lost in the same manner. Indeed, as a rule, while the bases of manurial salts, such as potash and ammonia, are fixed by the soil, the acids are generally lost. Phosphoric acid is an exception to this rule, for either with iron or lime this speedily, however soluble when applied, forms insoluble compounds, which remain in the soil until attacked by the roots of plants and utilised.

Calcic carbonate, sulphate, and chloride losses are not serious, as they can be cheaply supplied in different forms; but nitrogen, not at all subject to loss in the form of organic compounds, such as it occurs in humus for instance, or even as ammonia, is very soluble and easily lost when changed to nitrate. An erroneous idea prevails that clay in soil will hold such, no matter how much rain may pass through the soil. This has been shown to be a mistake by none more clearly than by Sir J. B. Lawes, Dr. Gilbert, and Mr. Warrington at Rothamsted, although to Schloesing and Muntz belongs the credit of discovering the means by which the nitrification of nitrogenous organic matter, ammonia, urea, and similar substances is accomplished.

It would occupy too much space to give the details of the process by which nitrification is accomplished. Suffice it to say that it cannot go on unless organic nitrogenous matter, ammonia, &c., be present, also a salifiable base, such as lime, a certain degree of heat, and a ferment, which is an exceedingly minute organism and classed as a bacterium. These conditions exist in all fertile soils during summer and autumn, and the consequence is that the process goes on almost continually; but it goes on most rapidly when the temperature is highest. We may have nitrogen as it exists in ammonia or in humus; we may have the bacteria which swarm in all surface soils; and

we may have a salifiable base, such as lime; but if the temperature be below or near freezing no action takes place. The oxidisation of the nitrogen in the soil does not proceed rapidly in winter; but as spring advances it begins, it goes on with accelerated pace in summer, and attains its maximum by the early autumn months. At Rothamsted it was found that a solution of proper materials, which took thirty-seven days for complete nitrification when the temperature was 52° Fahr., only required eight days when 86° was maintained. Schloesing and Muntz have shown that at 99° nitrification is ten times more rapid than it is at 37°. Hence the reason why Scotch loam is richer than English, and hence one of the great advantages of bottom heat, for in this country it is only in artificially heated soils that nitrification proceeds rapidly.

Now naturally least nitrates are in the soil just when most wanted, in spring, and most when least wanted, in autumn, for these nitrates are very easily washed away. Hence the very strong reason for applying very near the surface thoroughly prepared manure when seeds are sown or plants put out.

To show when nitrates are naturally most plentiful, and also how they are lost, a quotation may be made from a lecture delivered before the Society of Arts by Mr. Warrington some time ago. On that occasion he produced tables showing the average amount of nitrogen as nitrates in the drainage water from certain gauges constructed for the purpose. The soil was in fallow, and was unmanured. The figures are the averages of five years. I may reproduce part of the table.

	Rainfall.	Amount of drainage.		Nitrogen as nitrates.	
		20-inch gauge.	60-inch gauge.	20-inch gauge.	60-inch gauge.
January to March.....	5.78	4.53	4.31	8.80	9.92
April to June.....	7.81	2.22	2.63	5.06	6.10
July to September	10.07	3.84	3.46	14.24	10.80
October to December	8.84	6.24	5.91	16.72	15.82
Total.....	32.50	16.83	16.34	44.82	42.64

When it is said that 44.8 lbs. of nitrogen is equal to 287 lbs. of commercial nitrate of sodium it will be seen how serious a loss is thus suffered; and if so much nitrates are formed, partly no doubt from the nitrogen washed into the soil by rain, but chiefly, doubtless, from the using-up of the comparatively small store of humus in ordinary agricultural soils, what must it be in the very much richer soils of gardens? Of course heavily cropped land will not thus suffer loss, because very much of the nitrates will be used by the plants, and, as evaporation will be greater, not nearly so much water will appear as drainage. For instance, while 33.7 lbs. of nitrates were found after fallow per acre in the upper 18 inches of the soil, after Wheat only 2.6 lbs. were detected in the month of September.

The main facts are these: in the autumn most nitrates are found in natural soils, and in the late autumn and early winter months most is washed into the drains or the subsoil. Now perhaps at no other season is there so much nitrates left to the mercy of the rains, for then not only is there much soil bare (neither covered with evaporating leaves nor searching roots), but then much manure is wheeled out from pits and spread over the ground or dug in. To show the error of this we need only quote from Mr. Warrington once again. In one instance, when 88 lbs. of nitrogen was given in autumn to Wheat, not less than 66 lbs. had been removed from the soil by drainage in four months and a half. Of course the nitrogen in ordinary manure is not so easily lost as that in the case of chemical salts, but that the loss in wet winters is very serious there can be no question at all. A chain is no stronger than its weakest link; nitrogen is the weakest link in ordinary manure; by allowing nitrates to escape, or even to provide for their escape, is making this link, and thereby the chain, much weaker.

SAVING THE NITRATES.

There can be no doubt that the best way to prevent the loss of nitrates is to keep the land continually under crop. When the soil is well filled with hungry roots, rapid production of soil nitrates only means rapid growth. Not only so, a dense leafage, with the active evaporation leaves effect, reduces, nay, often prevents, any water sinking deeply, even though rains are heavy. But it is not always possible to have ground cropped with growing crops. Potatoes, Cabbages, and a host of other things are removed, often too late for another crop to take their place till spring. In such cases it is customary to dig the soil up roughly and call it winter fallow. A far better plan would be to sow the ground very thickly with grass seeds, especially when the soil is very light or the rainfall great. Perhaps Italian Rye Grass is the best variety to apply for this purpose, as it has

great foraging powers, grows strongly, has a special capacity for assimilating nitrates and attacking insoluble phosphates. Such sown thickly in September would do much to prevent soil losses, by organising soluble matters, and also be helpful in preparing such insoluble salts as iron phosphates for future use. Moreover, such has a sweetening effect on soil long cropped with garden crops, which no fallowing can secure. Vetches will give a greater amount of herbage to dig in, and so will Mustard and Rape. But Vetches have the same effect on soils that Peas and Beans have, and in practice we find that often these have to follow each other too closely. Mustard and Rape have the effect on soils that Turnips and Cabbages have, and we all know that when these follow each other too closely in a rotation, clubbing and other serious evils often result. Many old garden soils would be restored to a great extent if they could be laid down in pasture for a few years. It is seldom practicable to do so, but sowing down all vacant ground in autumn very thickly with grass seeds would partly answer the same purpose. It would sweeten the soil, keep it dry, save the nitrates, and be quite equal to an application of manure equal in amount to the herbage produced. This, when, from mistaken notions of economy, not enough manure is allowed, or when it cannot be got, would be a great advantage, for artificials cannot altogether supply the place of ordinary manure, though with the economising of all vegetable refuse, and the practice of green manuring, as this has been called, it is both possible and practicable.

Many flower gardens lie for the greater part of the year exposed to the impoverishing effects of the weather, besides being blanks and eyesores. Were they levelled down as soon as the summer contents become unsightly, and thickly sown with, in this case, Rape or Mustard, or, if a level surface be desired, with grass, not only would the necessary expenses be lessened—for seeds could be procured from the hayloft good enough for this purpose—but the appearance be much improved.

Much plant food is lost when too heavy applications of lime are given. For want of lime much nitrogenous matter in many garden soils is quite useless, and accumulates. When lime is given this becomes rapidly prepared, and when large doses are given much more nitrates are formed than the crops can utilise. For this reason lime should only be sparingly applied to garden soils rich in black mould, and when given no other manure whatever should be applied at the same time. In very old neglected gardens lime could thus be made to cause the working-up of the accumulated manure, for manure that only accumulates may as much be regarded as lost as when washed away. If it is liberated by lime gradually it may be regarded as so much unrealised wealth turned into available assets.

By digging at the wrong season much actual wealth is thereby thrown away, because it facilitates the escape of much valuable plant food, but this will be more fully discussed under the head of tillage.—SINGLE-HANDED.

THE NATIONAL APPLE CONGRESS.

OCTOBER 4TH TO 18TH.

SUCCESS in an unexpected degree has attended the efforts of the Committee formed to inaugurate a National Apple Congress at the Royal Horticultural Society's Gardens, Chiswick; for the world has never seen so grand an exhibition of these useful fruits as that opened on Thursday last, the 4th inst. Without money prizes or inducement of any kind beyond the desire to advance the cause of pomology and to assist in reducing the nomenclature to a satisfactory standard, exhibitors have come forward in large numbers from nearly every county in England and Scotland. Wales and the Channel Islands, too, have contributed, while distant Sweden is also represented. The unanimity with which the scheme was welcomed is both surprising and gratifying; but is no doubt in a great measure due to the energy displayed by the leading members of the Committee, who have striven hard to render the Congress what it has proved to be—unique in the annals of horticultural exhibitions.

The great vinery in the Chiswick Gardens presents a spectacle of remarkable beauty, the roof being draped with the Vines—the abundant, pendant, golden and black clusters having a charming effect—while beneath are broad tables of brilliantly and diversely tinted Apples, a few graceful plants in the centre of the stands adding much to the general beauty. This magnificent vinery is 180 feet long, and in addition to the two tables in the centre, each 6 feet broad and extending the whole length of the house, the side shelves are also filled with exhibits. The contributions are arranged in counties, those contained in this house, which is the head-quarters of the Congress, being chiefly Kent, Middlesex, Hertfordshire, Essex, Bedfordshire, Sussex, and Surrey. These include the bulk of the finest produce shown, as in only a few other counties, notably Herefordshire, are such large and handsome Apples staged as those in the home counties. In colour, too, the southern exhibits are much superior, and the Kentish Apples in particular excel in this character. Six other smaller houses are also appropriated to contributions, and the chief difficulty experienced has been to find space for them all. In consequence a few exhibits which arrived late could not be arranged under their respective counties. The old Fig house contains the Devonshire, Gloucestershire, Lincolnshire, Welsh, and Swedish Apples, the two divisions of the span-roof

range, usually devoted to Begonias and Pelargoniums, being occupied with Scotch Apples and those from the northern counties, such as Yorkshire and Cheshire. The long range near the boundary wall, which is in three divisions, contains exhibits from Leicestershire, Somersetshire, Northamptonshire, Herefordshire, Oxfordshire, and a few others of less importance.

The total number of dishes is about 8000, and it is estimated that nearly 1000 varieties are represented. Many of these are only of local fame, and amongst the others great confusion exists as to the names, but the Committee are performing an invaluable service both to the exhibitors and the public generally in carefully determining the correct titles. In this respect alone the Congress will do good work, as an authoritative revision of the names and synonyms of Apples grown in various parts of the country could not have been accomplished in any other way.

Some varieties are remarkably well shown throughout all the counties, and particularly noteworthy in this respect is Peasgood's Nonesuch, which is very handsomely represented in all the larger collections. Warner's King, too, is another fine Apple that is good throughout from all districts and every county, while amongst the newer varieties Lord Derby stands pre-eminent as a general favourite. Perhaps the most handsome Apple in the Show is Washington in the Maidstone collection; it is perfect in form and colour, but as the samples were grown under glass they cannot be fairly compared with their less favoured associates. Blenheim Pippin and Annie Elizabeth are admirably shown from scores of gardens; while of the brightly coloured varieties Worcester Pearmain takes the lead in numbers, Duchess of Gloucester being equally rich but not so abundant. Colonel Vaughan is also good. Of small yellow dessert Apples, Yellow Ingestrie is the most generally exhibited, while King of the Pippins is a favourite dessert variety with nearly all contributors.

In the following notes of the exhibits under the several counties only the varieties best represented are named.

BERKSHIRE.

Though moderate in extent the Berkshire contribution contained many handsome specimens, colour and size being well balanced. Mr. T. Jones, gardener to Her Majesty the Queen, Frogmore, has the finest collection, and throughout the Apples staged are distinguished by great merit, handsome kitchen varieties and brightly tinted dessert varieties rendering the exhibit really attractive. As a representative collection from a private garden we give the names of all the varieties shown by Mr. Jones, and it will be seen that it includes all the best Apples grown in the south of England. The total number of varieties is 153, sixty-seven kitchen Apples and the remainder dessert varieties as follows:—

Kitchen Apples.—Alfriston, Annie Elizabeth, Bess Pool Baron Ward, Baldwin, Brown's Codlin, Betty Geeson, Cox's Pomona, Cellini, Calville Blanche, Dr. Harvey, Dumelow's Seedling, Edmund Jupp, Ecklinville, Emperor Alexander, Flower of Herts, Frogmore Prolific, Forge, Flower of Kent, Grenadier, Galloway Pippin, Golden Noble, Hoary Morning, Holland Pippin, Jonathan, Jolly Beggar, Keswick Codlin, Lord Derby, Lord Raglan, Lady Henniker, London Pippin, Lewis' Incomparable, Mère de Ménage, Maltster, Minchall Crab, Mank's Codlin, Nelson Codlin, Norfolk Beefing, Norfolk Bearer, Old Woman, Omar Pasha, Ogles Grove, Peasgood's Nonesuch, Prince of Wales, Queen Victoria (Small's), Rhode Island, Royal Somerset, Rymer, Roundaway Magnum Bonum, Red Hollandbury, Reinette du Canada, Small's Imperial, Small's Admirable, Stirling Castle, Sheep's Nose, St. Savoir, Stamford Pippin, Transparent du Grongell's, Welford Park Nonesuch, Worcester Pearmain, Warner's King, Wadhurst Pippin, Winter Greening, Wormsley Pippin, Wooling's Favourite, Yorkshire Greening, and Yellow Bellefeur.

Dessert Apples.—Adams' Pearmain, American Nonesuch, Aromatic Russet, Beaumaris Red, Baddow's Pippin, Boston Russet, Braddick's Nonpareil, Brownlee's Russet, Beachamwell, Blenheim Pippin Barton's Incomparable, Beaumaris, Cox's Orange Pippin, Cook's Seedling, Cobham, Calville du Dantzig, Cockle Pippin, Cornish Aromatic, Carraway's Russet, Claygate Pearmain, Coe's Golden Drop, Court of Wick, Copmanthorpe Crab, Court-Pendu-Plat, Downton Pippin, Downton Nonpareil, Duke of Devonshire, Dutch Mignonne, Eldon Pippin, Early Nonesuch, Early Nonpareil, Franklin's Golden Pippin, Fairy Apple, Fair Maid of Windsor, Forester, Frogmore Nonpareil, Fearn's Pippin, Forfar Pippin, Graham Apple, Gipsy King, Gipsy Queen, Golden Pippin (Small's), Golden Russet, Golden Winter Pearmain, Golden Harvey, Improved Ashmead's Kernel, Jefferson, King of the Pippin, Keddleston Pippin, Kerry Pippin, Lord Burghley, Lucomb's Pine Apple, Lamb Abbey Pearmain, Lodgemore Nonpareil, Lemon Apple, Melon Apple, Margil, Martin's Nonpareil, Mannington's Pearmain, Newtown Pippin, New Rock Pippin, New Ribston Pippin, Pennington's Seedling, Powell's Russet, Pomme d'Api, Pine Apple Russet, Pearson's Plate, Pine Golden Pippin, Royal Russet, Rosemary Russet, Ribston Pippin, Reinette Ontz, Ross Nonpareil, Reinette du Caux, Ribston Pearmain, Round Winter Nonesuch, Scarlet Nonpareil, Seek no Farther, Scarlet Russet, Sturmer Pippin, Stark, Scarlet Pearmain, Taylor's Seedling, Wyken Pippin, White Paradise, and Winter Peach.

Mr. C. Ross, The Gardens, Welford Park, Newbury, contributed seventy-two varieties, large handsome examples—Kentish Fillbasket, Golden Noble, Loddington, Cox's Pomona, Warner's King, and Lord Derby being notable amongst the largest, while the brightly coloured scarlet and Worcester Pearmain are similarly striking. Mr. Mortimer, The Gardens, Purley Park, sent forty-two varieties, and Mr. W. Riddington, Hungerford, thirty varieties.

BUCKINGHAMSHIRE.

Slough, the home of Roses and Carnations, contributes its share to the productions of this county, Mr. C. Turner's collection of 150 varieties being the principal exhibit, and comprises some creditable examples of well-known and reliable Apples. The leading varieties were Cat's Head, Ecklinville, Golden Noble, Fearn's Pippin large and richly coloured, Duchess of Gloucester very pretty, Tom Putt highly coloured, Yellow Ingestrie, Prince of Wales, New Hawthornden, Ribston Pippin, Lord Suffield large and handsome, King of Pippins, Worcester Pearmain, Peasgood's Nonesuch, Lady Henniker, Lord Derby, Cellini, Mère de Ménage, and Cox's Pomona. Mr. J. Smith, The Gardens, Mentmore, Leighton Buzzard, staged sixty varieties, generally in fine condition, but particularly fine is Queen Caroline, which is shown in many other counties in good form, Worcester Pearmain and Peas-

good's Nonesuch. Mr. G. T. Miles, The Gardens, Wycombe Abbey, High Wycombe, shows twenty varieties from bush trees on the Paradise stock, and they are all distinguished by a clean fresh appearance. Golden Noble, King of Pippins, Ecklinville, Emperor Alexander, Nelson's Glory, Lord Grosvenor, Peasgood's Nonesuch, Beauty of Kent, Lord Suffield, Blenheim Pippin, Fearn's Pippin, and Mère de Ménage taking the lead amongst the varieties. Mr. A. G. Bridgeman, Thames Bank, Marlow, has thirty-five fine varieties, and Mr. H. Cakebread twenty-four varieties.

CHESHIRE.

The two great firms in this county town contribute the chief portion of the exhibits from Cheshire—namely, Messrs. James Dickson & Son and Messrs. F. and A. Dickson & Son. Each of these firms stage a hundred varieties, comprising some very handsome specimens, indeed they are the best shown from the northern counties. The varieties that are most deserving of notice are, in the former's collection, Golden Knob, Hoary Morning, Lady Henniker, Mère de Ménage, Golden Winter Pearmain, Gloria Mundi, Alfriston, Warner's

Apple, almost black; Ecklinville, Wippell's Seedling, Wormsley Pippin, Gravenstein, Maltster, Hollow Core, Smiling Beauty, Fearn's Pippin, Emperor Alexander, Gloria Mundi, and Lemon Pippin. Mr. J. Garland, gardener to Sir T. D. Ackland, Bart., Killerton, Exeter, has sixty varieties, including some uncommonly fine specimens, such as Warner's King, 12½ inches round; Alfriston, 12 inches; Dumelow's Seedling, 11¼ inches; and Emperor Alexander, 11¼ inches, the last-named being very handsome, though we recently saw a fruit of the same variety 13 inches in circumference. Winter Hawthornden, Royal Russet, Tom Putt, Red Autumn Calville, Autumn Pearmain, and Blenheim Pippin are good, together with several prolific cider Apples, such as Fremlett's Bitter and White Cluster from bush trees. Mr. A. P. Rogers, Furzebrook, Axminster, has fifty varieties of fair quality.

DORSETSHIRE.

A collection of 140 varieties from Mr. W. G. Pragnell, gardener to G. D. W. Digby, Esq., Sherborne Castle, constitute the whole of the Dorset exhibits,



Fig. 59.—DR. MOFFATT—DANGER (See page 313).

King, and Emperor Alexander. From the other firm, in addition to the above, Lord Derby, Mère de Ménage, Tower of Glamis, Nelson's Glory, Annie Elizabeth, Pott's Seedling, Queen Caroline, and Cox's Pomona are fine. Mr. Selwood, The Gardens, Eaton Hall, Chester, shows 160 varieties, the finest specimens being those of Annie Elizabeth, Golden Noble, Yorkshire Greening, Mère de Ménage, Ecklinville, and Dumelow's Seedling. Mr. J. Maddocks, The Gardens, Oakfield, Chester, has twenty-seven varieties, including large specimens of Lord Suffield, Nelson's Glory, and Alfriston, most of the others being small, as those are in the collection previously mentioned.

DEVONSHIRE.

Exhibits from the cider county do not occupy very extensive space, but Messrs. R. T. Veitch & Son of Exeter have an important contribution of 100 varieties, which are represented by large and handsome fruits. They comprise New Hawthornden, Lord Suffield, Veitch's Cluster being also referred to the latter variety; Blenheim Pippin, Kingston Black, a very dark red

These are very fine, some exceedingly handsome fruits being shown of the larger varieties. They have all been grown on cordon trees except Blenheim Pippin, Warner's King, and one or two others. The best of the collection are Hollandbury, handsome in size and colour; Cox's Pomona, Peasgood's Nonesuch, Hawthornden, Beauty of Kent, Beauty of Hants, Bellefleur de Brabant, Ecklinville, Golden Noble, Hoary Morning, Royal Somerset, Yellow Lustre, Old and Scarlet Nonpareils, Downton Pippin, and Agremont Russet.

ESSEX.

This county is not largely represented, and with the exception of the Chelmsford collection the examples staged are not of remarkable merit, being mostly small and greatly wanting in colour. Messrs. J. Saltmarsh & Son, Chelmsford, have about 120 varieties, instructively labelled with particulars concerning the soil, situation, and stocks upon which the fruit shown has been grown. Most of the standard sorts are well to the fore. Peasgood's Nonesuch from a standard in a low gravelly position is good, Warner's King

is large and even, Reinette du Canada, also from a standard, is handsome, and Judd's Seedling, from a high exposed position, is of notable quality. Other good Apples are Winter Hawthornden, Ribston Pippin, Fearn's Pippin, Garret's Pippin, Scarlet Nonpareil, Blenheim Pippin, Sops in Wine, and The Queen; of the last some very handsome fruits from the seedling tree grown in loam on gravel well indicate the characters of this fine variety. Mr. W. H. Strangeman, gardener to R. Warner, Esq., Broomfield, Chelmsford, exhibits twenty-one varieties carefully selected from a large collection. Very notable is Lemon Pippin of a full, clear, golden tint. Mr. W. O. Ward, Ramsey, Harwich, has 112 varieties, a few of which, as Warner's King, are large, but the majority are rather small or rough.

GLOUCESTERSHIRE.

As one of the great Apple counties it was expected that a good display would be provided by the Gloucestershire exhibitors, and this has proved the case, although the position the exhibits are arranged in is less suited to an imposing display than the large vinery, which is devoted to the home counties. Messrs. J. C. Wheeler & Son, Gloucester, have a beautiful collection of ninety varieties, the fruits large, clean, and of fair colour, though they do not excel in this character. Notable amongst the best are Worcester Pearmain, King of the Pippins, Mère de Ménage, Brown's Pippin, Alfriston, Blenheim Pippin, Manx Codlin, Golden Noble very large, Royal Russet, Warner's King, Radford Beauty, Dumclow's Seedling, and Spencer's Seedling. Mr. T. Shingles, The Gardens, Tortworth Court, Gloucester, contributes fifty varieties, very neat and fair-sized fruits, conspicuous amongst them being Annie Elizabeth, Manx Codlin, King of the Pippins, Lord Suffield, Reinette de Canada, Northern Greening, Blenheim Pippin, Warner's King, and Mère de Ménage. Messrs. J. Jeffries & Son, Cirencester, show a handsome collection of eighty varieties, all of considerable size, and the coloured sorts very bright. Stirling Castle, Cat's Head, Blenheim Pippin, Annie Elizabeth, Golden Noble, Lord Suffield, Worcester Pearmain, Emperor Alexander, Striped Beefing, and Royal Russet are prominent amongst the finest.

Mr. H. Ritchie, The Gardens, Eardiston, Gloucester, sends 100 varieties, mostly small, but Tom Putt, Forester, Blenheim Pippin, and Red Streak are good.

HEREFORDSHIRE.

A magnificent and extensive collection is exhibited by the Cranston Nursery and Seed Company, Hereford, 250 varieties being represented and the majority in unusually fine condition, some being large and handsome. The varieties shown in the best form and colour are the following:—Cox's Pomona, Colonel Vaughan, Warner's King, Stirling Castle, Loddington, Annie Elizabeth, Nelson's Glory, Fearn's Pippin, Lady's Finger, Sam's Crab, Worcester Pearmain, Winter Peach, Yellow Ingestrie, Sugar Apple, Rymer, Peasgood's Nonesuch, Golden Spire, Ecklinville, Pym Square, Devonshire Nine Square, Lord Derby, Blenheim Pippin, Claygate Pearmain, and Belle Norman. Two very attractive new Apples are Cliffey Seedling, a rich yellow and red-streaked variety of moderate size, very neat in form, and Herefordshire Beefing, a dark red Apple, flat, said to be good for kitchen or dessert, and to keep till June, the habit of the tree being very erect and vigorous. Mr. W. Styles, The Gardens, Brampton Bryan Hall, Hereford, has twenty varieties of Apples, with a few Pears, but they are small. Mr. T. Parker, Moreton Court, Hereford, has several varieties, Colonel Vaughan being very handsomely coloured, and Tyler's Kernel, a dark red Apple of good appearance.

HERTFORDSHIRE.

The exhibits in this county hold a prominent position, four large firms contributing handsome collections, mostly distinguished by the size and regularity of the fruits, though not so high in colour as those from some of the other southern counties. Messrs. T. Rivers & Son, Sawbridgeworth, have a most interesting and extensive collection, comprising about 130 varieties, some very large and well coloured. A few French, American, and Russian varieties are shown separately from the others, and include amongst the first-named fine samples of Mère de Ménage, Belle Dubois very large, and Reinette d'Angleterre. Of the Americans the pretty red-speckled Melon Apple is noteworthy, together with Washington, King of Tomkins County, and Baldwin. The best Russian Apples are Duchess of Oldenburg, Emperor Alexander, and a small yellow Apple named Sevinkia. Of the general collection the kitchen Apples are large and good, the dessert varieties also being of fair colour. The varieties best represented are the following:—Keswick Codlin, Lord Suffield, Cox's Pomona, Peasgood's Nonesuch, Gloria Mundi, Lord Derby, Warner's King, Blenheim Pippin, Bedfordshire Seedling, Worcester Pearmain, Aromatic Russet, Sops in Wine, The Fairy, King of the Pippins richly coloured, Scarlet Golden Pippin, Wyken Pippin, Kerry Pippin, Mannington's Pearmain, and Winter Peach.

Messrs. Paul & Son, Cheshunt, exhibit a fine collection of 150 varieties—very clean, even, brightly coloured samples—all labels attached stating the soil the varieties have been grown in, which is chiefly loam. Selecting the finest we have the most notable in Warner's King, Blenheim Pippin, Transparent de Croussels, a wax-like yellow and attractive Apple; Chesbunt Pippin, fine colour; Melon, Golden Noble, Manx Codlin, Peasgood's Nonesuch, very fine; Tower of Glamis, Mère de Ménage, large and rich colour; Worcester Pearmain, bright; Lord Suffield, American Mother, Stirling Castle, Keswick Codlin, Round Winter Pearmain, Lord Derby, Catshead, Loddington, Betty Geeson, Burr Knot, Summer Strawberry, American Crab, and Fairy Apple.

Messrs. Lane & Son, Great Berkampstead, show 160 varieties, the majority of unusual size and even in form, but a little wanting in colour. Very notable are Kentish Fillbasket, Queen Caroline, Pope's Apple, Wormsley Pippin, Brabant Bellefleur, Warner's King, with similar fine samples of D. T. Fish and Poor Man's Friend, both of which are referred to the first of the three; Nelson's Glory, Lord Derby, Peasgood's Nonesuch, Stirling Castle, New Hawthornden, Lane's Prince Albert, very handsome, of good size, and perfect form; Newtown Pippin, Pott's Seedling, Loddington, Scarlet Admirable, Formosa, Worcester Pearmain, very finely coloured; Glory of the West, Yorkshire Beauty, Red Hawthornden, Golden Spire, Lord Suffield, Grenadier, and Lord Grosvenor.

Messrs. W. Paul & Son, Waltham Cross, sent a most extensive collection representing 200 varieties, all of good size but deficient in brightness. With them, however, are shown two dozen varieties from the firm's seed farm at Framfield, Sussex which are remarkable alike for their regularity of form

and rich colour, very prominent being Mabbot's Pearmain, a well-known useful variety sent out by the firm; Hoary Morning, Worcester Pearmain, Cox's Orange Pippin, and Cox's Pomona, which are shown in the general collection also. Of the Waltham Cross varieties the principal are Warner's King, Beauty of Waltham, Lord Derby, Winter Hawthornden, Baxter's Pearmain, Lewis's Incomparable, Brownlees' Russet, Red Hawthornden, Beauty of Kent, Fearn's Pippin, Peasgood's Nonesuch, and Evagil. Mr. J. C. Mundell, gardener to Lord Ebury, Moor Park, Rickmansworth, contributes forty varieties; Irish Peach, Strawberry, and Julien being the most notable, the others being rather under the average size.

KENT.

The garden of England well maintains its claim to the title at this great Show, for of all the fine collections that occupy the tables in the large vinery none surpasses those from Kent, and very few equal them. In colour the Kentish Apples are matchless, and viewing the collection from one end numerous shades of crimson and yellow with the rich green kitchen varieties has a most pleasing effect. L. A. Killick, Esq., Langley, has a magnificent collection of 140 varieties, without doubt one of the most beautiful in the whole Exhibition, as richly coloured varieties form a large proportion of the total. Very notable amongst these Worcester Pearmain, Premier, Duchess of Gloucester (Duchess's Favourite), Swedish Pearmain, and Cox's Pomona all of which are exceedingly bright. Other fine Apples are Manx Codlin, Golden Noble, Yorkshire Beauty, Lord Suffield, Lord Derby, Warner's King, Mabbot's Pearmain, Duchess of Oldenburg, Beauty of Kent, Hoary Morning, Fairy Apple, and Red Hawthornden. Mr. W. Chisbolm, Oxon Heatb, Tonbridge, has twenty-eight dishes of good specimens. Mr. R. Gardy, Maidstone, shows four varieties, Loddington grafted on old trees on light soil being fine, also Stirling Castle and Yellow Ingestrie. Messrs. T. Frost and Son, Maidstone, have fifty varieties all fairly good.

Mr. C. Haycock, The Gardens, Barham Court, Maidstone, contributes one of the most handsome collections in the county, and, indeed, in the entire Show, the 124 varieties represented being in the majority of cases not only of great size but of extremely rich colour. The varieties best shown in this collection are the following:—Mank's Codlin, Golden Spire, Reinette du Canada, Beauty of Kent, New Hawthornden, Lord Derby, Mère de Ménage, large; Gloria Mundi, Peasgood's Nonesuch, handsome; Warner's King, Emperor Alexander, Loddington, Golden Noble, Royal Russet, Bedfordshire Foundling, Potts' Seedling, and Small's Admirable. All these are of great size, and form the back rows. The front rows contain the following rich-coloured varieties:—Court Pendu Plat, Worcester Pearmain, Reinette Grise, Mother Apple, Nelson's Prolific, Cellini, Orange Pippin, Cox's Pomona, Washington, Mignonne Rouge, and Melon. Other fine varieties are Yorkshire Beauty, Jolly Beggar, Duchess of Oldenburg, Gooseberry Pippin, Summer Golden Pippin, and Pitmaston Pine Apple. Branches of Wilson's Prolific, a small red and very free Apple, are also notable. Several other exhibitors send small collections, the principal being the following:—Mr. W. Herrington, Betteshanger Rectory, Sandwich, nine dishes; Mr. W. B. Langridge, Mereworth, Maidstone, eight dishes; and Mr. S. H. Goodwin, Smartswell, two varieties.

Mr. G. Goldsmith, The Gardens, Hollenden, Tonbridge, shows seventy varieties, brightly coloured and fine in size. Blenheim Pippin from a standard tree is notable for its rich colour, and the variability of this Apple is very notable from different districts. In some cases, as the above, it possesses fine colour, and in others is, even when ripe, very dull. Shepherd's Fame from an espalier tree is admirable, and Castle Major with Cox's Pomona, also from espaliers, are similarly fine. Fearn's Pippin and Colonel Vaughan are superbly coloured, Gloria Mundi and Hollandbury being large and handsome. Mr. C. Langley, Crabble, has thirty varieties; Mr. G. Butcher, Oak Lodge, Tonbridge, the same number, amongst them being fine examples of Harvest Festival, very rich crimson. Mr. G. White, Fairlawn, Maidstone, sends a collection of equal extent; Golden Noble, Blenheim Pippin, and Loddington forming the most prominent varieties.

Messrs. G. Bunyard & Co., Maidstone, contribute greatly to the Kentish exhibits with 150 varieties, very handsome fruits, the majority being from young trees on the Paradise stock; some specimens of Washington form, however, the chief features of this collection, as in form, size, and colour they are all they could be desired. One fruit in particular is as regular as if it had been most carefully moulded, and the crimson streaks as even as if they had been painted. These fruits have been grown in a cool orchard house, and to this in a great measure they owe their fine appearance, for several other samples in other collections from outdoors are much inferior. Another fine dish from Mr. Theodore Moilliet, Hawkburst, included in Messrs. Bunyard's exhibit, and similarly from an orchard house, is notable. That large and handsome Apple The Queen is also represented in fine condition near the Washingtons. Selecting a few of the best Apples in the general collection the following deserve notice:—Cox's Pomona, Lord Derby, Grenadier, Cellini, Tower of Glamis, Yellow Ingestrie, Pott's Seedling, Scarlet Admirable, Winter Hawthornden, Golden Noble, Pitmaston Pine Apple, Manx Codlin, Warner's King, Mère de Ménage, Worcester Pearmain, Gloria Mundi, and Queen Caroline. Mr. J. Neighbour, The Gardens, Bickley Park, has forty-five varieties, and Mr. G. Beaton, Yotes Court, Maidstone, fifty varieties, both of average merit.

MIDDLESEX.

Considerable space is occupied by the Middlesex Apples, and the general quality is very satisfactory; though wanting the brilliant colour of the Kentish contributions, they compensate for this by excellent size, form, and clearness. Very prominent is the collection of 150 varieties from Messrs. J. Veitch & Sons, Chelsea, which includes some superb examples of the leading Apples. Especially fine are Peasgood's Nonesuch, Mère de Ménage, Worcester Pearmain, Flower of Kent, Baumann's Red Reinette, Lord Derby, Red Hollandbury, Alfriston, Warner's King, Winter Hawthornden, Ribston Pippin, Lady Henniker, Emperor Alexander, Annie Elizabeth, Striped Beefing, Dr. Harvey, Calville de Dantzig, red, crimson; Cellini, Lord Suffield, Jefferson, Cobbett's Fall Pippin, Scarlet Pearmain, and Barton's Incomparable. Messrs. C. Lee & Son, Hammersmith, also have a praiseworthy collection of 120 dishes, representing many more varieties, in fine condition and good colour. Peasgood's Nonesuch is represented by several dishes, all the fruits being marked by their size and fine appearance. Other good varieties are

Hollandbury, Hoary Morning, Warner's King, Blenheim Pippin, Lord Derby, Lewis's Incomparable, Emperor Alexander, Mère de Ménage, Lady Henniker, Lord Suffield, Worcester Pearmain, Cockpit, King of the Pippins, Waltham Abbey Seedling, Cox's Pomona, and Gloria Mundi.

Other exhibitors of smaller collections are Mr. J. Roberts, Gunnersbury Park, Acton, who has fifty dishes, the fruit mostly of fine appearance. Mr. R. Bray, Bedford Villa, Bedford, has seven varieties; Mr. Wood, gardener to Mrs. Sanderson, Duke's Avenue, Chiswick, has thirty dishes; Mr. G. Thompson, Croxby House, Hounslow, shows twenty varieties; and Mr. J. Woodbridge, The Gardens, Syon House, Brentford, contributes forty varieties, including some very handsome samples of Lord Derby, Blenheim Pippin, Warner's King, Alfriston, and Loddington.

The collection grown in the Chiswick Gardens is, however, the most remarkable in this county, comprising nearly 300 varieties. As it is thoroughly representative of the leading sorts we give the names of all those shown. Many of the finer kitchen Apples are admirable in size and form, and the dessert varieties are fairly coloured and clean. Several curiosities are included, one of the most notable being a blue streaked Nova Scotian Apple, which bears a bloom resembling that of black Grapes, with a distinct bluish tint, and possesses a good flavour. The names of the varieties are as follows:—

Culinary Apples.—Alexander, Baldwin, Barchard's Seedling, Baumann's Red Winter Reinette, Beauty of Kent, Beauty of Wilts, Bedfordshire Foundling, Belle Bonne, Banwell's Large, Blenheim Pippin, Blue Pearmain, Brabant Bellefleur, Calville's St. Sauveur, Cambusnethan Pippin, Cellini, Cogswell, Cox's Pomona, Cox's Seedling, Cumberland Favourite, D'Eclat, Derbyshire Crab, Devonshire Buckland, Duke of Glo'ster, Duke of Beaufort, Dumelow's Seedling, Dutch Codlin, Dutch Fullwood, Dyer, Edmund Jupp, Empress of Russia, Fair Maid of Kent, Fallwater, Flanders Pippin, Flower of Herts, Freask's, French Codlin, French Crab, Frogmore Prolific, Gascoigne's Seedling, Gestreifer Herbst Suisse Apfel, Gelbe Richard, Gloria Mundi, Glory of England, Golden Noble, Grenadier, Grange's Pearmain, Greig's Harvest Reinette, Gunner Furst-n Apfel, Higg's Seedling, Hoary Morning, Hollandbury, Holland Pippin, Hollow Crown Pippin, Holzer's Herbst Apfel, Hubbardson's Nonesuch, Hunt's Royal Red, Kentish Codlin, Keswick Codlin, Kirke's Schöne Rambour, Knight's No. 1, Landsberger Reinette, London Pippin, Longville's Kernel, Lord Suffield, Lucombe's Seedling, Maiden's Blush, Mammoth Pippin, Mank's Codlin, Mary Greeds, Mère de Ménage, Miller's Glory, Minshall Crab, Muckenham Rother Winter Koenig Apfel, Myatt's George IV., Nelson Codlin, New Hawthornden, New Hawthornden (Paul), New or White Hawthornden, No Core, Nonesuch, Norfolk Bearer, Norfolk Coleman, Norfolk Beaufin, Northend Pippin, Northern Greening, Old Hawthornden, Old English Codlin, Orme, Penny Loaf, Pomme Poire Blanche, Pomme Water, Pattiswick Seedling, Potts' Seedling, Red Bough, Reinette du Greville, Rhode Island Greening, Rosenhager, Rother Eisen, Royal Codlin, Round Winter Nonesuch, Rymer, Sage No. 1, Schlesvig Jordbaersaeblo, Seedling R. Dudley, Shepherd's Newington, Small's Admirable, Somersetshire Deux Ans, Stirling Castle, Stone's Apple, Striped Beaufin, The Queen, Thompson's Seedling, Thoresby Seedling, Tower's Glory, Transparent Codlin, Twenty Ounce, Wadhurst Pippin, Waltham Abbey Seedling, Wagner, Warner's King, Withington Fillbasket, Winter Coleman, Winter Hawthornden, Winter Majetin, Winter Pearmain, Winter Redstreak, Winter Strawberry, Yellow Beaufin, Yellow Bellefleur, Yellow Bough, York Glory, and Yorkshire Greening.

Dessert Varieties.—Adams' Pearmain, Autumn Pearmain, Algarkirk Seedling, Burchard's Reinette, Brickley Seedling, Bradley's Pearmain, Brownlee's Russet, Betsy, Byson Wood Russet, Brown's Imperial Russet, Braddicks' Nonpareil, Barcelona Pearmain, Baddow Pippin, Beachamwell, Barton's Incomparable, Baxter's Pearmain, Braddick's Nonpareil, Burr Knott, Beat's Pippin, Bess Pool, Cox's Orange Pippin, Colonel Vaughan's, Calville rouge précoce, Carnation, Court of Wick, Calville Blanche, Cockle's Pippin, Court Pendu Plat, Cornish Aromatic, Cornish Gilliflower, Claygate Pearmain, Caraway Russet, Cluster Golden Pippin, Coe's Golden Drop, Dundee, Datzler's Gold Reinette, Downton Nonpareil, Downton Pippin, Duchess's Favourite, Dutch Mignonne, Duchess of Oldenburg, Eldon Pippin, Evagil, Early Nonpareil, Englische Koenig Pearmain, Egg or White Paradise, Fish's Pippin, Federal Pearmain, Flat Nonpareil, Formosa Nonpareil, Fenn's Ribston Pippin, Fearn's Pippin, Franklin's Golden Pippin, Grange, Golden Russet, Gravenstein, Gogar, Golden Ball, Golden Nonpareil, Golden Russet, Golden Reinette, Golden Pearmain, Golden Russet Nonpareil, Haffner's Golden Reinette, Hughes' Golden Pippin, Herefordshire Pearmain, John, Isle of Wight Pippin, Kroon Apfel, King of the Pippins, King Harry, Knight's Lemon Pippin, Lippan Wilding, Leathercoat Russet, Loan's Pearmain, Lord Burghley, Lamb Abbey Pearmain, La Fameuse, Malakovna, Morris' Russet, Muskirke Gelbe Reinette, Miller's Luken Hagen, Martin's Nonpareil, Morris's Court of Wick, Margil, Manchester Pippin, Mela Carla, New Rock Pippin, Nonpareil d'Angleterre, New Green Nonpareil, Northern Spy, Ord's, Old Pomeroy, Omar Pasha, Ostogotho, Old Golden Pippin, Parry's Pearmain, Powell's Russet, Pearson's Plate, Princess Royal, Pomme de Neige, Pigeon's Heart, Pitmaston Nonpareil, Pure Golden Pippin, Pitmaston Pine, President Defay, Ponto Pippin, Peach, Quatford Aromatic, Reinette du Canada, Reinette du Caux, Ribston Pippin, Ronalds' Royal Pearmain, Ronalds' Orange Pippin, Ross Nonpareil, Red Winter Reinette of Schmidtbebers, Reinette Kapuziner, Royal Russet, Reinette d'Holland, Sudbury Beauty, Screveton Golden Pippin, Seigende Reinette, Sam Young, Stubton Nonpareil, Sweeney Nonpareil, Sops in Wine, Stadway Pippin, Staten, Scarlet Nonpareil, Spencer's Green Seedling, Summer Nonpareil, Swedish Reinette, Vale Mascal Pearmain, Vineyard Pippin, Victoria, Van Mons Reinette, Wheeler's Russet, White Nonpareil, Wormsley Pippin, Werder's Golden Reinette, White Molascha, and Yellow Ingestrie.

Mr. A. Wyatt, Market Gardens, Hatton, has seven varieties, handsome samples of Hanwell Souring, Alfriston, Blenheim Pippin, Beauty of Kent, Ribston Pippin, Duchess of Gloucester, and King of the Pippins being included.

NORTHAMPTONSHIRE.

Mr. R. Gilbert, The Gardens, Burghley, Stamford, contributes the principal collection from the above county, 100 varieties being staged, including several new and older seedlings, some of which are well known in the district. Some of the more recent are seedlings with such popular names as "The Butcher," "Parcels Post," &c. The former of the two is, if distinct,

a fine Apple—large and of symmetrical form. A small red Apple named Sell's Prolific is also noteworthy. It is said to be good for either cooking or dessert, and keeps until March. It has been known about Stamford for fourteen years, and was raised by Mr. Sells of Uffington. Of the ordinary varieties the following are well represented:—Emperor Alexander, Scarlet Nonpareil, Wyken Pippin, Summer Golden Pippin, Golden Noble, Round Winter Pearmain, Reinette du Canada, Loddington, Peasgood's Nonesuch, New Hawthornden, Warner's King, Claygate Pearmain, Blenheim Pippin, Golden Noble, and Duchess of Gloucester. Mr. J. Harlock, Lilford Hall Gardens, Oundle, shows a dozen varieties, all the fruits being very handsome, especially Emperor Alexander from standard trees, Worcester Pearmain, Beauty of Hants, and Warner's King from espaliers, and Mère de Ménage from a standard.

NOTTINGHAMSHIRE.

Messrs. J. R. Pearson, Chilwell, stage the principal collection from this county, about 100 varieties being shown in very creditable condition. Most of the standard varieties are included, such well-known sorts as the following being the most notable:—Fearn's Apple, Warner's King, Lady Henniker, New Bess Pool, Ecklinville, Golden Reinette, Cox's Pomona, Emperor Alexander, White Russet, Cellini, Spencer's Favourite, Ringer, Eve Apple, Stirling Castle, Ribston Pippin, Cobham, and Reinette du Canada. Mr. H. Bradley, Southwell, exhibits forty-five varieties packed in dried Lycopodium in small boxes. Several of the varieties are remarkable for their high colour, though not above the average size, Dumelow's Seedling, Lord Derby, Ecklinville, King of the Pippins, Lord Lennox, and Worcester Pearmain being the most notable; the last in particular is finely coloured.

OXFORDSHIRE.

Messrs. John Jefferies & Co., Oxford, have the largest collection in the Exhibition, no less than 343 dishes, which probably represent at least fifty more varieties. These have been collected on the same principle as the Tweedside Apples—namely, from a number of gardens in the county, and as the varieties bear labels stating the name, soil, situation, description of the tree, and other particulars, this exhibit is most interesting and instructive. The following have contributed to this collection:—Mr. J. Britain, Southleigh, Witney; Mr. Thomas, gardener to Mrs. Drake, Bicester; Mr. Hope, gardener to the Earl of Jersey, Middleton Park, Bicester; Mr. W. Holloway, Cowley; Mr. Gould, gardener to Mrs. Stone, Stratley; Mr. Pearse, gardener to W. M. F. Melliar, Esq., North Ashton Hall; Mr. G. Thompson, gardener to Sir W. Herschell, Littlemore, Oxford; Mr. Finlay, gardener to Col. North, Banbury; Mr. J. Gee, Oxford; J. Druce, Esq., Eynsham; Miss Watson-Taylor, Headington; and Mr. F. Warland, Kidlington. From so many different districts and soils the Apples vary considerably in all characters, but generally they are of average size and colour, with a few exceptionally fine specimens scattered through the collections. The varieties that are the best shown in the majority are the following:—Fearn's Pippin, King of the Pippins, Warner's King, Golden Pippin, Claygate Pearmain, Ribston Pippin, Herefordshire Pearmain, Blenheim Pippin, Dumelow's Seedling, Ecklinville, Mère de Ménage, Emperor Alexander, and Lord Derby.

SOMERSETSHIRE.

The exhibits from this county are not, as a rule, distinguished by great size or remarkable colour, but they include many curious and interesting varieties. Mr. R. H. Poynter, Taunton, has about eighty varieties, amongst them being Blenheim Pippin, Warner's King, Dunster Codlin, Ribston Pippin, Tom Putt, finely coloured; Royal George, Sweet Morgan, Hawthornden, Curry Codlin, a large Apple, yellow, shaded with red; Lord Suffield, Cellini, New Hawthornden, and the peculiar conical bright red Apple the Sheepsnose, the Sweet Sheepsnose being of similar shape, but a soft green with a tint of red. Mr. J. Scott, Merriott, has 200 varieties, but these also are small, though Beauty of Hants, Cox's Pomona, Golden Winter Pearmain, and Golden Noble are fine.

SURREY.

Several fine collections were arranged under this county, but, strangely no trade collection was staged, all being from gentlemen's and amateurs gardens. The majority of the samples were fine as regards size and form; but, as in several other cases, the colour was rather weak, except in a few instances. Mr. G. W. Cumming, gardener to A. H. Smee, Esq., The Grange, Wallington, contributes 200 varieties, which are grown in a low damp situation, and therefore could not be expected to be of extraordinary merit. Some extremely good samples were, however, shown of Lord Derby, Warner's King, Wadhurst Pippin, Burr Knot, Emperor Alexander, Elsinore, Cornish Gilliflower, Packham Robinson, Golden Reinette, Clove Pippin. Several seedlings and local varieties are included from Mr. Smee's large collection. Mr. J. Burnett, The Gardens, Deepdene, Dorking, contributes 100 varieties of good quality and well labelled, giving the soil and stock upon which they are grown, thus furnishing much useful information. Some of the most notable examples are Sturmer Pippin (Crab stock, clay soil), with Tower of Glamis and Norfolk Beefing on the same stock and soil. King of Pippins (Crab stock, sandy soil) was also good, with Cox's Orange Pippin from an espalier (stock and soil the same as the last), and Welford Park Nonesuch on the Paradise stock and greensand soil.

Mr. T. Taylor, gardener to J. McIntosh, Esq., Duncannon, Oatlands Park, has ten varieties mostly for name; but including two dishes of Landsberger Reinette, one from a tree in a dry sunny position, the fruits being clear wax-like, yellow, very beautiful, and the others from a tree in a moist position, the fruits greenish with a tinge of red round the eye and on one side—quite distinct from the former, except in shape. Mr. J. Dean, Titsey Gardens, Limpsfield, shows sixty varieties; Mr. J. Barclay, The Durdans, Epsom, twenty-four varieties, amongst which a dish of Scarlet Nonpareil from a standard tree are notable for their high colour. Mr. H. Matthews, Betchworth, has twenty-four varieties, Palmer's Glory and Queen Caroline being most handsome. Mr. B. Greaves, Brome Hall Gardens, Holmwood, sends twelve varieties for name; and Mr. Ridout, gardener to T. B. Haywood, Esq., Reigate, has a beautiful collection of thirty-six dishes, representing sixty or seventy varieties mostly in capital condition, and with many instructive notes respecting the soil, situation, and stocks.

SUSSEX.

The leading collection from this county is that from Messrs. Cheal and

Son, Crawley, which comprised 250 varieties, and is throughout distinguished by high quality, the fruit large, even, and in the majority of cases beautifully coloured; they are also carefully labelled with their names, uses, and other particulars, which add much interest to the exhibit. A few of the best varieties are the following:—Cox's Pomona, Blenheim Pippin, New Hawthornden, Gloria Mundi, Royal Russet, Holland Pippin, Carvan's Victoria, Colonel Vaughan, Worcester Pearmain, Dumelow's Seedling, Peasgood's Nonsuch, Pride of the Mill, Glory of Charlwood, Red Muster, King Apple, Jefferson, Golden Noble, and Avalanche, the last a large yellow Apple being very handsome.

Mr. S. Ford, The Gardens, Leonardslee, Horsham, shows 150 varieties, which he states is half the number grown there. The site is 273 feet above sea level, and he finds all the varieties a week to ten days late and weak in colour. Still some of the Apples shown are very handsome and deficient in no qualities of importance. Especially fine are Blenheim Pippin, King Apple, Thomson, Hollandbury, Bedfordshire Foundling, Mère de Ménage, Warner's King, Wax Apple, Flower of Kent, Red Cadbury, Duck's Bill, Forge, Quarrenden, Emperor Alexander, Calville Blanche very large, and Gravenstein, also good. Eight seedlings are included in the above, the most remarkable being one named Marie Henriette, a small deep crimson-coloured and very prolific Apple. Mr. J. Rust, The Gardens, Eridge Castle, Tunbridge Wells, has forty varieties, grown in a very exposed position 400 feet above sea level on a stiff loam. As might be expected, few were unusually fine, but Mère de Ménage, Sops in Wine, Striped Beefing, and Emperor Napoleon were of good size. Mr. R. Mills, Southdown Road, Shoreham, has twenty varieties, and Mr. T. Moorhouse, Lapwood Gardens, Groombridge, about the same number, both fairly good, but not of remarkable merit.

WILTSHIRE.

Several exhibitors have examples of Wiltshire Apples, but the majority are not remarkable for their high quality. Mr. J. Horsefield, The Gardens, Heytesbury, sends a small collection of a dozen varieties, but these include some of the best in the county, Annie Elizabeth and Cox's Orange Pippin being remarkably fine. Mr. C. Warden, The Gardens, Clarendon Park, Salisbury, has forty varieties unnamed and rather small; and Mr. G. Allen, The Gardens, Rainsbury Manor, Hungerford, has thirty varieties, also unnamed and of moderate size.

WORCESTERSHIRE.

Several excellent collections of fine Apples are contributed, being grown in this county; but one of the most noteworthy of all, though certainly few varieties, is that from Messrs. R. Smith & Co., Worcester. This includes two dishes of the celebrated and favourite Worcester Pearmain, of extraordinarily rich colour, a dark glowing crimson. The variety Grand Duke Constantine, a large and handsome Apple tinged with a delicate and soft rosy hue, is similarly beautiful, and Smith's Pippin, a moderate sized Apple, yellow, and very even, is another attractive variety, and the better-known Yorkshire Beauty sent out by this firm is also finely coloured. Worcester Pearmain is shown extremely well in dozens of collections, but the samples above mentioned are unrivalled in richness. Mr. E. Cockbill, Wick House, Pershore, has fifty varieties, including some fine specimens of Lord Suffield, Kentish Fillbasket, Blenheim Pippin, Golden Noble, Nine Square, and Brunswick Codlin. Mr. J. Twinberrow, Walsgrove, Great Witley, Stourport, has samples of Red Dick, a late cider Apple, very dull red on one side and of conical form, and Counsellor, locally known as Walsgrove Wonder, very fine.

YORKSHIRE.

The most noteworthy of the York collections is that from Mr. McIndoe, gardener to Sir Joseph Pease, Bart., M.P., Hutton Hall, Guisborough. This comprises about fifty varieties, and in several cases duplicates are staged to show the difference in quality of the same variety under glass and outside, the former being in every case incomparably superior in size and general appearance. This is particularly the case with Alfriston, Warner's King, Prince Albert, Lord Suffield, and Lady Henniker. Specimens of an Apple from New Zealand, and named Prince Bismarck, are also shown. It is a large green Apple, somewhat in the way of Warner's King, but with a deeper eye. Some of the best of other varieties staged are Peasgood's Nonesuch, Melon, Lewis's Incomparable, Evagil, Annie Elizabeth, Small's Admirable, and Potts' Seedling. Mr. Bourne, gardener to Admiral Chaloner, Longhill, Guisborough, sends nineteen varieties, but none is very remarkable. Mr. W. Chuck, The Gardens, Brodsworth Hall, Doncaster, has seventy-two varieties of fair quality. Mr. G. Summers, The Gardens, Sandbeck Park, Rotherham, contributes forty-nine varieties, including some good fruits of Mère de Ménage, Warner's King, Nelson's Glory, and Fearn's Pippin. Mr. H. J. Clayton, The Gardens, Grimston Hall, Tadcaster, exhibits thirty varieties; and Messrs. J. Slater & Son, New Malton, have about fifty varieties, all grown on the Crab stock. None is large, but they are clean and of even form.

OTHER COUNTIES.

Bedfordshire Apples occupy very little space, only one exhibitor—namely, Mr. Laxton, Bedford, showing. He has some fine examples of the new Schoolmaster Apple, which are large, of good form, and are much admired for their general fine appearance.

Cambridgeshire.—Very poorly represented is this county, Mr. H. Bull, Bernard House, Cottenham, having eleven varieties of little note except one called the Jolly Miller, a dark red Apple of moderate size and said to be very

prolific. It was raised by Mr. H. Smith of Cottenham ten or twelve years ago. Mr. H. Apthorne, Albion Brewery, Cambridge, sends six varieties for name.

Durham has one collection of ninety varieties from the Gardeners' Institute, Darlington (F. C. Ford, Secretary), and there are fairly good samples of Tower of Glamis, Beauty of Kent, Gravenstein, King Apple, Potts' Seedling, Ecklinville, Blenheim Pippin, Bedfordshire Foundling, Emperor Alexander, and Cellini.

Huntingdonshire.—Messrs. Wood & Ingram, Huntingdon, exhibit a fair collection of twenty-four varieties, not very large but even and clean; Murfitt's Seedling, several local varieties such as Greaves' Wonder—also Blenheim Pippin are the best shown. Mr. A. Harding, The Gardens, Orton Hall, Peterborough, also has twenty-four varieties; Cox's Pomona, Potts' Seedling, Alfriston, Ribston Pippin, and Striped Beefing being especially good, though several others are also fine.

Lancashire.—Mr. R. Maries, Meythorpe Nursery, Lytham, is one of the principal exhibitors from Lancashire, for, though only showing fourteen varieties, they are nearly all of fair size and good shape. Lord Derby, Potts' Seedling, Ringer, Court of Wick, and Blenheim Pippin especially. Mr. J. Hathaway, Latham House Gardens, Ormskirk, shows sixty varieties, but all rather small and green; and Mr. F. Winkworth, The Gardens, Childwell Hall near Liverpool, has fourteen varieties of little merit.



Fig 60.—Lord Derby Apple (See page 321).

Lincolnshire is represented by two collections—from Messrs. Rowson Brothers, West Torrington Gardens, of thirty-one varieties, but small and poorly coloured, and the other from Blankney Hall Gardens, of fifty varieties, the best of which is Warner's King.

Monmouthshire is represented by only one small collection—namely, ten varieties from Mr. W. Jenkins, The Willows, Abergavenny, but these are exceedingly richly coloured. Fearn's Pippin, Yorkshire Beauty, and Emperor Alexander are first-rate; Monmouthshire Beauty, a very rich red Apple of moderate size, most attractive, being the finest coloured of all. The latter fruits are from a tree on the Paradise stock.

Norfolk.—Two collections of forty and fifty varieties respectively are staged by Norfolk growers, Mr. E. Burbury, Cossey Park Gardens, Norwich, having the former number, mostly small samples; and Colville Brown, Esq., The Paddocks, Swaffham, has the larger number, similarly small and green.

Shropshire.—Another of the moderately represented counties, two small collections being staged. Mr. H. S. Kemp, Haughton Gardens, Shifnal, has forty varieties, none very fine, but American Catkin, Tower of Glamis, and Lord Suffield are of good size. Mr. G. Mardall, The Gardens, Ashton Hall, sends several unnamed varieties.

Staffordshire.—Mr. Stevens, The Gardens, Trentham, has fourteen varieties of moderate merit, Cox's Orange Pippin being the best.

Westmoreland.—A very moderate display is provided by this county, Mr. C. Crossland, The Gardens, Beechwood, Arnside, being the only exhibitor, staging thirty-four varieties, three fruit of each, and mostly small. A small dark red variety named Duke William is described by the exhibitor as a good kitchen Apple and very prolific.

Leicestershire.—This county is not largely represented, only one collection being staged by Messrs. Harrison & Sons, Leicester—100 varieties, of good colour, even, and of moderate size. The standard varieties are all included, and the large sorts such as Warner's King, Gloria Mundi, Lordy Derby, and others are fairly good.

WALES.

Mr. G. Griffin, The Gardens, Slebeck Park, Haverfordwest, has the chief collection of Apples grown in Wales, eighty varieties being represented. Although, however, the majority of these are distinguished by excellent colour they are rather under the average size, and in some cases very small. There are no unusually large samples. Blenheim Pippin is fairly good, with particularly richly coloured fruits; Cox's Pomona is of fair moderate size, other good varieties being Winter Hawthorden, Kentish Fillbasket, Beauty of Kent, Reinette du Canada, King's Sauce, Alfriston, Royal Russet, King of Pippins, and Rymer. This and the next collection occupy a portion of the stage in the old orchard house, where the American Vines are now being grown. General Benson, Fairy Hill, Swansea, has sixty varieties, including the Forest of Dean Apple, which somewhat resembles Hoary Morning; also a seedling from it, which was named Bevan's Seedling. This somewhat resembles the old Nonesuch, but minus the open eye of that variety.

SCOTLAND.

One of the span-roof houses usually devoted to Tuberous Begonias during the summer months is appropriated to exhibits from Scotland, and a fine display is afforded by these, for though colour is wanting the specimens are mostly distinguished by good size and evenness. By far the most notable are the collections of Tweedside Apples exhibited by Messrs. Ormiston & Reuwick of Melrose, by which they have rendered most valuable aid to the Exhibition. Two hundred and seventy-nine varieties are represented from the following:—Mr. John Cairns, gardener to the Earl of Home, Hirsell; Thomas Hogg, Esq., Hope Park, Coldstream; Mr. James Fairbairn, gardener to Miss Scott Makdougall, Makerstoun; Mr. W. Fowler, gardener to Lord Polwarth, Mertoun; the Rev. M. H. Graham, Maxton House; Mr. George Grey, gardener to Mrs. Merklam, Gladswood; Mr. J. Thomson, gardener to the Earl of Dalkeith, Eildonhall; Mr. W. Sharpe, gardener to Alexander Curle, Esq., Priorwood; Mr. W. Rollo, gardener to James Carle, Esq., Hurleyburn; Mr. H. Scott, gardener to the Hon. J. C. Maxwell Scott, Abbotsford; Mr. J. Jardine, gardener to Lady Brewster, Allerby; A. Ormiston, Esq., Mayfield, Gattonside; Mr. W. Deck, gardener to Lieut.-General Henry, C.B., Pavilion; Mr. E. Farquhar, gardener to Mrs. Dalrymple, Langlee; and Mr. M. McIntyre, gardener to C. Tennant, Esq., The Glen, Innerleithen. Messrs. Ormiston & Reuwick have displayed much energy in forming such a representative collection as this, and to still further increase the advantage pamphlets describing the soil, situation, and other matters in connection with the culture of the trees are furnished to the visitors. The varieties most distinguished by their size and general merit are the following:—Lord Suffield, Alfriston, Kentish Fillbasket, Mère de Ménage, Warner's King, Emperor Alexander, Waltham Abbey, Manx Codlin, Gloria Mundi, Stirling Castle, Striped Beefing, Ecklinville, Dumelow's Seedling, Annie Elizabeth, Cox's Pomona, Cellini, Blenheim Pippin, Betty Geeson, Yorkshire Greening, Dutch Mignonne, Lord Grosvenor, Hawthornden, Golden Noble, Calville Blanche, Keswick Codlin, Claygate Pearmain, Irish Peach, Kerry Pippin, Braddick's Nonpareil, Devonshire Quarrenden, Ribston Pippin, King of the Pippins, Fearn's Pippin, Hollandbury, Syke House Russet, Reinette de Canada, Cockle's, Margil, Queen of the Pippins, Cox's Orange Pippin, and Sturmer Pippin.

Mr. P. W. Fairgrove, gardener to the Dowager Duchess of Athol, Dunkeld, Perthshire, has a collection of forty-six varieties, amongst which Ecklinville, Warner's King, Lady Suffield, and North Briton are the best, the others being small. Mr. J. Clark, The Gardens, Brodie Castle, has fifty varieties also rather small, Emperor Alexander and Gloria Mundi being by far the finest. Mr. R. P. Brotherston, The Gardens, Tynningham, Prestonkirk, N.B., has 100 varieties of fair size. Ecklinville, Warner's King, Irish Peach, Hoary Morning, Gloria Mundi, Northern Greening, and Blenheim Pippin being the most noteworthy. Mr. King, gardener to J. G. C. Hamlin, Esq., Dalzell House, Motherwell, Lanarkshire, shows seventy varieties, and a few of these are the best coloured amongst the northern Apples, some of the Winter Calville being particularly fine. The curious Lady's Finger is also notable in this collection.

Dr. Robertson, Errol, N.B., has thirty-two dishes, comprising about sixty varieties, only one or two fruits being shown of each. Few of these are remarkable for their size, but Dumelow's Seedling, Winter Strawberry, Blood Red, and Lass o' Gowrie are fine, especially as regards colour. Mr. Reid, Ballindean, N.B., has twelve dishes; Mr. D. Doig, Rossie Priory, Inchtute, N.B., about forty varieties; Mr. J. Cameron, The Gardens, Auchterarder House, Perthshire, has thirty varieties for naming; and Mr. J. Brunton, Drem, N.B., has eighty-one varieties, large and good, Lord Suffield, Warner's King, Emperor Alexander, East Lothian Pippin, Ecklinville, Gloria Mundi, and several local varieties being very well shown. Mr. Dunn, The Gardens, Dalkeith, contributes a large collection, comprising about 200 varieties, the fruits being of average size but very green. The best examples are MacDonald's Apple, Golden Noble, Warner's King, Alfriston, Winter Russet, Paradise Pippin, Oslin, and Worcester Pearmain. The Scottish Horticultural Association, Edinburgh, sent seven varieties, amongst which Northern Dumpling is fairly good, the others are poor. One contribution has been received from the Orkney Islands—viz., a dozen varieties from Mr. T. McDonald, The Gardens, Balfour Castle, Kirkwall Orkney. They are grown

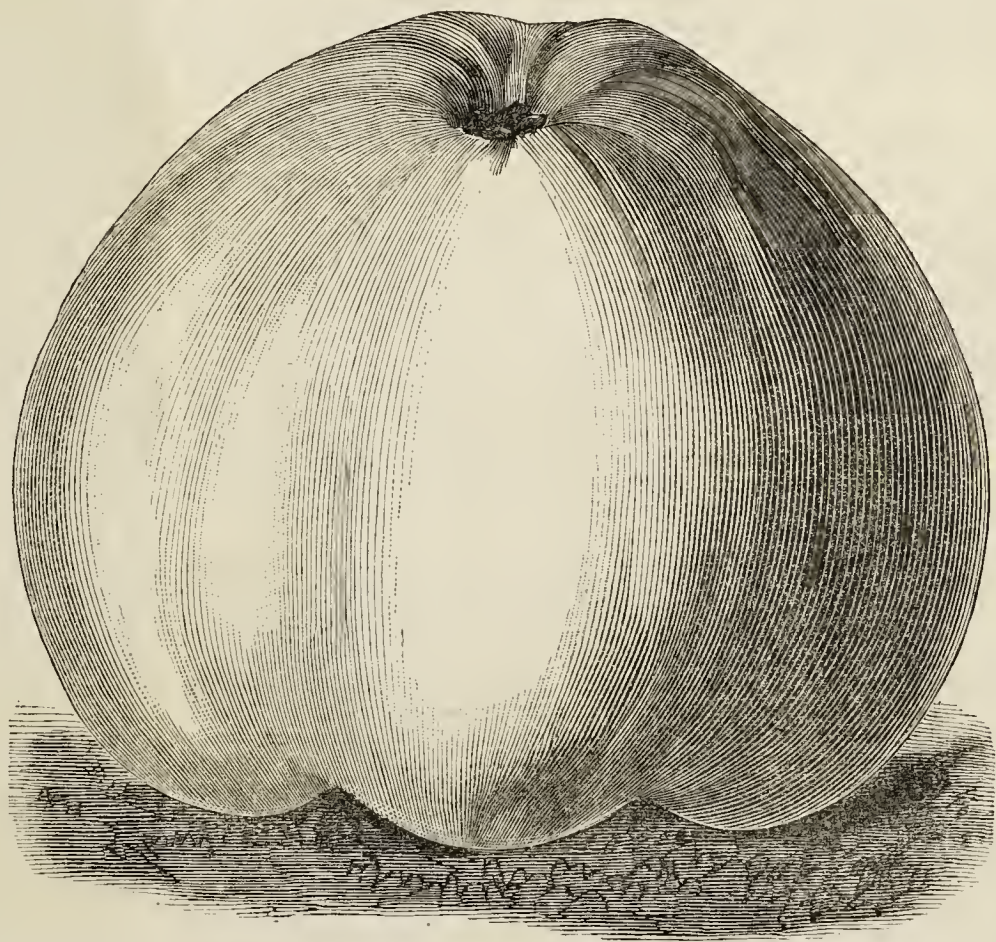
in a strong clay soil, and are mostly very small and dull-coloured. Stirling Castle, Brabant Bellefleur, and Gloria Mundi are the only varieties of average merit.

JERSEY.

Mr. C. B. Saunders, The Saviours, Jersey, is the only exhibitor of Channel Island produce, staging sixty varieties of Apples, some of which are very large and handsome, while others are very small compared with specimens from the English counties. Emperor Alexander is beautifully represented. Cox's Pomona is similarly handsome in all points, other fairly good fruits being Lord Lennox, Downton Pippin, Dumelow's Seedling, Tower of Glamis, Golden Noble, Peach Apple, King of the Pippins, Lady Henniker, and Grenadier. A more extensive and imposing display might have been reasonably expected from these favoured Islands.

SWEDEN.

Foreign-grown Apples, excluding those from the Channel Islands, are represented by only one collection—namely, that from Mr. J. Loney, gardener to J. Dickson, Esq., Gottenburg, Sweden, who has about thirty varieties of Pears and fifty of Apples. The fruits in both cases are fine, but have been grown under glass; and, therefore, though very interesting, have not the same practical value as those from the open air. They are certainly examples of good culture, and in that respect are highly satisfactory. The Pears include Souvenir du Congrès, Josephine de Malines, Beurré d'Anjou, Paternoster, Duchess, Maréchal de Cour, Doyenné du Comice, Beurré Bachelier, Duchesse d'Angoulême, Marie Louise, Passe Colmar, Beurré Diel, Bonne d'Ezée, and Doyenné Boussoch. The Apples comprise many bearing local names, and amongst them is one said to be a great favourite in Sweden



ig. 1.—Grenadier Apple.

and known as the Akerø; it is a pretty variety, of moderate size, wax-like or semi-transparent in appearance, tinted with a peculiarly soft crimson hue. It possesses a firm flesh and distinct pleasing flavour. Other noteworthy varieties are Margil, Forge Apple, Cox's Pomona, Citron Apple, Emperor Alexander, King of Pippins, Jolly Beggar, Stirling Castle, Calville Blanche, Lord Grosvenor, Court Pendu Plat, Cellini, and Newtown Pippin.

CONGRESS APPLES.

SUPPLEMENTARY to our report of the great Exhibition at Chiswick, we shall from time to time refer more particularly to some of the fruit of special interest, with the object of affording matter for instruction relative to some of the varieties that are not widely known, or which are known under different names on the one hand, or for showing the distinctness of varieties that are considered identical on the other.

The fruits now figured fairly represent two of the finest varieties at the Congress—namely, fig. 60, Lord Derby, and fig. 61, Grenadier. These are considered by some cultivators as synonymous, and it is not unlikely that one has been sold for the other. They are, however, perfectly distinct, as may be seen by the engravings. Lord Derby, one of the very finest of culinary Apples, is somewhat conical and of a dark shining green colour; Grenadier, inclining to oblate, and more sym-

metrical in outline. It also is a valuable Apple, and both of them may, without hesitation, be included in the same collection.

EXHIBITION ROSES.

IN the Journal for September 20th a correspondent writes, "That with a view to ascertain what are considered by the best growers to be the most reliable Dahlias for exhibition, I took down the names of the flowers shown at the recent Exhibition of the National Dahlia Society." It appears to me that the above is a most sensible and practical course to adopt to attain the end in view, and I would certainly recommend its adoption to the National Rose Society. Suppose every Rose shown at Kensington and the two other shows held by the Society to be noted and the results tabulated, we should get a record that would be more valuable than even the catalogue published by the Society; and as a help to beginners in enabling them to avoid purchasing Roses which never appear at a show, although having a large E before their names in the nurserymen's catalogues, it would be of much service.

I am aware that some excellent show Roses are entirely absent in exceptional years from the show tables, but to remedy this I would suggest that the record extend over three years, so as to give the dry-weather Roses a chance. If this were done I venture to predict that some quite unexpected results would follow; and whilst many an impostor would be found out, many a good, honest, and reliable Rose at present not sufficiently appreciated would receive its due share of honour.—
ASPIRO.

[We understand that the compiler of the list of Dahlias has been for some time engaged upon a similar list of Roses shown at the principal exhibitions, so that "Aspiro's" desire will probably be shortly gratified.]

THE "LOWER ORDERS" OF FUNGI.

[A paper read by Mr. Worthington G. Smith before the annual Cryptogamic Meeting of the Essex Field Club, September 29th.]

A CONSIDERABLE number of the nobler Fungi grow amongst grass in open, upland, breezy plains and pastures. Some grow in delightful glades, some by pleasant grassy roadsides, and others in well-kept gardens and greenhouses. These Fungi belong to the "upper orders," or the "upper ten thousand" amongst Fungi. I now propose to say a few words on the more numerous "lower orders" of Fungi—the outcasts and parasites of fungoid "society"—the "lower" Funguses with perverted, depraved, and seemingly unnatural tastes—the hangers-on, the inebriate, the unclean, the dwellers in nasty places, and those which live parasitically upon each other.

The student who selects the "lower orders" of Fungi for study must be prepared for a certain amount of scoffing and deision from outsiders. He must not be surprised if he hears sarcastic remarks, and he must even be at times prepared for a little self-defence.

I will notice some of the Fungi with depraved tastes first. One of these is *Agaricus nauseosus*, found by Fries growing on the carcase of a defunct wolf. Another is the group of *Agaricus ostreatus*, found by Mr. Ploughwright vegetating on the body of a stranded whale at King's Lynn. It was a curious coincidence that the "Oyster Agaric" should fix itself on a dead marine monster. A very degenerate Fungus, if indeed it be one, is the resident in the human stomach, named *Sarcina ventriculi*. Still viler are the Fungi which fix on the human head and cause ringworm, or on the foot and cause the "Fungus foot" of India. Mr. Berkeley tells us that it is no uncommon thing to find a somewhat large Fungus named *Coprinus* on the dressings of amputated limbs in hospitals. This is a horrible instance of a Fungus, whose natural pabulum is the juice of manure, turning carnivorous and living on the juices of the human body as found on the bandages of wounds. Another objectionable parasite is the Fungus of the salmon disease, named *Saprolegnia ferax*. When this low parasite cannot find noble salmon to prey upon it pays its unwelcome attentions to our common house flies, and fixes them to our window panes in autumn. Some professors insist that this parasite, like *Sarcina*, is an Alga, whilst other professors insist upon its being a Fungus, and the younger the professor happens to be the more furiously he will fight for his favourite name. Some older men, who believe with Mr. Huxley that there is no distinct line of demarcation even between the animal and vegetable kingdoms, consider it just possible that there may be no hard-and-fast line between a Fungus and an Alga, and that *Saprolegnia* may possibly occupy the debateable ground.

Most people will agree with me when I say that the Fungus named *Isaria arachnophila*, which lives on dead spiders, is possessed of a corrupt and vitiated taste. The name means, I suppose, "the Spider-loving *Isaria*," but this can hardly be from the afflicted spiders' point of view. One family of social ants, the *Mermeceidæ*, is preyed upon by an unsocial Fungus, sarcastically named *Torrubia myrmecophila*. Wasps, even in this country, are sometimes attacked whilst still alive by the *Isaria* condition of the Fungus named *Torrubia sphaerocephala*,—this means the "Round-headed *Torrubia*," or, as an anthropologist would say, the "brachycephalic." Some allied Fungi descend to still lower depths, for the pretty little sluggish unobtrusive "American blight" insect is often preyed upon by *Microcera coccophila*, or the "Coccus Lover." Even larvæ and pupæ are not safe, for three species of Fungi named *Torrubia entomorrhiza*, *T. militaris*, and *T. gracilis* attack these stages of a poor moth's life. The Chinese have a species of *Torrubia* peculiar to their own country which grows on large fat pupæ. Not to be behind the Fungus in "botanical enterprise," the Chinese carefully collect the Fungi together with the attached pupæ, and after tying them in neat bundles with silken threads sell them in their markets like small bundles of Asparagus, as choice ingredients for celestial soups and for stuffing turkeys. As Funguses and turkeys' livers go to make the delicious Strasbourg pie, it may reasonably be assumed that the Chinese dish is one of the first order. This very incomplete list of insect, caterpillar, and chrysalis-loving Fungi might be greatly extended, particularly if a lot of "friends from a distance" were included, but I have mentioned a

sufficient number to show how some of the "lower orders" of Fungi eke out a precarious existence.

One British Fungus grows upon leather, but whether it is more common at Northampton than elsewhere I have not yet heard. It does not luxuriate in large curriers' shops, or in stylish boot and shoe establishments, for the Fungus belongs to a low order. Most of the members of its family luxuriate on dung-hills, but this one sticks to leather. I have once or twice seen it on the rotten cast-off shoes of Epping Forest gipsies. A few years ago I accidentally met a grave dignitary of the Church hurrying to the Loughton railway station with a large rotten boot depending from each hand and a bundle of putrid rags under his arm. He had secured these treasures from a ditch side, and boys were making humorous remarks about the clergyman's luggage. It was not necessary for me to ask my friend what he had got, for my fungological eye detected a rich harvest of the rare *Ascobolus saccharinus* (a sweet thing in *Ascoboli*) on both boots and rags. Fungologists should always lovingly examine any old boots or rags, "ditch delivered of a drab," that they may meet with in their sylvan rambles. Old rags, boots, sacking, hampers, rotten matting, flannel, and carpeting are often prolific with cohorts of the "lower orders" of Fungi. Epping Forest was at one time rich in gipsies (properly called vagrants), but as these people gradually get "moved on" by the active verderers, old boots, horse-collars, and rags may gradually get thinned out, and *Ascobolus saccharinus* may have a bad time of it. Still, if new railways are made, and taverns, steam roundabouts, knock-'em-downs, and Aunt Sallies are erected by authority near every station, there will probably still be found plenty of old shoes, dirty rags, basketwork, and rubbish for the Fungus to fix on. On these little-esteemed objects the fungologist may find, if fortunate, the delicate *Coprinus domesticus*, *Macrosporium concinnum*, *Aspergillus roseus*, *Raphalomyces pallidus*, *Onygena piligena*, *Ailographum maculare*, *Thamnomycetes hippotrichioides*, and many other Fungi.

Old rope is often a treasure to a fungologist, therefore swings, such as prevail at Chingford, should not be too much discouraged. I have several times found *Perisporium vulgare* on pieces of decaying rope near Loughton, but *Nectria funicola* has eluded me from paucity of old rope. Everyone who has been Chingford way, especially after a bank holiday, a balloon ascent, fireworks, crackers, and scratch-backs, must have noticed the quantity of well-picked knuckle and shank bones thrown about by excursionists, who out of wise economy bring their own provisions. It is no good to look for Fungi on examples too fresh from the holiday makers' teeth, but I once saw the rare *Onygena apus* growing on an old weather-beaten Essex bone. If one is favoured by fortune a dead horse or a dead donkey may still be lighted on in the Forest, though I am bound to confess that these objects are less common now than before the city conservators commenced draining and beautifying the glades. Should an old defunct example be found let the hoofs be carefully examined, and the enterprising fungologist may be equally fortunate with myself and light on *Onygena equina*.

Before dismissing the unpleasant Fungi I must advert to such as derive their nourishment from manure-heaps and dung. Nearly all the members of some genera of Fungi literally revel in manure. *Coprinus*, *Bolbitius*, *Ascobolus*, and *Pilobolus* are notable examples. The two latter delight in the pabulum afforded by manure, and the members of the latter genus, as the name *Pilobolus* indicates, throw off their hats with rapture at maturity. It is essential for a good knowledge of fungology that the dung of different animals should be conscientiously examined. No less than twelve lovely species of *Ascobolus* grow on cow dung. Some are peculiar to this material, others are less particular, and sometimes roam to dung of the horse, deer, sheep, or rabbit; two beautiful *Pezizas* also grow on cow dung. Leaving the interesting dung-borne genus *Ascobolus*, or "ascus," or "sack-thrower," in reference to the Fungus at maturity discharging into the air innumerable transparent bladders or sacks full of spores or seeds, I may refer to *Poronia punctata*, which grows equally well on horse and cow dung, to *Cœdocephalum laticolor* on sheep's dung, to *Ascophora elegans* on fowls' dung, to *Botrytis Jonesii* (poor Jones!) on the dung of dogs and rabbits, and *Aspergillus dubius* on rabbits' dung. The two vilest Fungi are *Mucor caninus*, found on the dung of dogs (and, strange to say, cats), and the execrable *Isaria felina*, found solely on the dung of cats. Dr. Cooke was the first in his self-sacrificing researches to add this treasure to the British flora, and I well remember being present at a meeting of a London amateur scientific society when this valued possession was tenderly taken from a tin sandwich box for exhibition, to the delight and admiration of the assembled botanists. The choice specimen here referred to was lent to me, with many admonitions for its safe custody, that I might make a water-colour painting of the whole affair. I felt bound in honour to make this painting, although it was done at a little personal inconvenience; but I was ultimately repaid, for the officers of the British Museum bought the drawing for their collection of rare and beautiful objects at South Kensington.

There is, as we all know, a time for everything, and the best time for looking for and gathering *Isaria felina* is before people are up in the morning, or in the dusk of evening when but few people are about, for it must always be remembered that common people do not enter into the feelings and aspirations of fungologists devoted to the "lower orders." If the Fungus is sought for in the locality whence Dr. Cooke's example was derived a few lessons in the art of self-defence before going on the excursion may prove useful.

Leaving these Fungi, a few words may be said about some of the peculiar ones. *Dactylium oogenum* grows only inside eggs, *Dactylium roseum* inside nuts, *Coprinus radians* grows on scullery walls and ceilings, *Ascophora phycomyces* on greasy walls, *Sporotrichum fenestrale* on window glass, a large number grow on our wall papers, whether varnished or unvarnished. A *Peziza* named *P. Pigottii* is said to grow on ceilings, and other species grow in cisterns and water-butts. I once found a novelty in my own cistern, and as I could not identify it (and disliking all new species) I sent it on to Mr. Berkeley for a name. By a curious mistake Mr. Berkeley thought the prodigy had been sent by his friend Dr. Bull of Hereford, so he forthwith published it under the name of *Peziza Bullii*, with the laconic addendum of "Dr. Bull—in a water-butt." This took Dr. Bull by surprise and amused me, for I certainly had no wish for any nasty watery Fungus to be termed *Peziza Smithii*, with the humorous addendum of "Mr. Smith—in a water-butt."

Cannibalism is very common in Fungi. Amongst my drawings in the British Museum is one representing a group of *Agaricus lignatilis* growing

upon *Polyporus annosus* whilst still attached to the tree. I have also seen *Agaricus tuberosus* not only growing from the gills of *Agaricus* and *Russulæ*, but growing out of the tubes of *Polyporus squamosus*. *Agaricus Lovcianus* grows on the top of *Agaricus nebularis* whilst still alive, and a drawing of mine representing a family of the former growing on the top of an example of the latter may be seen in the Bethnal Green Museum. A sort of underground Truffle named *Elaphomyces variegatus* is preyed upon by a comparatively large Fungus named *Torrubia ophioglossoides*, whilst an allied *Elaphomyces*, named *E. granulatus*, supports a still larger parasite named *Torrubia capitata*. A Puff-ball-like Fungus named *Scleroderma vulgare* is often preyed upon by a Fungus bigger than itself named *Boletus parasiticus*. Two Fungi named *Nyctalis astrophora* and *N. parasitica* grow upon *Agaricus* and *Russulæ*. *Peziza saniosa* grows on *Thelephora sebacea*, *Peziza clavariarum* on *Clavarias*, *Peziza erythrostroma* on *Sphærias*, and *Helotium pruinosum* on *Hyxoxylon* and *Diatrype*.

I have only mentioned a few of the larger parasites and cannibals; some live on dead Fungus flesh and others on the living juices. The microscopic species are far more numerous, and these latter parasites often attack other parasites. For instance, the *Boletus* which grows on the living *Scleroderma* is often attacked whilst still alive by a sore pest of *Boleti* named *Hypomyces luteo-virens*; the *Pezizas* which attack *Clavarias* and other Fungi are sometimes eaten up by *Bactridium Helvellæ*. The list of cannibals amongst Fungi might be extended to an almost interminable length, for fungous fungivori are so common that few species are exempt from attacks.

A few of the "lower orders" of Fungi are parasitic on Lichens, as *Dothidea Piggottii*, *Sphinctrina turbinata*, four species of *Illosporium*, and others; but the Lichen subject is difficult to approach, as certain professors have of late somewhat loudly taught us that there are no such things as Lichens, but that Lichens are only Fungi involving and growing parasitically over *Algæ*. If this hypothesis is a correct one the species of *Dothidea*, *Sphinctrina*, and *Illosporium* just mentioned are parasitic on Fungi, which are already parasitic on *Algæ*. It is to be regretted that the members of this Club have few opportunities of testing the truth of the Schwendenerian hypothesis, as although unicellular *Algæ* and small Lichen-like Fungi are both extremely abundant in Epping Forest, yet the very Lichens which are said to be the Fungi of the one class, growing upon the very *Algæ* belonging to the other class, are nowhere to be found. When I printed this statement in a former report of an Essex Field Club meeting, someone, thinking to effectively silence me by proving that Lichens really could grow in London, wrote that Sowerby had once found Lichens growing on the outside of the dome of St. Paul's. This astounding statement in print temporarily paralysed me; but on referring to Sowerby's works I soon discovered that, instead of his finding Lichens growing outside the dome of St. Paul's, what he really did find was a Fungus named a *Myxogaster* growing in a gallery inside the building. I thereupon humbly wrote again, claiming to have my opponent's error corrected, and also to point out that one of the strongest advocates for considering all Lichens to be Fungi had previously taught us that all *Myxogasters* were animals and not Funguses at all. I clearly pointed out that an animal found creeping about (for *Myxogasters* do creep about) inside a church had been made to do duty for a Lichen vegetating outside the Cathedral dome! It unfortunately happened that no room could be found for my rejoinder, so the readers were left in a sort of *limbus fatuorum*. It is not so well known as it should be that there is a sort of "Salvation Army" amongst biologists, with a "General" and other paid officers, and that what these gentlemen cannot effect by argument and reason they try to accomplish by sound and fury, by the banging of the big drum, by the flaunting of banners, and by allowing (when possible) no side but their own to be heard. In conclusion I will refer to some of the Fungi given to drink.

Most Fungi are partial to moisture, but some are followers of Father Matthew, and revel in water; such are *Mitrula paludosa*, *Vibrissæ truncorum*, and some others. Hitherto the more marshy parts of the Forest have been rich in the production of the various *Agaricus* found only in wet and boggy positions. As it seems the Forest is to be gradually drained and unnaturalised, so that London excursionists may never get the polish taken off their boots, all these curious marsh denizens must ultimately disappear. Some Fungi prefer "heavy wet" of a different nature. For instance, there are two Fungi which especially attack corks of wine bottles; they bore through the substance of the cork and then attack the wine; in fact, both these Fungi practise the trick well known to wine merchants, termed "sucking the monkey." I am hardly at liberty to consider the Fungi which grow on the dregs of wine and beer as true toppers; they may be classed with the Fungus found only on spent hops, and named *Peziza theleboides*, or to the degenerate teetotaller named *Agaricus coffeatus*, which is only seen on coffee grounds. A Fungus named *Zasmidium cellare* lives almost solely in wine vaults; fortunately, however, this species has not yet "acquired the habit" of boring corks. Mr. Berkeley mentions a Fungus found in strong Madeira wine; it is a critical species, far too knowing to grow in South African sherry, in which compound it has never yet been detected. We all know how the Yeast Fungus ferments beer, and we have probably all read Sir Joseph Banks' account of the Fungus which attacked the cask of wine. The wine cellar enclosing the cask had been closed for three years; at the end of this period the door of the cellar was opened, and it was then seen that the cask had been attacked and rotted by Fungi, and that the Fungus growths had fattened on the wine as it gradually leaked from the cask. The astounded butler was literally petrified to the spot as he saw the huge wine-fed Fungi on the floor, and the empty wine cask—more than a "little elevated"—pushed up to the cellar roof on the heads of the Fungi.

Cider is sometimes attacked by *Penicillium crustaceum*, and some large and choice specimens of this Fungus, presented by me to the nation, may be seen in the public room of the Department of Botany at the British Museum, South Kensington. The large Fungi grew naturally within a sealed bottle of cider, where they still are. The non-fungological public gaze with wonder at the narrow-necked sealed bottle, and cannot imagine how such large Fungi ever got in-side-her (in cider).

ROYAL HORTICULTURAL SOCIETY.—OCTOBER 9TH.

DAHLIAS again contributed largely to the attractions of the meeting, especially the single varieties. Asters were also shown by several in good

condition, and dwarf Marigolds were exceedingly bright. New plants were represented by some notable novelties, amongst which the celebrated *Vanda Sanderiana* formed the focus of attraction, and a little crowd of Orchid-lovers was gathered round it nearly all the afternoon. Fruits, particularly Apples, were good from Great Berkhamstead, and the Vines in pots from the same firm were much admired; but the superb examples of Charlotte Rothschild Pine Apples from Mr. Nicholas proved a counter-attraction in the Fruit Committee to the *Vanda* in the Floral Committee.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The members present were Messrs. P. Crowley, G. Goldsmith, A. W. Sutton, L. A. Killick, J. E. Lane, A. Howcroft, W. Denning, H. J. Veitch, G. Bunyard, J. Burnett, and J. Willard. A silver-gilt Knightian medal was awarded to Messrs. Lane and Son, Great Berkhamstead, for four specimens of Vines in pots—two specimens of *Alicantes* with a dozen bunches each, well-coloured Foster's Seedling with about the same number of bunches, and Black Hamburg with rather more, the bunches small and berries also. Bunches were shown of Gros Colman large and well coloured; Barbarossa, also fine in bunch and berry; Muscat of Alexandria well ripened; Black Prince, even and deep colour; Trebbiano, very large bunches; Alicante, fine in bunch and berry and superbly coloured; Black Hamburg and Mrs. Pearson, both in good condition. About 100 varieties of Apples in fine condition were also shown, mostly of good form and colour. Lane's Prince Albert was particularly notable amongst the newer varieties, branches showing the prolific character being also exhibited. Six dishes of Pears were shown, together with Belle de Septembre, Grand Duke, and Wyedale Plums. G. F. Wilson, Esq., Weybridge, sent some berries from a Black Hamburg Vine grown in a cold orchard house. They were large and of good flavour.

A bronze Banksian medal was awarded to Mr. Nicholas, The Gardens Castle Hill, South Molton, Devon, for three very handsome fruits of Charlotte Rothschild Pine Apple, two weighing 8 lbs. each, the other 7½ lbs., magnificent specimens, even and superb in form. A Smooth Cayenne, weighing 8 lbs. 2 ozs., was also shown, similarly handsome in appearance and colour. Mr. E. Nelson, Dunmore House, Staines, sent fruits of Apple Stanwell Reinette, a neat variety, of moderate size, yellow shaded with red on one side. Mr. J. Booker, Chatteris, was awarded a vote of thanks for some fine examples of Warner's King Apple. Mr. J. Walker, Thame, sent three dishes of Apples, Hollandbury and Wall's Seedling being very fine, the last very richly coloured. Mr. W. Fowle, gardener to Sir H. Mildmay, Bart., Dogmersfield, Hants, showed six specimens of King Edward Apples, very large, and high coloured on one side. Mr. J. Perkins, The Gardens, Thornham Hall, Eye, Suffolk, sent fruit of Victory of Bath Melon finely ripened. Mr. E. W. Dance, The Gardens, Gosfield Hall, Halstead, sent samples of a seedling Apple, very attractive, yellow, streaked and spotted with bright red.

Mr. J. Muir, The Gardens, Margam Park, Taibach, South Wales, was awarded a first-class certificate for a new Vegetable Marrow named Muir's Hybrid. It is of moderate size, about 6 inches in diameter, globular, and very prolific. Mr. Goldsmith, Hollands, Tonbridge, sent six dishes of Pears, Doyenné Boussoch being very fine; six fine Onions, Reading Improved, were also shown, for which a cultural commendation was awarded. Mr. R. Dean, Ealing, sent fruits of a fine new yellow Tomato named Dean's Golden Queen, very even; a new red variety, a cross between Stamfordian and Green Gage, named Dean's Red King; it is also an even and richly coloured variety. Mr. Dean also exhibited eleven dishes of new English Potatoes raised at Bedfont, and comprising Sunrise, Alderman, Chancellor, Prime Minister, Cosmopolitan, Standwell, The Dean, Recorder, Cardinal, and Midsummer Kidney. Mr. E. Holmes, Lichfield, sent specimens of a Crab named La Beauté d'Automne. The fruits are about 1 inch long, egg-shaped, and orange-coloured with a tinge of scarlet. Mr. J. O. Cooper, Calcot Gardens, Reading, sent a number of seedling Apples that were not found to be of special merit. Six varieties of Nuts were also shown, one, the Duke of Edinburgh, a very large Filbert, being awarded a first-class certificate. Messrs. J. Veitch & Sons, Chelsea, exhibited a large collection of Endive, comprising Batavian, Improved Curled, Moss Curled, and White Curled; a number of Savoys, and about thirty varieties of Tomatoes, representing all the different types, from the small Currant-fruited to the large President Garfield and Stamfordian.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. The members present were Messrs. T. Moore, J. Laing, H. Bennett, W. Bealy, J. Wills, Shirley Hibberd, H. Eckford, G. Duffield, J. Fraser, H. Ballantine, J. Dominy, H. Turner, J. Douglas, H. Cannell, J. McIntosh, J. James, F. R. Kinghorn, and H. Ebbage.

A bronze Banksian medal was awarded to Messrs. H. Cannell & Sons, Swanley, for a choice collection of Asters—*Amellus major*, purple; *longifolius formosus*, pink; *Formosissima*, deep purple; *novæ-anghæ*, rose; *polyphyllus*, white; and *lævis*, mauve, being the best. A vote of thanks was adjudged for flowers of *Dahlia Ariel*, a free white variety of the Glare of the Garden type. Several plants of *Sempervivum arboreum*, var. *variegatum* were notable. A bronze Banksian medal was awarded to Messrs. Rawlings, Bros., Romford, for a large and beautiful collection of Show, Fancy, and Pompon Dahlias, including a large number of fine varieties. Mr. Woolford, gardener to W. Lee, Esq., Downside, Leatherhead, showed plants of *Trichocentrum orthoplectrum*, with a flower like a *Miltonia*, the sepals and petals brownish and narrow, the lip bright crimson. *Oncidium incurvum album*, with a large panicle of small white flowers, was very attractive; also a plant of *Miltonia Bluntii*, with one flower, the sepals and petals narrow, creamy, with pale purple blotches, and a mauve and purple lip. The grand *Vanda Sanderiana*, from the same garden, was certificated, and is described below. Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, was adjudged a vote of thanks for a collection of Orchids, comprising *Oncidium Forbesi*, flowering very well; *Vanda cærulea*, with two fine spikes; *Cypripedium Spicerianum*, *Oncidium varicosum*, Rogersi, and *Cattleya Gaskelliana*. A plant of *Anætochilus argenteus pictus* was also shown in fine condition. A vote of thanks was accorded to Mr. Turton, The Garden, Maiden Erleigh, Reading, for three well-grown plants of *Celosia pyramidalis coccinea*. Messrs. Cross & Steer, Salisbury, sent plants of a neat double white Perpetual Carnation named Louisa Ashburton. Mr. Wilson, gardener to H. M. Pollett, Esq., Fernside, Bickley, was awarded a vote of thanks for flowers of *Zygopetalum Mackayi* and *Oncidium Forbesi* cut from a spike with thirty-four flowers.

Messrs. Veitch & Sons, Chelsea, exhibited several new plants, for which

certificates were awarded, the most notable being the famous *Nepenthes Northiana*, which was introduced by the firm a short time since. Mr. W. Bull, Chelsea, had some new plants. The elegant white variegated *Panax Victoriae*, the graceful *Calamus ciliaris*, *C. sikkimensis*, *Phoenix rupicola*, and the rich green rugose-leaved *Crithmum spendidum*. *Eucharis Sanderi* was included, but is described with the certificated plants. Mr. Eckford, The Gardens, Boreatton Park, Shrewsbury, sent plants of a white-flowered Zonal Pelargonium, the bright rosy-scarlet *Begonia nitida coccinea*, *Fuchsia atro-purpurea* with dark purple foliage, and two seedling Dahlias, one bright yellow, and the other white streaked with crimson. A cultural commendation was awarded to Mr. Chamberlain, gardener to G. F. Wilson, Esq., Weybridge, for cut spikes of *Odontoglossum tigrinum*, *Oncidium unguiculatum*, and *Odontoglossum Alexandrae*, the flowers in each case being large and of good colour.

Mr. T. S. Ware, Tottenham, was awarded a bronze Banksian medal for a charming collection of seedling Dahlias, very bright and extremely fresh. The best of the varieties shown were the following:—Nora, bright pink; Negress, dark maroon; Lucy Ireland, rich crimson; *lutea grandiflora*, bright yellow; Scarlet Defiance, bright scarlet; Mrs. Burbidge, violet purple, fine; Indian Yellow, distinct shade; Mrs. Castle, rosy scarlet, very distinct shade; Freedom, dark scarlet, star-like; B. Barkaway, scarlet, edged with orange; Beauty of Uplands, scarlet, tipped with bronzy yellow; Victory and The Queen, pure white; and George Clarke, one of the Paragon type, deep maroon, edged with purplish crimson, very beautiful. Mr. R. Dean, Ealing, exhibited a number of plants of dwarf Marigolds *aurea floribunda*, a bright yellow form, and some darker varieties. The strain was commended by the Committee. The plants were dwarf and very free, and were lifted from the ground a few weeks ago. Flowers of the single and double *Chrysanthemum coronarium* were also shown.

First-class certificates were awarded for the following plants:—

Vanda Sanderiana (W. Lee, Esq., Downside, Leatherhead).—This magnificent Orchid formed the great feature of the meeting, the plant shown having five sturdy growths, bearing two spikes, one with two flowers and the other with eight flowers. These are of great size—5 inches across one way, and $3\frac{1}{2}$ to 4 inches in diameter. The two lower sepals are nearly circular, 2 inches in diameter, of a yellowish buff ground colour, veined and reticulated with a reddish purplish hue. The upper sepal and the two petals are similar in shape and colour, smaller than the sepals, more ovate in form, and of a delicate soft pink colour. The lip is small, the tip recurved, of a velvety chocolate hue. This species was introduced by Messrs. Sander and Co. about a year ago, and this plant is, we understand, the first that has produced flowers, and is probably the largest in cultivation.

Crinum ornatum (Bull).—A plant with two spikes, each bearing over a dozen flowers, was shown and much admired. The petals are narrow, white, with a broad stripe of dark rose down the centre of each, and the free-flowering habit of the plant renders it particularly valuable.

Eucharis Sanderi (Bull).—A neat and very distinct species, the flowers pure white and smaller than the common species, but the corona, which is so prominent in that, is quite lost in this, or diminished to a plate adnate to the tube of the corolla. The petals are ovate, and about 1 inch broad.

Medinilla Curtisi (Veitch).—A Sumatran species, very distinct, and resembling the *Rogersias*. The leaves are ovate, sessile, clasping the stem, 3 to 4 inches long and 2 broad. The flowers are white and wax-like, in terminal and axillary clusters, on reddish peduncles.

Nepenthes Northiana (Veitch).—A plant of this celebrated species was shown with six immature pitchers, the largest, however, giving some idea of their beauty when fully grown. The inner surface is beautifully mottled with crimson on a lighter ground, and the outer surface is also distinctly spotted with crimson, the mouth being striped with crimson and green. Dried pitchers nearly a foot long were shown with the plant.

Adiantum Weigandi (Veitch).—A graceful dwarf *Adiantum* of *A. cuneatum* habit, with rather larger pinnules and looser fronds. The pinnules are shorter, so that the fronds have a more narrow appearance.

Chrysanthemum Mons. Dufour (Cannell).—A distinct variety of the Japanese type, with narrow florets, the margin revolute and bright rosy crimson. A plant was shown indicating its free and early habit of flowering.

Begonia Mons. Duvivier (W. Bealby, Roehampton Park).—A dwarf compact tuberous variety of the *B. Veitchii* type, but taller-growing, with globular brilliant scarlet flowers, very full, and $2\frac{1}{2}$ inches in diameter.



HARDY FRUIT GARDEN.

Preparations for Planting.—Push on preparations for planting, so that all may be in readiness by the end of the month. Omit no detail, however trifling. Make stations 6 feet square and 2 feet 6 inches deep, each connected by 2-inch pipes with the nearest drain, 6 inches of rubble at the bottom, 2 feet 6 inches of soil above it, pressed by trampling closely, and raised 6 inches above the surface to allow for settling down. If fresh turfy loam is used examine it closely, and if it is deficient in small stones add a third of charcoal, coal ashes, or mortar rubbish to prevent its settling down into too compact a mass, as it is very liable to do as the grass roots decay. Difficulties often arise in procuring soil for the stations; do not forget, therefore, that soil which will grow good vegetables will grow fruit trees. Poor loam may be rendered suitable by a liberal mixture of old manure or road scrapings. Some of the best soil we ever used for stations was a heap of pond mud mixed with lime. Put a stake for fastening the tree to, and a label for naming in readiness at each station. The operation of planting will be explained fully in our next calendar.

SELECTIONS OF THE BEST FRUIT FOR A SMALL GARDEN.—*Six Apples for Dessert.*—Early Julien, Worcester Pearmain, Irish Peach, Margil, King of Pippins, Cox's Orange Pippin. *Six Apples for Cooking.*—Duchess of Oldenburg, Keswick Codlin, Warner's King, Stirling Castle, Small's Admirable, Tower of Glamis. *Twelve Pears.*—Williams' Bon Chrétien, Fondante d'Automne, Doyenné du Comice, Comte de Lamy, Knight's Monarch, Dana's Hovey, Comte de Flandre, Glou Morceau, Jewess, Winter Nelis, Bezi Vact, Easter Beurré. *Six Dessert Plums.*—Green Gage, MacLaughlin's Gage, Transparent Gage, Reine Claude de Bavay, Coc's Golden Drop, Blue Impératrice. *Four Cooking Plums.*—Early Rivers, Victoria, Belle de Septembre, Cluster Damson. *Six Peaches for Open Walls.*—Early Beatrice, Rivers' Early York, Dr. Hogg, Grosse Mignonne, Belle Bauce, Walburton Admirable. *Six Nectarines for Open Walls.*—Advance, Lord Napier, Stanwick Elruge, Pitmaston Orange, Balgowan, Pine Apple. *Four Cherries.*—Early Purple Gean, May Duke, Kentish, Morello. *Two Apricots.*—Kaisha, Peach. *Two Figs.*—Brown Turkey, Brunswick. *Currants.*—Red Dutch, Victoria, White Dutch, Lee's Prolific Black. *Gooseberries.*—Early Sulphur, Green Gage, Warrington, Champagne Red. *Raspberries.*—Prince of Wales, Yellow Antwerp. *Strawberries.*—Vicomtesse Héricart de Thury, President, Dr. Hogg, Helena Gloede. *Nuts.*—Cosford, Pearson's Prolific. In this selection we include only such sorts as we have proved to be hardy, sure croppers, and of high excellence in size, flavour, and form of fruit.

SELECTION OF THE BEST FRUIT FOR A LARGE GARDEN.—*Dessert Apples.*—Early Julien, Early Strawberry, Red Joanetting, Mr. Gladstone, Kerry Pippin, Worcester Pearmain, Yellow Ingestrie, Margil, King of the Pippins, Hubbard's Pearmain, Pine Golden Pippin, Cox' Orange Pippin, Pine Apple Russet, Golden Russet, Melon Apple, Old Nonpareil, Cornish Gilliflower, Sturmer Pippin. *Kitchen Apples.*—Duchess of Oldenburg, Keswick Codlin, Lord Suffield, Mank's Codlin, Nelson's Codlin, Wormsley Pippin, Cellini, Warner's King, Loddington, Stirling Castle, Ecklinville Seedlings, Small's Admirable, Cox's Pomona, New Hawthornden, Tower of Glamis, Alfriston, Golden Noble, Blenheim Pippin, Northern Greening, Striped Beefing, Dumelow's Seedling, Hanwell Souring, Gooseberry.

PEARS.—Summer Doyenné, Citron des Carmes, Jargonelle, Williams' Bon Chrétien, Summer Beurré d'Aremberg, Beurré de l'Assomption, Beurré d'Amanlis, Colmar d'Été, Desiré Cornelis, Souvenir du Congrès, Fondante d'Automne, Fondante de Charneau, Madame Treyve, Marie Louise d'Uccle, Gratioli of Jersey, Doyenné du Comice, Comte de Lamy, Knight's Monarch, Seckle, Urbaniste, Maréchal de Cour, Général Todtleben, Dana's Hovey, Comte de Flandre, Thompson's, Forelle, Beurré Superfin, Huyshe's Victoria, Glou Morceau, Josephine de Malines, Jewess, Zephirin Gregoire, Bezi Vact, Winter Nelis, Easter Beurré, Madame Millet.

DESSERT PLUMS.—Green Gage, Purple Gage, Mac Laughlin's Gage, Transparent Gage, Reine Claude de Bavay, Bryanston Gage, Washington, Denniston's Superb, Jefferson, Coc's Golden Drop, Blue Imperatrice, Kirk's. *Cooking Plums.*—Early Rivers, Early Orleans, Victoria, Lafayette, Prince Englebert, Diamond, Automne Compôte, Belle de Septembre, Cluster Damson.

CHERRIES.—Early Purple Gean, Early Rivers, Belle d'Orleans, Empress Eugénie, May Duke, Black Tartarian, Governor Wood, Archduke, Reine Hortense, Transparent, Bigarreau, Belle Magnifique, Elton, Late Duke, Kentish, Morello.

PEACHES.—Early Beatrice, Early Alfred, Rivers' Early York, Dr. Hogg, Grosse Mignonne, Royal George, Belle Bauce, Barrington, Walburton Admirable.

NECTARINES.—Advance, Lord Napier, Stanwick Elruge, Downton, Rivers' White, Pitmaston Orange, Balgowan, Pine Apple.

MISCELLANEOUS FRUIT.—*Apricots.*—Kaisha, Large Early. Moorpark, Peach, Orange. *Medlars.*—Dutch, Nottingham. *Nuts.*—Cosford, Pearson's Prolific, Cob, Red Filbert. *Currants.*—The same as for small gardens. *Gooseberries.*—To those named for small gardens add Ironmonger, Keens' Seedling, Yellow Champagne, Pitmaston Gage, Roaring Lion, Crown Bob, and Green Walnut. *Raspberries.*—Prince of Wales, Belle de Fontenay, Carter's Prolific, Yellow Antwerp. *Strawberries.*—Black Prince, Vicomtesse de Thury, Marguerite, Lucas, James Veitch, Sir Charles Napier, Dr. Hogg, Loxford Hall Seedling, Helena Gloede. *Figs.*—Brunswick and Brown Turkey are the only really good sorts on open walls; Grizzly Bourgasotte may be added, as it generally ripens a few of its delicious fruit.

FRUIT-FORCING.

FIGS.—*Trees for Early Forcing.*—Forced Figs early in the season when well ripened are a valuable addition to the dessert. Under certain conditions the management of the Fig is not difficult; it requires heat, moisture, and good living when growing, bears best under restricted root-space, and needs a sound calcareous loam, crushed bones, and decayed manure, and can be forced most satisfactorily in a light well-ventilated house, a span being most suitable. The finest varieties for cultivation under glass are Brown Turkey, Negro Largo, and White Marsilles, as they produce good crops of the largest and best flavoured fruits. Should the trees for starting early in December for a supply of ripe Figs in May have to be purchased, they should be selected from a reliable stock with clear single stems, and well furnished with shoot-jointed side shoots and spurs. It is also necessary that the trees be thoroughly established in pots. When received, place them in a cool house where they can have full ventilation by day, also night, if frost does not prevail. This is far preferable to placing them outdoors to be deluged by heavy

rains and to be acted on injuriously by wind and frost before the large leaves have completed their functions and the growth is well ripened. It is futile expecting a profitable crop of Figs from trees in pots or otherwise not having the wood matured, and for early forcing it is essential that the trees be grown in heat so as to make and perfect an early growth. Water the trees above referred to moderately, but keep them rather dry than too wet until the leaves turn yellow and commence falling, when the pots may be placed close together and protected, if frost is not excluded from the house, with dry fern or litter until the time of their being placed in heat. Fig trees, unlike some other kinds of fruit trees, improve with age, which applies more particularly to trees in pots, and these ought, when forced early, to be plunged in some mild fermenting material into which the roots can run as the growth increases. Oak or Beech leaves, from their mild and durable heat, answer better than either tan or stable litter, and afford a constant supply of nutriment at the most critical stage of growth, when a check from want of water is likely to cause the first crop of fruit to fall.

PINES.—*Re-arranging the Plants.*—Plants which are likely to require similar treatment through the winter months should be brought together without much further delay, and assign those which are fruiting, or likely to do so shortly, a place where a sufficient heat is available under the most adverse weather, and where they will derive the full benefit of sunshine and light. Successional plants should be left to themselves in a house or pit that is not likely to have a very acrid atmosphere, but where moderate moisture is at all times present, with a temperature of about 60°. Young stock are best kept in health through the winter in light pits having fermenting materials in them, as these afford conditions favourable to vegetation, but it is necessary that the watering be judicious.

The Fermenting Beds.—Now, or as soon after this as possible, the beds should be seen to, adding fresh material to those that require it, and only making up fresh beds when absolutely necessary, paying particular attention afterwards to the heat generated in them, as a superabundant amount of it at the roots, now that these are in an active state, would be quickly injurious to the plants, and upset future calculations. Continue the temperature indicated in our last calendar, only in cold weather it may fall a few degrees; and as this may shortly be expected let preparations for covering at night be completed, nothing being so economical in fuel, and the necessity for not heating the pipes so highly is very beneficial to the plants.

CUCUMBERS.—*Treatment in Houses.*—Plants in full bearing, more especially those that have their roots in a somewhat confined space, should receive copious supplies of weak tepid liquid manure. Examine the plants at least once a week in order to stop the shoots one joint beyond the show of fruit, to thin out exhausted growths and where likely to be too crowded, training the growths evenly over the trellis. Maintain a sweet growing atmosphere. Cut the fruit as soon as it attains a suitable size for table, and place them with the neck end in a saucer in which there is about an inch of water in a fruit or other room from which frost is excluded until they are required for use. The plants being freed of the strain upon them for food in the larger fruit will have it concentrated on the smaller fruits, and this should be persisted in during the fruiting period of the plants.

Insects.—Should green or black aphides appear fumigate moderately two or three evenings in succession, having the foliage dry, but the other surfaces in the house must be well damped to maintain a genial atmosphere. Syringe well the following morning, and ventilate freely if the weather permits. Red spider is not often much trouble at this season, but if it be present dress the hot-water pipes thinly with a mixture of flowers of sulphur and skim milk. This is also good against mildew, but the best remedy for the mildew is to dust the affected parts with flowers of sulphur. Canker must be subdued by rubbing quicklime well into the affected parts, repeating as needful.

PLANT HOUSES.

Heaths and Epacris.—Plants that have been standing outside, or have had the protection of cold frames or old lights merely for the sake of shooting off heavy rains, should now be housed. Assign them a light airy position, which will assist to ripen them more thoroughly, and they will bloom better in consequence. Light and air are of the utmost importance, especially with those batches that flowered late and are required for the same purpose again. These plants often flower sparsely, thus causing disappointment because they are not housed soon enough. It is a mistake to leave them in frames until the beginning of winter. Water them carefully, or injury will soon follow; in fact, the plants should never suffer by want of water, and need even more attention in this respect now than has been necessary in the summer, during which period they are not so liable to suffer by being overwatered, as is the case at this season of the year.

Chrysanthemums.—Plants intended for early flowering should be housed without delay, and will even bear gentle forcing if wanted as early as possible. Such varieties as Elaine, James Salter, Early Red Dragon, Sœur Melanie, Mrs. Rutter, and La Coquette are amongst the best for early flowering. If a batch is given a little heat and another lot of plants placed in a cold house a succession of flowers will be maintained. Those grown for late blooming must be kept outside as long as possible; but they must have a sheltered position, for heavy cutting winds do them much injury at this season of the year. Any temporary structure is useful where the plants can be protected from bad weather and early frosts, and then placed outside during the day when fine, and also during mild nights. Eradicate aphides as they make their appearance with tobacco powder, and wash the plants if mildew makes its

appearance with softsoap water in which a little sulphur has been mixed, and protect them from heavy rains after it has been applied until the mildew has been destroyed.

THE BEE-KEEPER.

SEASONABLE NOTES.

Cold wet weather and shortened days assure us that summer has gone, and with it the honey season of 1883. The now completed harvest must be differently characterised for different parts of the United Kingdom. There have been local periods of plenty and local periods of famine. While some parts have yielded an income above the average, some have given the bees hardly sufficient to keep them alive; but taken as a whole, the season may be looked upon as a fairly remunerative one to the bee-master.

After a long absence from home we return to find that our own bees, situated near an abundance of Heather, have evidently made good use of the late fine weather. The condition of the hives proves that their inmates have "improved each shining hour." Although supers put on before we left home are not all finished off as we should have liked to have seen them, still many sections have been completed. Others, well filled with honey, but not sealed completely, will be very nice for present consumption. Nearly every hive has given a surplus, all from the Heather. Some of these hives had already given supers from the early harvest, which was principally gathered from fruit trees, wild flowers, and Bean and Clover blossoms. These supers were filled prior to July 20th. Our best bar-frame hive has yielded altogether 55 lbs. of super honey—i.e., 40 lbs. in sections over the hive, and 15 lbs. of good white comb, taken from the back of the hive, outside a queen-excluding dummy; the best straw skeps gave us a super of 18 lbs. of sections. Every hive had stored more honey than was needed for wintering, some easily sparing frames of sealed honey from 10 lbs. to 20 lbs. weight. These frames of honey often contained pollen also, and were put to a good use.

We have inquired for stocks of bees which were about to be "taken up." Even in the midst of enlightened bee-keepers, after hearing lectures on the humane system, and after attending bee-tents at county shows, there are some who will still burn their bees, unless someone rescues them by driving and gives the bee-owner (we cannot say bee-keeper) a shilling a hive for saving them. We soon heard of some bees which were doomed—the owner did not wish wantonly to put them over the sulphur pit, but he "hadn't time to see to 'em," and was very glad for us to save their lives. So we drove two very strong colonics—strong as to the number of bees but with very little honey. The queen of one we caged and gave to a hive which was queenless, after well scenting the bees and queen. The bees of the driven hives were united, and a bar-frame hive stocked with them upon five of the frames taken from our hives, and an empty comb in the middle. This has made a very good stock, and we have not had to cut up and run down the honey from the brood combs, work we always dislike. Another colony will be made to-morrow with two other stocks of bees otherwise doomed.

We have before pointed out the great mistake made by old-fashioned bee-keepers in allowing their hives to multiply too much in one season. Swarms and casts and virgin swarms and colts are constantly pointed out to us with much pride. A goodly row of skeps, thirteen in number, was yesterday shown us as a grand result of the season's bee-keeping. The owner had only four when we visited his garden in the spring. We were not thanked for our advice when we pointed out that if only the prime swarms had been kept and the rest returned, a better result as to weight of honey would have been realised. No, he did not like to meddle with the bees, they knew best themselves what was the thing to do. The fact is that the whole of the short summer's weather had been taken up in preparing for swarming or in recruiting strength after swarming, and the harvest was lost. This man will "take up" his bees after hopping is over, which means about the 8th of October, and by that time there will not be sufficient honey left in the skeps to pay him for the trouble. So called "swarms" are already heard of in the district, a sure sign that bees are nearly starving, and rushing in dismay from their poverty-stricken homes. A correspondent in the Journal of last week marvels at the sight of a swarm of bees in September. It is indeed a very sad sight, and tells a tale of coming distress among poorly-provided stocks during the hard weather which is fast approaching. It is too late to remedy this state of things now by feeding with syrup with any certainty of success. Nights are cold, and the bees are more inclined to cluster closely for warmth than to mount for syrup. Should any reader have his hives so spread out as to numbers of stocks and thinned down as to strength of individual

colonies, his only chance of carrying any through the winter is to unite the bees of the lightest hives to those of the heaviest, and to feed up to 20 lbs. weight rapidly and at once, if the bees will take it; otherwise to put barleysugar or candy-eake over the feeding hole, with a warm covering over the food early in the new year. There is danger ahead even should weather permit the bees to store sufficient syrup. Should such cold weather set in as to prevent the bees from sealing up the stores, the presenee of a quantity of liquid food in hives is liable through fermentation to cause dysentery later on, when the bees feed on the unwholesome food. But if the weather be mild there is yet time for the syrup to be sealed over. A little of the solution of salyelic acid added to the food will greatly assist in preserving it pure and wholesome. There are some bee-keepers who are advoeating the use of candy-eake or meal-eake alone to carry bees through the winter. We would rather move earefully in this experiment. Our strongest stocks have often been those fed up on syrup the previous autumn, and assisted in spring with farinaeous food. We much doubt whether eandy-eake would remain the whole winter in a sufficiently dry and hard condition to be safe in the hive in close proximity to the elustering bees.—P. H. P.



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

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

Books (R. M.).—Our "Garden Manual" contains concise instructions on the cultivation of all kinds of hardy fruits in the open air, its price by post being 1s. 9d. Pearson's "Orchard Houses," which will be useful to you, can also be had from this office, price 1s. 7½d. Mr. Rivers publishes useful works of the kind you indicate, and of which particulars can be had by writing to Sawbridgworth, Herts. All the subjects you mention are treated of in the *Journal of Horticulture*.

Heating Melon Pit (J. T. S.).—For a pit 8 feet wide and the same in height at the back two 4-inch pipes will be sufficient for the production of late Melons, the flow pipe to be conducted along the front of the pit for top heat, the return in a chamber below the bed. You would not act unwisely by leaving a couple of sliding shutters in the wall, so that a portion of the heat from the return pipe could pass into the house if needed. The depth of soil depends very much on its texture and the attention given in watering; but a foot in depth in a bed 2 feet or 2½ feet wide we should find ample for supporting the plants and crops. The plants must first be placed on hillocks, adding more soil from time to time as the roots protrude, until the whole is made level and firm.

Fixing Hot-Water Pipes (Idem).—For celerity and simplicity there is no plan to equal that of using indiarubber rings. One of these is placed on the end of a pipe and pushed into the socket of the other. The joint is then watertight; but for insuring stability the joints should be completed with Portland cement—that is, assuming the pipes are to be permanently fixed. Considering their durability the rings are not expensive. You can ascertain the price from an ironmonger.

Vine Wood (Idem).—The portion you have sent is weak but fairly well ripened, and the eyes are prominent. Such wood can only produce small bunches, but the berries may be of good size and quality. You had better not prune too closely. Please send fresh examples of Ferns, and if possible with fructification, and we will endeavour to give the names.

Mildew on Roses (S. Carlisle).—Only three weeks ago we published the following in answer to a correspondent, but you do not appear to have observed it:—"Try mixing the sulphur in a solution of soft soap and apply with a syringe; if this fails try Ewing's mildew composition. Mr. Bardney prevents mildew attacking Peach trees and Roses by syringing with a solution of soft soap made as follows:—A lump of soft soap (about 2 lbs. or so) is placed in a saucepan and boiled for twenty minutes; this is placed in a large pot and mixed with five or six gallons of water. About half a pint of this solution is placed in an ordinary large watering-can full of water, and used every time the trees and Roses are syringed. Not a vestige of mildew is seen on the foliage, and the water does not injure the petals of the Roses. See also what Mr. Bardney says on page 269 in our issue of the 27th ult." Two ounces of soft soap will be sufficient in a gallon of water, and as much sulphur may be added as will make a mixture of the consistency of thin cream.

Heating Small Greenhouse (G. S.).—We have no doubt that the method

shown in your sketch will answer very well, provided the return pipes are nowhere lower than the bottom of the boiler. It will be essential to have an air pipe at the highest point of the pipes, and a feed pipe to enter near the bottom of the boiler. You will find methods of heating small greenhouses in our advertising columns, all of which are good, and we are quite unable to recommend any one of them as the best for your particular case. You can obtain particulars from the makers and judge for yourself, as the question of cost can only be determined by purchasers.

Propagating Evergreens (G. Edwards).—The present is the time for inserting cuttings of evergreens. Select short-jointed and firm growths of the present year, severing them with a hcel of the last year's wood, and after trimming off the leaves insert the cuttings two-thirds of their depth in gritty or sandy soil. The best plan is to dig trenches, as if for Box edging, a foot apart, placing the cuttings in them 6 or 8 inches asunder, levelling in the soil and treading it firmly about them as the work proceeds. The evergreens you name are very liable to be destroyed by rabbits. Common Rhododendrons are better where these animals abound, and seedlings can be purchased cheaply. Hollies are useful, and are raised both by cuttings and from seed. Young succulent growths of evergreens are of no use for the purpose in question, as not one in a hundred of such cuttings will emit roots.

Planting and Manuring Red Currants (Antwerp).—If nothing is to be grown on the land but the Currants, and the plants be small, undoubtedly it will be better only to apply the manure where the roots will find it, adding more as needed; but we should imagine that a better plan would be to manure the whole land, and raise some other crop between the bushes till the latter gained strength and dimensions to fill the whole ground. If your subsoil be free, and water does not stand long after rain, putting in drains will not be necessary; but if the soil is heavy and water does not pass away readily, then by all means drain. If the grass land be worked in the way you mention, and be liberally manured, success with Magnum Bonum Potatoes is not only possible but very probable.

Planting Vines (Idem).—Not knowing the circumstances of your case we are not in a position to give a categorical reply to your questions. If the Vines were planted in a good border and the canes trained thinly to a wall having a southern aspect so that the canes would mature, we can see no objection to your carrying out your project in building a house over them; but if they must be planted in the open, to be afterwards covered with a span-roofed house, they would be liable to so many vicissitudes, such as laceration by the wind and a sunless season preventing the wood ripening, and also to injury in erecting the house, or at least they would obstruct the workmen, and so render the building more costly. Taking all this into consideration there is risk of your losing more than you would gain in carrying out your plan, and under such circumstances we should hesitate in adopting it.

"Spiregeponecia and Francois Abeculator" (H. S. P.).—It is possible that the plants you refer to under the above names may be *Spiræa japonica* and *Francoa appendiculata*. If that be the case the following methods of culture will suit them. The *Spiræa* is best grown in a pot in a cool house or frame, employing substantial loam and leaf soil with a little manure and occasional supplies of liquid manure when growth is advancing. If the plants are stored in a cool frame they can be introduced at intervals to the forcing house and obtained in bloom much earlier than usual, a supply being maintained over a long period by this means. They may also be planted in good soil in the open garden, and taken up and potted as required. The *Francoa* can be either grown in the border or in pots like the former in a cool house, where its flowers prove very useful. Good turfy loam, not too heavy, with sand and leaf soil in moderate proportions, form a suitable compost.

Orange Trees Unhealthy (Inquirer, Ireland).—An application of lime water would not have the good effect you anticipate. Defective root-action is the chief cause of the unsatisfactory condition of the trees, and undoubtedly it would be better if you could prevent the temperature of the house falling so low in the winter. You can do little to them now, but may improve them in the spring, and in the meantime avoid overwatering. As soon as signs of fresh growth are apparent we should dig out the soil from the tubs quite to the bottom, and remove it as near to the stems as possible without materially disturbing, or at least not injuring, the roots. We have seen much more than half the soil thus removed, and by adding fresh, such as turfy loam and a liberal admixture of crushed charcoal, bones and wood ashes, the roots being carefully placed in this, and the whole made as firm as the soil not removed, water being judiciously applied, and old trees were made young again. It does not at all follow if the roots are few and the tubs large that they should be filled at once with soil; but the soil may be supported with a wall of turves several inches from the sides of the tubs, precisely on the principle of making a Vine border in sections. By adopting this plan and keeping the plants as warm as possible in the spring, syringing freely in fine weather, and keeping the foliage scrupulously clean, the trees will improve. The surface soil immediately round the stem should also be removed, and all dead and dying branches cut out; indeed, as soon as roots take possession of the fresh soil rather close pruning would result in stronger and healthier growths.

Vine Manure (Kirby).—With not a word about the kind of soil you have, how and when you made up your border, and the manner of manuring it since, we are not in a position to say whether the mixture you name would be of any benefit or not. In making up Vine borders it is usual to add bone, and it is usual afterwards to feed with liquid manure made from guano. If you have done as other good Grape-growers do it may well be doubted if your mixture would do the slightest good. But if you have never given any bones, never used manure rich in phosphate, and especially if your soil is naturally poor, it might do good. You can hardly go wrong in forking in the lime you name, and, if manure is needed, bone ash and bone meal are among the most valuable phosphates. If lime is plentifully present in the soil, as it will be if you carry out your programme, the "dissolved bones" will no sooner be added than they will cease to be "dissolved," and, as the other phosphates will be cheaper, and, in your case, equally effective, you may save that item. But 42 lbs. of phosphate to 2 lbs. of potash salts is an unequal proportion of ingredients, especially if you consider that Vines want more potash than phosphate. Of course we cannot guess whether your soil is rich or poor in potash, or indeed anything else; but we should mix the

bone material and the potash salts in equal quantities, and give as much once a year as you propose doing four times. 2 lbs. a year of your mixture to the yard is far too much—a quarter of the amount is enough. Neither would we sprinkle such over the surface and attempt to water it in, but fork it into the surface. So far from an application when the fruit is ripe being stored in the Vine and branches, and causing a strong start in spring, not a very great deal of one applied early in spring will get promoted so rapidly. As for the sulphate of ammonia, it may be applied at the time you mention and watered-in with benefit, but in greater quantity than you name. If a thorough drenching be given almost an ounce per yard may be given. But are you sure you know where the roots are? It is not enough to manure the border—the manure must be where the roots can reach it. "Single-handed" will devote a chapter to the explanation of terms.

Grapes Decaying (T. A. D.).—Some of our correspondents take care when seeking for information to state as clearly as they can the circumstances of their case, and narrate briefly the practice they have adopted, and which has resulted in failure. In nine cases out of ten such persons indicate the cause of failure, and we are able to suggest a remedy, if one is known. Other persons merely jot down a result without giving a hint of what may have led to it, and—naturally to them, we suppose, but strangely to us—expect to receive a satisfactory reply. We can only suggest in your case that either the border is too wet or the house too close and damp, and possibly the temperature is allowed to fall too low at night, causing a condensation of moisture on the berries. Maintain a dry buoyant atmosphere by firing in the daytime and affording early and judicious ventilation, keeping a little heat in the pipes at night, and the house nearly closed when the weather is very damp. Remove every decayed berry promptly, and if needed protect the border from heavy rains.

Garden for Vegetables (J. P., Dublin).—A question of this kind obviously cannot be explicitly answered in the absence of knowledge as to the fertility of the soil. If it is very good a vegetable supply for your family may be maintained on one and a half acre, there being no fruit trees to interfere with the crops; but if the land is only moderately fertile two acres would not be excessive.

Celery Leaves Blistered (A. B. C.).—You are right in supposing that they are affected similarly to Parsnips and Mangold Wurtzels sometimes are, but wrong in attributing the injury to "something at the roots." It is caused by the Celery fly, *Tephritis onopordinis*, puncturing the leaves and depositing eggs, the resulting grubs or larvæ eating away the parenchyma, and this causing the parts to wither. When full grown the grubs at this season descend into the earth, and remain in the chrysalis state until spring, when they give birth to the fly. Remove all the withered parts, and the insect will do no more injury this year.

Naming Plants (J. C.).—We have attended to all that we could identify. We receive parcels every week without any letter pertaining to them, and these are necessarily passed over. If you will send good specimens packed so as to arrive in good condition, and enclose a note with them, we will endeavour to determine the names and publish them in the Journal.

Fruits for Name (To Correspondents).—We have several boxes of fruit which do not contain the names of the senders, and letters received by post do not enable us to determine by whom the different parcels were transmitted, consequently the fruit cannot be named. We have attended to all the fruit in our possession, except one parcel, which contains the name of the sender of it. In all cases the names of the owners should accompany the fruit, whether a letter is also sent by post or not, otherwise it is impossible that the fruit can be satisfactorily attended to. We must repeat our rule of not naming more than six specimens at once, and again state our inability to preserve any surplus fruit for naming in a future issue, nor do we undertake to send replies through the post.

Names of Fruits (W. Bentley).—1, Black Prince Grape; 4, Pomme d'Api; 5, Golden Pippin. (Fareham).—1, Cellini; 2, Braddick's Nonpareil; 3, Cobham; 4, Waltham Abbey Seedling; 5, New Hawthornden; 6, Blenheim Pippin. (W. Thornton).—1, Cellini; 2, Sykehouse Russet; 3, Golden Reinette; 4, Royal Russet; 5, Scarlet Nonpareil. (N. W.).—1, Dumelow's Seedling; 2, Scarlet Nonpareil. (G. W. Boothby).—Blenheim Pippin. (J. Gilmore).—4, Greenup's Pippin; 7, Goff; 8, Keswick Codlin; 9, Carlisle Codlin; 11, Catshead; 12, Nonesuch; 13, Fearn's Pippin. (I. H. S.).—1, Golden Winter Pearmain; 2, Small's Admirable; 3, Hollandbury; 4, Carraway Russet; 5, Blenheim Pippin; 6, Golden Noble. (W. W.).—1, Yorkshire Greening; 2, Warner's King; 3, Jolly Beggar; 4, Small's Admirable; 5, Coe's Golden Drop. (R. P. Williams).—2, Gloria Mundi; 3, Hawthornden; 4, Autumn Bergamot. (W. K.).—1, Beurré Diel; 2, Beurré d'Aremberg; 3, Van Mons Léon Leclerc; 4, Swan's Egg; Apple, Small's Admirable. (Longcroft).—1, Court Pendu Plat; 2, Dumelow's Seedling; 3, Warner's King; 4, Herefordshire Pearmain; 5, Flower of Kent; 6, Royal Pearmain.

Names of Plants (D. B.).—1, Hibiscus Cooperi; 2, Phyllanthus nivosus; 3, Nephrolepis tuberosa; 4, Selaginella Martensii; 5, Adiantum tetraphyllum; 6, Canna Eremanni. (W. H.).—1, Strelitzia Reginae; 2, Jasminum hirsutum; 3, Rhynchospermum jasminoides. (E. C., Oakham).—1, Rochea falcata; 2, Sedum spectabile. The Apple is Northern Spy.

COVENT GARDEN MARKET.—OCTOBER 10TH.

TRADE continues good and the market is well supplied. Apples abundant.

VEGETABLES.

	s. d.	s. d.	s. d.	s. d.
Artichokes dozen	2 0	to 4 0		
Beans, Kidney lb	0 3	0 4		
Beet, Red dozen	1 0	2 0		
Broccoli bundle	0 9	1 0		
Cabbage dozen	0 6	1 0		
Capsicums 100	1 6	3 0		
Carrots bunch	0 4	0 0		
Cauliflowers dozen	2 0	3 0		
Celery bundle	1 6	2 0		
Coleworts doz. bunches	2 0	4 0		
Cucumbers each	0 4	0 6		
Endive dozen	1 0	2 0		
Herbs bunch	0 2	0 0		
Leeks bunch	0 3	0 4		
Lettuce score	1 0	1 6		
Mushrooms punnet	1 0	to 1 6		
Mustard and Cress punnet	0 2	0 3		
Onions bunch	0 0	0 4		
Parsley dozen bunches	3 0	4 0		
Parsnips dozen	1 0	2 0		
Potatoes cwt.	4 0	5 0		
" Kidney cwt.	4 0	5 0		
Rhubarb bundle	0 4	0 0		
Salsafy bundle	1 0	0 0		
Scorzoneria bundle	1 6	0 0		
Seakale basket	0 0	0 0		
Shallots lb.	0 3	0 2		
Spinach bushel	2 6	3 0		
Tomatoes lb.	0 3	0 5		
Turnips bunch	0 0	0 4		

FRUIT.

	s. d.	s. d.	s. d.	s. d.
Apples ½ sieve	1 0	to 2 6		
" per barrel	0 0	0 0		
Apricots box	0 0	0 0		
Chestnuts bushel	0 0	0 0		
Figs dozen	0 9	1 0		
Filberts lb.	1 0	0 0		
Cobs per lb.	1 0	1 2		
Grapes lb.	1 0	3 0		
Lemons case	25 0	35 0		
Melons each	2 0	to 3 0		
Nectarines dozen	2 0	6 0		
Oranges 100	6 0	10 0		
Peaches dozen	2 0	12 0		
Pears, kitchen dozen	0 0	0 0		
" dessert dozen	1 0	3 0		
Pine Apples English .. lb.	3 0	4 0		
Plums and Damsons ..	10 0	13 0		
Strawberries lb.	0 0	0 0		



USE OF GREEN OR FODDER CROPS FOR VARIOUS PURPOSES.

(Continued from page 306.)

LUPINS are not often used as forage for cattle or horses, except in admixture with other forage plants, the advantage being, if used as forage at all is to feed off with store sheep folded on the land; for although sheep stock do not sometimes take to it kindly at the first, yet they soon appear to like it, and thrive remarkably well upon it as store animals. We find this crop noticed by a writer in the Journal of the Royal Agricultural Society of England, and in alluding to an experiment the writer states:—"I drilled about 1 bushel of seed per acre on 18 acres of poor land, from which I obtained fifty waggonloads of sheaves. The luxuriance of this crop quite astonished all who were acquainted with the sterility of the soil, and the quantity of grain before harvest was estimated at forty to fifty bushels per acre." For any further information we must refer the reader to our article on the cultivation of Lupins in the number of this Journal dated the 9th September, 1880.

Burnet is a plant seldom grown in this country; it is, however, oftener grown on certain continental States, is used for growing on poor soils not adapted for Clover and Sainfoin, it is, however, used for cattle forage, especially for milch cows. It is principally valued as folding forage for sheep on lands when broken up out of sheep walks or downs on the chalk or limestone hills. The seed may be sown amongst Lent corn in the same way as other grasses. Although it is found useful for sheep when grown alone, yet it is frequently found amongst our samples of Sainfoin seed, and is generally considered a spurious mixture, and only spoken of by the practical farmer as one degree better than some of our troublesome weeds.

Broad or Red Clover is one of the most important fodder plants available for the home farmer, for although it grows in full perfection for one year, yet it is never quite certain to yield a regular plant and full successional crops upon all soils under all circumstances. The most probable method to obtain a full plant is to alternate it with other Grasses, so that it may not be grown upon the same land oftener than once in eight or ten years; but even then some soils fail to maintain a regular plant, although it might have shown well and promising after harvest when grown in either Wheat or Lent corn stubbles. It is therefore well at all times under such uncertain conditions to have some admixture such as Sainfoin or Italian Rye Grass, especially when required to produce in succession two crops for hay. It does answer well to mix White Dutch or Trefoil, as these crops are required in the alternate husbandry. Alsike may be grown with it, but this Clover is also one of the alternate varieties available, and should certainly be retained for that purpose. There is no doubt but the condition of the land, both in fertility and cultivation, is important towards securing a good plant, for we have frequently seen the headlands of a field where the land had been trodden most at the time of culture, which being close and fine on the surface, will produce a full plant when the rest of the field has failed. In consequence of this our own plan was to sow the Wheat in the spring, the ground, of course, being firm, but especially when Wheat followed Potatoes, for then the land would generally work fine on the surface, and in this way we invariably secured a full plant of Clover, and frequently a fine crop in autumn after harvest to cut for the soiling of cattle in their boxes and horses in the stables. When treated in this way the plant was maintained during the winter, whereas whenever we fed the young Clovers with sheep their sharp incisors always injured the plants more or less.

Our recommendation is to grow two crops in succession for hay by cutting them both very young, which not only favours future growth but insures the most nutritious hay. When both crops are cut young we can often get a good third cutting, frequently enough for ploughing-in, which is a matter of great consequence, for when properly done it will insure a good average Wheat crop if the land is clean and otherwise in good condition. It also gives the best result by saving Clover for seed, instead of sheep feeding the second growth as proved by our own practice for many years, and also by Dr. Voelckiron's experiments at Leighton Buzzard in Bedfordshire it was corroborated, and the benefit derived was decided to have been obtained by the increased weight per acre and value of the Clover roots as manure for the Wheat crop. Readers requiring information relating to the culture of Broad Clover should refer to the numbers of this Journal dated December 9th and 16th, 1880.

In referring to Italian Rye Grass we can only say that it has commanded more attention during the past twenty years than formerly, and especially the foreign imported seed; and although much of this has been used, and when saved for seed has been sold for use in this country, the seed which is saved in the British Isles is far inferior to the foreign seed in regard to the production, not only of the earliest grass, but also in its value as a crop of quick succession. It has depreciated in value, and we therefore recommend the home farmer to obtain foreign seed. Caution must, however, be exercised, for it is so often found to be mixed with twitch and other grass seeds, that unless it is carefully examined by those who are perfectly acquainted with the various seeds of grass, as well of spurious as genuine, it cannot be easily detected, hence the seed should be warranted true and genuine and of foreign growth. It is extremely valuable as forming the basis of profitable and continuous growth for land under irrigation by town sewage, or the sewage from dairy cattle in their sheds, and will yield more and greater weight of green fodder than any other variety of grass in cultivation. It is also recommended for the purpose of ensilage, thus giving an opportunity when large crops are produced in summer time, and in excess of immediate requirements of preserving it containing its full value for cows and horses without risk of loss by the weather like hay-made provender, and when the silo is perfect and the grass properly secured it is quite as valuable as newly-cut grass for soiling, and even more so, as it comes to use in the winter months. There is no question of its great feeding power for the production of milk and butter when used with discretion and judgment.

Lentils are not much grown in this country, but may prove useful as green fodder when treated in the same way as Vetches, especially as there are two varieties, one for winter or autumn sowing, and the other for seeding in the spring like summer Tares, and may be used in the same way as food for the same kinds of stock. Some of our cereal crops are valuable as green fodder as well as for the production of grain and straw. We must say that they deserve a share of attention, for in the green state Rye is not only a useful green fodder, but comes early into use, especially for sheep which have a daily or nightly fold of it while feeding in the irrigated meadows. At the same time it is good food for dairy cows, producing abundance of milk. It is also used when cut into chaff with sweet straw for farm horses, and it is well to introduce them to the season of green fodder in that way, for we know practically that a sudden change to green fodder from all dry provender suddenly, frequently injures the health of some animals, or partially disables them for a time. Rye is of two sorts, the common or Giant Rye, the latter being very early and productive, while the common sort is the most hardy in severe winters, and the likeliest to yield a full crop of grain in our English climate. It also produces most valuable straw for thatching stacks and cottages, it being much more wiry and lasting than Wheat straw. It is, however, in some cases sown in April and cut for hay, in imitation of the oat or prairie hay made in America, and proves extremely valuable when used as chaff for hunting and carriage horses, nor is there any doubt but Rye ensilage will be valuable if cut in due season and properly secured in the silo. One of the great benefits to be derived from Rye is, that almost any root crop may be grown in full bulk after the Rye is removed from the land.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are now almost continually employed in the preparation and seeding the land with Wheat, Winter Vetches, Winter Oats and Winter Beans. It is a matter of such great consequence that those sorts of Wheat best suited to the soil and climate should be used in preference, that we will give our experience and recommendation as to

the best sorts for cropping and quality of the grain produced. First in our estimation as adapted for the highest cultivation and best Wheat land is the Dwarf Essex Rough Chaff, for we know that on a very shallow soil near the seacoast in a southern county it has given thirteen sacks per acre of first miller's quality for three years in succession, 1880, 1881, and 1882. And the maximum produce ever attained within our knowledge from this Wheat was nineteen sacks and one bushel per acre in 1870, of splendid quality upon a friable loam out of Clover lea in a southern county. Upon thin or shallow soils in good condition we would advise, if climate is favourable, the sowing of Imperial or velvet chaff white Wheat, such as is sold by seedsmen who give special attention to this branch. We have seen some of this sort grown on dry loamy land last harvest, with immense ears, well chested; we shall certainly sow some this year on our own farm. Upon pale lands on the chalk we have seen fine samples of the white Wheat called Weeb's Challenge, and it is a sort well suited to this soil. Upon low-lying land frequently subject to blight, we prefer the best sorts of red Wheat, like Golden Drop and Browick. Upon the cold chalk hills we also recommend both of these sorts, as well as the old Red Lammas, for they are very hardy and not so soon lifted by frost in the early spring. The time has now arrived when upon all strong, flat-lying land the Wheat should be sown without further delay—look back at last autumn and recollect the great disaster of late sowing, and in various instances none could be sown until the month of March. We sow two bushels per acre on fallow land early, but later on two and a half bushels; on Clover lea we sow two and a half bushels early, but later on three bushels per acre, and we prefer sowing to drilling on lea ground, unless drilled behind the presser with the drill attached; but on all flat-lying strong land which is usually subject to various noxious weeds, we prefer drilling at from 10 to 12 inches apart between the lines, for otherwise in some seasons the land must be horse-hoed in the spring, and unless this is done the weeds become masters of the crop. Again, on such land the Wheat plants will often lose colour; horse-hoeing or hand-hoeing is then the only resource to open the surface of the soil and invigorate the plant and renew a healthy colour, for a sickly fading colour is sure to result in small ears, and if on such land the Wheat is sown broadcast the crop must fail more or less. Again, upon light gravel or sandy land, the red weed or wire weed, and often wild Marigold, are sure to injure the crop when sown broadcast on a fallow surface, and should be drilled wide enough for hoeing, whether sown after Turnips fed off or ploughed in for manure.

Live Stock.—Cattle, except dairy cows and store stock, may now be housed or yard-and-shed-accommodated, as the early frosts are very injurious to all cattle feeding for the butcher, and the sooner they are put into winter quarters and liberally fed with cake or beanmeal, barleymeal, &c., in admixture with cut roots or cabbage, the more benefit they will receive, and wherever boxes can be had, stalling fattening cattle is entirely wrong in every respect as to the making of both meat and manure. Wether sheep feeding for the butcher, too, should now be fed upon roots or cabbage, and not allowed to run out of fold to graze, but receive a full allowance of cake, beanmeal, and good hay, for if ever fattening sheep will pay it must be at the present price of mutton; it is, however, a clever feeder who can make a profit on sheep at the present rate of buying-in and stocking the farm. Still, we must not forget that the early horned Dorset and Somerset ewes are now beginning to lamb, and these, well fed upon dry land so that both the ewes and lambs shall be fattening together, as they will prove more beneficial to feed them fat than the later lambing down ewes or longwools. This goes far to illustrate the fact that a breeding flock will pay best, or lose the least when not profitable, and we would advise the home farmer or young farmer to keep this point steadily in view.

OUR LETTER BOX.

Alderney Cows (G. G.).—By all means keep them in sheds at night now, and also in the daytime when the weather is very inclement, keeping them very clean, and feeding and ventilating judiciously.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet- er at 32s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883. September and October.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	30	29.839	52.1	50.9	N.	54.2	57.4	44.3	90.3	41.7	0.122
Monday	1	29.728	50.2	45.3	N.	53.7	55.7	46.2	101.8	45.3	0.170
Tuesday	2	29.988	47.7	43.4	N.	52.5	55.5	39.9	100.8	36.3	0.082
Wednesday ..	3	29.697	49.0	47.5	S.W.	51.7	49.7	44.0	68.4	33.2	0.229
Thursday	4	29.489	50.7	46.9	N.W.	50.3	54.7	39.0	76.6	36.7	0.018
Friday	5	30.116	49.4	44.0	N.N.W.	50.3	55.7	43.9	101.4	39.4	0.038
Saturday	6	30.27	48.4	45.9	N.	50.2	58.7	44.9	103.6	35.2	—
		29.794	49.6	46.2		51.8	55.3	42.6	91.8	38.7	0.509

REMARKS.

30th.—Wet morning, fine afternoon with sunshine, showery evening.

1st.—Bright morning, afterwards overcast; a cold day.

2nd.—Fine, bright, and cold.

3rd.—Cold wet morning, fine after 3 P.M.

4th.—Very stormy throughout.

5th.—Very fine morning, overcast in the latter part of the day, rain in evening.

6th.—Fine and bright all day.

A cold and unsettled week, frequent showers, but a good deal of bright sunshine. Mean temperature 4° below the average, and about 9° below that of the preceding week.—G. J. SYMONS.



COMING EVENTS

18	TH	National Apple Congress at Chiswick (continued to 25th inst.).
19	F	
20	S	
21	SUN	22ND SUNDAY AFTER TRINITY.
22	M	
23	TU	
24	W	

FRUIT TREES IN POTS.



I WAS highly pleased to read of "Jedburgh's" successful culture of fruit trees in pots in the simple manner described on page 277, as I had previously entertained a similar idea and had resolved to carry it into practice this autumn. The method advocated by your correspondent will commend itself to suburban gardeners especially as being a most useful and valuable one; for, unlike many of their country brethren,

they have to battle with smoke, indifferent soil, and circumscribed space, yet, notwithstanding these untoward circumstances, the former are in many instances expected to supply fruit of good quality for their employers' table. I do not mean to infer that if a gardener had to supply Apples and Pears in quantity he would find the method of growing the trees in pots likely to answer, but for securing a moderate supply of them, also of really creditable fruits of Cherries and Plums for the table, the latter system will prove a valuable and profitable one.

Many will argue that the adoption of this system will involve great expense and additional labour by way of watering. This objection may, however, be dismissed on two grounds. Firstly, no elaborately constructed orchard house is needed when trees are grown according to your correspondent's method; and if trees are purchased already established in pots fit for bearing, the difference in price between them and those lifted from the open ground for ordinary planting is not more than a third in excess as a general rule. Secondly, the additional labour involved in potting, protecting, and watering will be amply compensated by the greater amount of finer and better flavoured fruit secured.

A similar plan to this one I saw adopted with half a dozen or more Plums a few years ago. The trees were plunged in an unheated Fig case where plenty of ventilation was given until the fruit had set, after which the trees were removed outside and plunged in a border by the side of one of the kitchen-garden walks. A copious supply of weak liquid manure was given from time to time, and I must confess I have never seen heavier crops or tasted better flavoured fruits than these, and all produced with a minimum of cost and trouble.

In suburban gardens—such, for example, as the one I have charge of—space is considerably restricted, and the soil by no means congenial to the growth of fruit trees generally. We are only too glad to welcome and adopt any really serviceable methods of securing good crops of both fruits and vegetables. Healthy vigorous young trees planted in our soil will not grow and fruit satisfactorily; and to remove the existing soil and supply better would prove a most expensive method, especially, as in our own case, when good soil can only be obtained from a long distance. My employer is anxious to have a reasonable supply of high-class fruits for dessert, such as Apples, Pears, Plums, Cherries, and Peaches in season, and knowing the difficulties already stated, has permitted me to adopt a scheme I have formed having for its

object the means of better production and protection of the foregoing trees in flower and fruit.

Two evils I have to contend with are unsuitable soil and London smoke. Another equally grievous remains, however, one which affects country as well as suburban gardens—viz., spring frosts. To provide a remedy that would prove efficient and yet not too expensive in its application was the task I had for some time set myself to do. First of all it was decided to adopt the late Mr. Rivers' plan and build a cool orchard house, as our object is not to force but to produce crops of good fruit in season. Having a south wall with a 10-foot border measuring upwards of 100 yards in length, it was determined to take advantage of this and build a lean-to house. After a careful estimate of the cost such a structure would involve we found this scheme would prove too expensive; therefore I set to work to devise another method which I am now putting into practice. The plan I am adopting, then, is as follows.

The wall I have mentioned is 12 feet in height, and the border at the base 10 feet wide. Posts of 4-inch deal and 9 feet 6 inches long are placed in sockets 18 inches deep at 10 feet from the wall, and are continued at intervals of 6 feet the length of the border. Pins are driven vertically in the top of each of these posts, and cross beams with corresponding holes to retain the posts in position are placed thereon. Rafters of similar material occur every 6 feet. These receive a framework 3 feet wide, fitted with grooved sashbars for the reception of Hartley's patent rolled plate glass to form a wall coping. The remainder of the roof will be covered with hexagonal netting. The spaces 6 feet by 10 feet in front will be fitted with a light framework of wood and wire netting, as also the ends, with the exception of a door to each, fitted with lock and keys. The use of the wire netting is to protect the crops from the depredations of feathered and human thieves, both of which are unfortunately numerous hereabouts. The 3-foot glass coping will protect and assist the trees in flowering and ripening, and in lieu of the glass roof and sides in the structure I have just described I propose to fix rollers at the base of the glass coping to receive tiffany, which will be let down the roof and sides in cold frosty weather when the trees are in bloom.

Having thus far described the structure I will now say a few words on what I propose doing inside. First, as to the wall, two-thirds of which are occupied with young trees of good varieties of Peaches and Nectarines and "old stagers" of Apricots and Figs. I propose to plant a few more good kinds of Peaches, and the remainder of the space fill up with upright and oblique-trained cordon Pears and Apples. I prefer the cordon as applied to Pears to other systems, one great advantage being they come early into bearing; and if a particular variety does not succeed it can be speedily discarded and replaced with better varieties without much loss of time. This system has been adopted with great success by that able cultivator and your esteemed correspondent Mr. Luckhurst of Oldlands, to whom I am greatly indebted for much information and advice in the selection of the best varieties of Pears likely to succeed with me.

As to Apples on the same plan against walls—French varieties being required—I propose procuring Calville Blanche, Calville Rouge d'Hiver, Calville Malingre, and a few other similar varieties as figured and described by M. Poiteau in his magnificent work the "Pomologie Française," tome iv., for the privilege of consulting which I am indebted to a kind and generous employer. As I have before said, the soil is unsuitable to the growth of fruit trees, therefore I propose overcoming this difficulty by growing pyramid Cherries, Plums, and Apples in pots, and plunging them in the borders. Raspberries will be planted against the posts that support the roof; miniature trees of Champagne Gooseberries and White Currants will be planted at intervals, and finally all the best varieties of Strawberries will be planted in every available space.

Such, then, is an outline of my scheme for supplying a

moderate quantity of what I feel sanguine will prove really creditable fruit, grown in a minimum of space, protected from the injurious effects of spring frosts, and quite under the control of the cultivator. Good loam will be incorporated with the existing soil when planting the wall trees. This will support, with occasional assistance by way of artificial manure, not only these but the Strawberries and Gooseberries too. The trees in pots will be well supported, therefore a heavy crop will be insured in a minimum of space—a great boon to many situated like myself.—A SUBURBAN GARDENER.

CULTURE OF HARDY ORCHIDS.

AFTER considerable experience with hardy Orchids I find there are but few species really capable of multiplying themselves to any extent and increasing in size under cultivation. Most Orchids live more or less when properly cultivated, but as they do not multiply in the long run the individual deaths soon extinguish the collection. I have found after various experiments that the following species multiply by the growth of the roots.

Aceras anthropophora.—The green Man Orchis will, if not disturbed, give a marked increase in the course of two or three years. It thrives best in a shady exposed situation, say on the top of a rockwork facing due north.

Cypripedium Calceolus.—One of our prettiest and most interesting British Orchids. It increases considerably when planted in a dry chalky border under the shade of Pine trees. A gentleman in the south of England tells me that with him it grows like a weed under the above conditions, and becomes so strong that it has to be checked every second or third year as an inducement to flower.

C. pubescens.—This is easily cultivated, growing and increasing in an ordinary shady border, but when planted in a damp situation amongst the coarser-growing hardy Ferns attains a perfection seldom if ever equalled in its native habitats.

C. spectabile.—The prettiest species of the genus, requiring the same treatment as *C. pubescens*. It is also well adapted for forcing, and when better known is likely to be used very much for that purpose.

Epipactis palustris.—The only one of this genus that increases, which, however, it does but slowly, and only under favourable circumstances. It should be grown in a shady corner, where water can be used unsparingly. It is very susceptible to drought, and will often succumb if allowed to become dry.

Goodyera repens.—A pretty little sweet-scented plant, which I find does best on a damp shady border under Pine trees, where it increases and flowers profusely. I have tried it on a bog exposed to the full blaze of the sun, and in less than a month more than half had disappeared.

G. pubescens increases rapidly under the same treatment as given above for *G. repens*. Is perfectly hardy, standing our severest winters with impunity.

Habenaria tridentata may be said to more than hold its own under ordinary circumstances. It does very well when grown in pots, but succeeds much better in a low damp situation planted in peat, and where it will not be subjected to perpetual shade.

H. bifolia, with its numerous white flowers, is perfectly at home on a moist border overshadowed with Ferns, where it increases rapidly, and has already more than filled the place allotted to it.

H. hyperborea.—A small North American species, having nothing in the way of beauty to recommend it, although of considerable interest botanically. It increases slowly in a composition of brick and lime rubbish in a shady border. It must be watered occasionally in very dry weather.

Herminium monorchis.—When grown in a stiff chalky clay will, in the course of a few years, increase considerably.

Orchis foliosa.—Often called Poor Man's Orchid, from the ease with which it can be cultivated, a damp shady spot in a compost of peat, lime rubbish, and decayed leaves being the most suitable for its full development. It increases at the rate of about 50 per cent.

O. latifolia I find increases very slowly, even when carefully attended to. It does best in ordinary garden soil, and requires plenty of water in hot dry weather.

O. maculata.—A very pretty species. It increases when planted under brushwood, partially shaded in ordinary soil. It also grows and flowers freely on rockwork with north aspect.

Ophrys pseudo-sambucina.—In one year increases 25 per cent.—that is, from twenty-four bulbs I collected thirty. It requires to be grown in pots in a cool frame, and will not stand frost.

Ophrys bombylifera is the most productive of any of the hardy Orchids; it never fails to more than double itself. From fifty pseudo-bulbs of this species planted singly in pots, no fewer than forty four had produced two pseudo-bulbs each, whilst six had produced three pseudo-bulbs each, making 106 as the total for the year. They should be placed singly in pots about the beginning of September in good rich soil, with plenty of drainage. The pots may then be embedded in sand in a cool frame, which should be kept open as long as the thermometer is above 40°, unless when raining or during high winds.

The whole can be watered as a bed, but only at two periods of their growth—viz., in September and October, when the roots and leaves grow, and in January and February, when the young pseudo-bulbs grow. Between these two periods little water should be given, and when the flowering is over the water should be gradually decreased, and eventually cease.

Where it is not convenient to have them in pots they may be planted under a hand-glass, taking care after the bulbs are planted to cover them over with good river sand. Here they are liable to the attacks of slugs unless sawdust be laid round the inside edge of the hand-glass. They will stand a little frost, but I find a few Pine branches very useful to throw over them in severe weather. In the case of the pots, when the stem and leaves die, they may be taken out of the frame and placed on their sides in a cool shady place until the beginning of August, when they may be emptied and the new pseudo-bulbs collected.

For those under the hand-glass, as soon as the leaves show signs of decay, the top part of the light should be tilted, so as to admit plenty of air, and at the same time guard against their getting wet. It would also be well to cover the glass with some light shading material. Collect pseudo-bulbs as directed above, and replant the requisite number as soon as they show signs of growth.—D. DEWAR, *Herbaceous Department, Kew*.

SIX MONTHS IN A VINERY.

ALTHOUGH I have very much cause to be gratified with the reception "Vines at Longleat" met at the hands of the public, it has been urged, and with some reason, that not many people have such an admirably constructed house to deal with as that therein described, and indeed comparatively few cultivators have even a chance of forming new borders and planting young Vines; therefore to meet the requirements of a large number of readers I resolved to make a sort of diary of the management and its results of what may be fairly termed a very commonplace sort of vinery, and as the building in question is considerably over half a century old, and its occupant probably but a very little younger, I hope I may be able to make the matter interesting.

The notes I have were made almost daily for the space of five and a half months, commencing last New-year's day, with enlarged notes and remarks made about once a week, consequently they are rather voluminous; but I will promise not to inflict more than a portion of them on your readers, as some of them are rather crude, and although interesting and instructive to myself they must be considerably condensed to suit the present popular taste. I shall, however, as I go on add notes embodying the "wrinkles" picked up during the two seasons which have elapsed since the writing of my treatise, and wherever I have had occasion to alter or modify my views I will endeavour honestly to state the facts plainly.

The description of the house must now of necessity be written from memory, but it will be sufficiently accurate for the purpose. Its dimensions are about 40 by 16 feet, and it has a fall of probably 5 feet in its length. In shape it is hip-roofed, or what is sometimes called three-quarter span. It faces the south, has a rather flat roof, with heavily built sliding lights and panes of old-fashioned glass about 6 inches wide. To lessen the cost of construction at a time when glass was very dear, the part of the roof which faces the north was constructed of lath, plaster, and slate—or at least that is how it is at the present day. The path is under this portion, which of course is of no use for growing Vines, so that the cultivable width is reduced to about 11 or 12 feet.

It has upright front sashes about 18 or 20 inches high; these are available for ventilation, but are not of much use for admitting light, as the mullions, framework, and plate are of such a substantial build that they nearly overshadow them. It has been so far modernised as to have five rows of 4-inch pipes fixed in it, but in other particulars it does not, I think, differ materially from the original plan.

One Vine occupies the house. It is planted close to the front wall inside, and about equidistant from each end. It divides when it reaches the top of the front sashes; a main branch runs to each end

of the house, and other branches springing from them at intervals of 3 to 4 feet are trained up parallel with the rafters.

When I took charge, nearly fifteen years ago, the greater part of its roots were outside, or at least very few could be found inside. It bore Grapes of various colours, various sizes, and various flavours; and I understood it had long been its nature so to do. After a time, when it had been subjected to a little medical and surgical treatment, its character became more fixed, and now it is a veritable Black Hamburgh. It has a magnificent stem of 16 or 18 inches girth; but although one Vine fills the house it cannot be said that it is now grown on the extension system, for having long ago filled its allotted bounds it is kept spurred-in quite closely, and is therefore to all intents and purposes grown on what is called the restrictive mode.

The subject of renovating and rejuvenising Vines having been so lately written about, it is unnecessary now to detail that part of the subject; but where roots have to be cut through I would again urge on all cultivators the importance of getting it done speedily while the foliage is healthy.

Prior to the commencement of my diary all insects had been destroyed by the liberal use of petroleum and water as soon as the fruit was gathered. A top-dressing to the inside border had been given at the same time in the shape of some naturally made leaf soil, a little loamy soil, and some half-inch bones pricked in with a fork 3 or 4 inches deep.

This operation would destroy many small fibry roots, but at this time of year with healthy foliage they start making root again immediately, and utilise to the fullest extent anything fresh and suitable which is given them. Pruning had also been completed at least five weeks in the orthodox fashion of spur-pruning.—WM. TAYLOR.

(To be continued.)

POTATOES.

THIS year I have grown a great many varieties of Potatoes, and have done my utmost to find out the best croppers and least liable to disease. Year by year I add a few new kinds to my stock, but I have determined to do away with many of the varieties I have grown this year. They have had a fair trial planted in my garden in a light soil well dressed with stable manure and old lime rubbish, and in a field with hot gravelly soil moderately manured. Almost all the varieties are of recent introduction, and if I succeed in drawing the attention of your readers to a few really useful Potatoes, and thus prevent their incurring disappointment in growing some belauded but worthless ones, I shall be amply repaid, for I am an ardent admirer and most interested cultivator of the noble tuber. The following are the results of my trials.

Ashleaf (Veitch's).—The best early kidney for the garden, of very good quality, earlier but not so prolific as Myatt's. No disease.

Ashleaf (Myatt's).—Great cropper in the garden and good in the field, the tubers being of good size, quality, and appearance. Best early for market-growing. No disease.

Advancer (Daniels).—A great cropper in the garden, all the tubers being very large, but the eyes rather deep and haulm very robust. This Potato did well in the field also, and was free from disease. A good field variety.

American Purple.—A very useful variety. Grown in the garden only it produced fine clean tubers free from disease. Haulm strong and branching.

Beauty of Hebron.—A great cropper both in the field and garden, of good quality for table, early and of good appearance. One of the best Potatoes for field or garden, and quite free from disease.

Beauty of Kent.—Of first-class table quality, a good cropper in the garden, but bad in the field. Haulm medium and mottled. It is a handsome Potato; and good for garden cultivation. Slightly diseased.

Cosmopolitan (Carter's).—A second early rough-skinned kidney, handsome and good cropper. Grown in the garden only this year for the first time, I can but express a belief that it is a very good variety.

Duke of Albany (Sharpe).—This Potato is very prolific and early, with tubers large and of splendid table quality. It is quite free from disease. This variety will without doubt be very popular with growers for market, and either for garden or field I can very strongly recommend it.

Early White Emperor.—Useless except for exhibition.

Eight-weeks (Carter).—A good cropper both in field and garden, of excellent table quality. The haulm is branching and mottled. Being early, prolific, and of good appearance, it is well suited for field or garden cultivation.

International Kidney.—Useless except for exhibition.

Improved Peachblow.—In the garden a good cropper with large tubers; in the field a bad one, but with large tubers. I keep this Potato for baking. Free from disease. Haulm erect and strong.

Mammoth Pearl.—In garden and field few tubers to the root, but all of good size.

Manhattan.—A fair cropper with large tubers, but badly diseased in both field and garden.

Matchless.—A handsome early variety and prolific. Free from disease, but of poor table quality. Moderate haulm.

Mr. Bresee.—This also goes by the name of Peerless Rose. It is of fair table quality, very prolific in garden and field, and very handsome. Some of the Potatoes grown in the garden were immense. Being early with short haulm it is useful where Savoys, &c., are grown between the rows.

Porter's Excelsior.—Handsome and prolific, but no good except for exhibition.

Pride of Wilts.—Useless except for exhibition.

St. Patrick.—Good cropper in field and garden. A second early kidney, of good quality for table and free from disease. Profitable for field cultivation, producing a good crop of fine tubers on a poor soil.

Schoolmaster.—Handsome and of good quality. An excellent garden variety, but not prolific in the field.

Trophy.—Good cropper, producing large tubers both in field and garden, but of poor table quality. Of good appearance, and nearly free from disease.

Triumph.—Handsome and prolific in field and garden, with plenty of fair-sized tubers, none being very large. It is very early and of dwarf top. Quite free from disease.

Vicar of Lalcham.—Very handsome blue round, a good cropper in the garden, but not in the field. Boils very white. Slightly diseased.

Woodstock Kidney (Sutton).—Prolific, with very robust haulm, producing very clean-looking Potatoes of good quality. Diseased.

Wormleighton's Seedling.—An improved Magnum Bonum, producing, I think, larger and truer-shaped tubers, which are of excellent table quality. A great cropper, and a thoroughly good Potato in every respect. Free from disease.

White Elephant (Daniels).—Great cropper in the garden, but, much to my surprise, a poor one in the field. Not of good table quality.

Wiltshire Snowflake (Lye).—Takes the disease, but is a good cropping Potato of excellent table quality. The tubers are of uniform size.

Other varieties I grow, but I am afraid that I have already written far too much. The above is the result of my experience, and I trust it may be of some use. In conclusion, I may say that for garden cultivation I would choose Veitch's Ashleaf, Duke of Albany, Beauty of Kent, Schoolmaster, Wormleighton's Seedling, Beauty of Hebron, and Eight-weeks. For the field—St. Patrick, Mr. Bresee, Myatt's Ashleaf, Advancer, Beauty of Hebron, Duke of Albany, Eight-weeks, and Wormleighton's Seedling; or in all, twelve Potatoes for both field and garden cultivation.—H. S. E., *Great Totham*.

THE OLD CRIMSON CLOVE CARNATION.

THIS is one of the best of all our border flowers, and I am glad to see it has been brought so much into notice this season, as of all Carnations this is my favourite. Its colour is decided, the flowers never fail to open in profusion, and its fragrance is delightful. We grow scores of it and never have too many. It begins to open its massive blooms in June, and never ceases producing them until late in October, and we can always count on having it in bloom sixteen or seventeen weeks, which is much longer than the majority of Carnations will continue flowering. It is not easily damaged by wet or injured by cold nights, and it will bear any frost or severe weather in winter. If left undisturbed for years it will grow into a large mass many feet or yards in diameter, or it may be layered and rooted like any other Carnation and planted out in beds or borders in spring. Young plants like these generally produce the finest blooms, but for a grand old-fashioned mass the undisturbed plants are unsurpassed. Some years ago I sent a number of plants of this to Mr. F. W. Burbidge in Dublin, and from him I had a quantity of a dwarf-growing double-blooming Sweet William, which in colour exactly resembles the Crimson Clove, and they are both charming.—J. MUIR.

THE EDINBURGH GARDENS.—"J. B. H." asks me to perform a great task, much greater indeed than he seems to be aware of. At page 21 of the present volume is a paper on the subject, to which his attention may be directed. There he will see recommended what Mr. Thomson has to say on the subject in his "Handy Book of the Flower Garden." If your correspondent is in earnest about studying the arrangement of colours in flower gardens this he will do, and he would not be much benefited by all that could be pressed into a paragraph, which is all that time will allow me to write at present. "J. B. H." says white or red cannot always be used as edging. Certainly not. But neither is appropriate next grass, where a yellow is not, and it was the variable use of yellow as an edging in the Edinburgh gardens that was criticised. Next grey stone colour, such as the pavement of the garden over the

Waverley Market presents, yellow or blue (but not the bronze of St. Martin's Blue Lobelia), would look well enough, though green might be best. Often the walks are of white gravel, in which case white would be a bad thing, while yellow would be very good, and blue the very best edging possible. In arranging colours the surroundings have to be taken into consideration, so that the subject is much more complex than may seem at first sight. "Red or white cannot in every case be the first line. What, then, should occupy that place?" In the Scotch fashion that may be answered by asking, "What colour is outside and what inside the edging or front line?" Till that is known no answer can be forthcoming. Green, grey, brown, white, or even black may be outside, and a score of shades inside. What the edging should be depends on the varying circumstances.—A SCOTSMAN.

TWO INSECT FOES OF THE PEA.

IN reply to Mr. Abbey, I may say that the caterpillar of the Y moth (*Plusia Gamma*), which is a tolerably general feeder, does not often attack the Pea, for this reason, I think, that before the chief emergence of the moth the leaves of the plant are beginning to decline somewhat, and its instinct leads it to deposit eggs where the caterpillars will get a better supply of food than from the Pea, or even from the Bean. July, or later, is the time when these moths mostly appear in plenty, but some are out in June, and they would be likely to visit the Pea, but this has only now and then occurred in England. So far back as 1735 it was noticed that the caterpillar of the species was very destructive to both Peas and Beans growing in the market gardens near Paris. The application of any compound of unpleasant odour, containing tobacco or petroleum for instance, would check the moths in their work of egg-laying, but such applications cannot always be used in the case of this plant. It is not difficult to detect the pearly-looking round eggs, which are placed in patches. When young caterpillars have appeared they may be removed by syringing or washing with weak soapsuds or quassia water.

The fly referred to is *Phytomyza nigricornis*, described by Curtis; the eggs are laid in June, and the maggots or larvæ appear in a few days principally infesting the tendrilled leaves. I am afraid there is no effectual mode of warding off the attacks of this insect. All infected leaves when discovered should be picked off and destroyed.—ENTOMOLOGIST.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

I HAVE read with interest the notes that have lately appeared in your columns concerning the above Institution, and I still hope that something good may come of the discussion, but I do not think Mr. Cutler's letter quite satisfactory. Some time ago I wrote on this subject. I have the rules of the above Society to hand, and I fully intended becoming a subscriber, but I have read and re-read the rules, but still I cannot see my way clearly. It seems to me not quite what two-thirds of the gardeners want. I have nothing whatever to say against the Institution; doubtless it is a very good one, but in my opinion a sick and benefit society would better meet the wants of the majority of gardeners at large if properly constructed. Do I hear someone say, "There are plenty of such societies already?" Perhaps so, but I would have this one specially organised to suit its purpose, and I would have no one a member of it who was not connected with horticulture. I think that by so doing we should be helping one another, and in a manner protecting the profession from being imposed upon quite so much. There is not the least doubt that at the present there are more gardeners (or would-be gardeners) than there are places for them, with the result that a good man cannot get good wages (nor fair wages, if we take into consideration what a gardener has to contend against). I trust this matter will be taken up by abler men than myself, and I feel sure that our Editor will, as usual, lend his aid where gardening and gardeners are concerned, and I would invite every gardener to send in his private opinions and suggestions, then we may be able to form a committee to consider the subject.—J. SMITH, *Hampstead*.

I AM sorry to find that on a question so strongly affecting the gardening fraternity, and of such vital importance to the best interests of the Society he represents, the Secretary of the Gardeners' Benevolent Institution should shelter himself from inquirers who are only anxious for the truth, behind the "anonymous writers" flimsy barriers. It gives people who look at facts only, and care nothing for persons, the idea that the cause is a weak one or an unsafe one when the person who is able, and is the only one to defend, because the only one thoroughly conversant with full knowledge, creeps out of the way of inquiry, and that behind that now-exploded protection, the anonymity of the inquirers. Anonymity is good when questions are fairly and reasonably discussed on their merits alone, and not influenced by the social position or personality of the writers. It is then only that the real truth can be arrived at; and, to my thinking, public questions affecting public interests ought to be discussed in a public way; and that they are better so discussed anonymously, from the fact that we are so hemmed around with our personalities, that if these are imported into the discussion only by names, these very names will give a bias to the arguments which otherwise they would not have. The editor of the paper in which the questions are considered may be left to take care that nothing offensive to any man's personality shall be allowed to appear. I am quite sure Mr. Cutler might have safely left himself in the hands of the Editor of the *Journal of Horticulture*. Such a question as refusing to reply to anonymous writers gives an undeserved

rebuke to such writers as "D., Deal," "Wiltshire Rector," and others, who write anonymously, regularly, and who are about the most honoured of the paper's contributors.

It is a curious comment on Mr. Cutler's refusal to reply to anonymous writers, that in the very paper that he refuses us, an anonymous writer, "J., Sussex," supplies us with the information from Mr. Cutler himself that he declines to give. The letter given last week by "J., Sussex," contains nearly everything that I inquired for, but the chief thing that I desired to know is left about where it has always been, and where it is so unsatisfactory to men who desire to have something safe to rely upon. That the getting put upon the pension list depends upon an accident, the accident of having influence enough to make our case prominent. We know that every gardener is not favoured with patrons sufficiently influential to command attention to his case, and, if he had, there appears to be no clearly defined manner of representing cases. These are blots on the system, and had better be faced, and faced publicly too.

I should be sorry beyond anything to think that I had said a single word to annoy or embarrass the officers of a Society with such a nobility of purpose in it as the Gardeners' Benevolent has; but I wanted light, and I want light still—more light to see my way clearly in a matter that not only affects myself but that affects, or may affect, those I love when I am not there to stand by them. Let this matter of appointment be made plain, and there will not be that old cry that gardeners do not support the Gardeners' Benevolent Society as they ought any longer.—P.

WHEN I wrote on the subject before (page 227), I did so in the hope of eliciting authoritative information that I felt might be of service to myself and other gardeners. As no reply was forthcoming to a letter that appeared a fortnight previously, a most proper and important letter, as I conceived, I concluded the Secretary of this Institution was temporarily absent from his duties, enjoying, as I was charitable enough to imagine, a period of well-earned rest. But what are the facts?

Four letters have appeared publicly asking for information on a public Institution, and yet the Secretary of this public Institution has somewhat tardily and just a little curtly stated that he can only attend to letters that are addressed to him and reply to them in a private manner. Fortunately there is someone willing to do what he can to make the position of the Institution and the advantages it offers widely known. I join cordially in thanking "J., Sussex" for his letter, and seeing that he enclosed Mr. Cutler's reply to himself, I cannot now see that it would be of any use for anyone writing to the Secretary for further particulars. I was fully prepared to become a life subscriber, and others of my friends were contemplating joining also, provided after the information that we were confident the Secretary would gladly afford we felt justified in doing so.

How could I or anyone else write to the Secretary when we did not know his address, which was most certainly the case with myself and associates? I was requested to write the letter on behalf of others as well as myself, and I felt in doing so that it would be of advantage to the Institution too to have the opportunity of having its claims for support placed fully and prominently before those it is intended to benefit. Here is a Society with the high-sounding name of the "Gardeners' Royal Benevolent Institution," and yet hundreds of gardeners know practically nothing about it, and are absolutely ignorant of the address of its Secretary. They read about its annual feast once a year, perhaps, and of the pensions granted, but as to the working of the affair, the principle of determining the pensions, and the advantages offered to subscribers, they know nothing, and because they wish to know each must write separately to the Secretary whose address until now was not even vouchsafed. What matters it to Mr. Cutler if I do not choose to let everybody know I have £10 to spare? If he had been a gardener struggling on 22s. a week for years as I have done, and hoping for an extra shilling or two, he would not wonder that I did not let the world know that I could get on without the coveted increase.

But that is a small matter. The main fact to be borne in mind is this. Information of a purely routine character has been sought for repeatedly on a matter of great public importance, and yet the Secretary of a public institution refuses to supply it in a public manner. Is he afraid of the great world of gardeners knowing too much about the Institution which he represents? His simple announcement conveys that idea undoubtedly, and that is scarcely the way to gain public confidence.

It is not conceivable that there is a charitable institution in the land whose Secretary would not have availed himself with alacrity of the opening that was afforded him for placing its advantages before the public, nor a business manager who would have refused such a chance of making his trade known. But then I am told, and the opinion widely prevails, that Mr. Cutler is an Honorary Secretary, and discharges his duties gratuitously. That of course we must appreciate, but such an arrangement is not always the best. It is sufficient to account, however, for his conduct in this case, and which has prevented the Institution from adding at least one more life subscriber to its lists.—A COUNTRY GARDENER, *Yorkshire*.

[Our correspondent is not well informed as to Mr. Cutler's position in the Society, as he has always been a paid official of the Institution.]

SINGLE DAHLIAS.

IN addition to the two groups mentioned last week—namely, the star-shaped blooms and those with flat florets, Mr. Ware has formed two others, including respectively varieties with florets partly reflexed at their points, and those with florets strongly reflexed. Upon careful examina-

tion, however, of some hundreds of seedling named and unnamed varieties, we think it would be preferable to amalgamate these, and form one section to contain all the varieties with reflexed florets. In the woodcut, therefore (fig. 62), only the extreme of the type—namely, two forms with strongly reflexed florets: Lucy Ireland, which is of a rosy crimson hue; and Fairy Pet, a variety with smaller flowers, white, margined with crimson.

The reflexed group, taken in the broad sense we have indicated, includes the chief bulk of Mr. Ware's stock, the moderately reflexed varieties being by far the most numerous. The others may be regarded in a florist's point of view as a higher development of these, and at present there are few more than a dozen named and tried varieties, though these include the finest yet obtained, and additions are being

suffice as an indication of the range of colours:—In Memoriam, crimson-purple, handsome; Mafinc, yellow with white tips, very early; Lutea grandiflora, clear sulphur, free; White Queen, pure white; Buffalo, orange-buff; Francis Fell, rich purple; Christine, pink; and Crimson Beauty, warm crimson.

WORMS AND WALKS.

At this season of the year worms cause great annoyance to the gardener, and give considerable trouble in keeping walks and lawns clear. When the walks are edged with the shears for the last time the gravel should be carefully drawn back with a hoe and the wormcasts drawn into heaps with the same instrument and then removed. If this is done, the gravel returned and well rolled down again, they will not remain clean for a fortnight. Before returning the gravel apply a sprinkling of salt, and



Fig. 62.—FAIRY PET.

LUCY IRELAND.

annually made to them. They have an appearance of great substance, the florets being so grand and regularly overlapping, while the colour comprises some exceedingly rich shades of crimson. A few of the best are as follows:—Mauve Queen Improved, soft shade of mauve; Mrs.

rbidge, rich plum-purple, very distinct; Gambetta, lilac-mauve; Charles Lawes, yellow shaded crimson; Mrs. Castle; rosy scarlet, and Scarlet Defiance, a handsome variety, with large brilliant scarlet flowers.

Amongst the moderately reflexed varieties will be found some that approach very closely to the newer type, and even on one plant all gradations may be occasionally found, and it is owing to this circumstance that we think it is not advisable to separate them. Some dozens of beautiful forms could be named in this section, but the following will

over this the gravel can be spread. This will stop the worms working, and the first light shower will bring the worms to the surface. The majority of these will die, but to be certain they should be gathered up and thrown away. We may frequently apply a few cans of water to the salt as soon as it is applied, and the worms come to the surface at once and are then removed. It will be found that if the trouble is taken to apply a little salt at this season but little annoyance will be given afterwards all winter. That invaluable insecticide paraffin will also answer the same purpose if it be applied with water through a fine-rose can, but I do not think it will keep them back so long as salt, although they quickly come to the surface after it has been applied.—SCIENTIA.

GRAPES AT OLD WARDEN PARK, BIGGLESWADE.—On entering the late vinery in this fine old garden I was struck by the magnificent

appearance of some of Pearson's Golden Queen and Gros Guillaume Grapes. Some of the last-named are exceptionally good both in size of bunch, berry, and finish. I should say as many as half a dozen bunches on one Vine average at least 8 or 9 lbs. each. On a single rod of the Golden Queen are some very useful bunches, well finished, and not a shanked berry among them. Some Black Alicante and Lady Downe's are also very creditably finished. The grounds at Old Warden are at all times worth a visit, but in the spring they must be especially charming. If spared till that time another year I hope to be able to have a look round with Mr. Allis, the head gardener, who would, I think, at all times do his best to entertain—A VISITOR.



WE are glad to hear that the NATIONAL APPLE CONGRESS AND GREAT EXHIBITION OF APPLES is to be prolonged for a week. In consequence of the vast amount of labour involved in the examination of the very numerous examples of Apples exhibited, and the great interest that is being taken in the Exhibition by the general public, it has been decided to continue the Exhibition open until Thursday the 25th inst. Exhibitors who desire to do so may remove their fruit on Friday the 26th inst.

— THE magnificent VANDA SANDERIANA shown by W. Lee, Esq. Downside, Leatherhead, at Kensington last week, was unanimously pronounced to be one of the finest Orchids that has been exhibited for several years. Any addition to the rapidly increasing ranks of handsome Orchids is especially welcome when it combines attractions of an unusual character with a striking novelty of type, as is the case with this Vanda. It is not surprising, therefore, that it caused a sensation amongst Orchid growers, for this is the first plant that has produced flowers in England, and is, we understand, probably the largest in cultivation at present. The specimen is one of Messrs. Low's importation, and now has five sturdy growths, the leaves of moderate length and slightly recurved. The flowers in form are very suggestive of *Odontoglossum vexillarium*, the two larger lower sepals corresponding to the lip in that Orchid, and all the petals and sepals are on the same plane. The colour is also peculiar, in the lower sepals particularly so, the parallel reddish purple veins being very distinctly marked on the yellowish ground, and the secondary veinlets interlace freely, giving quite a netted appearance. The upper petals and sepals being of pinkish hue also contrast strangely with the other portions of the flower. The plant seems to be of vigorous and free-flowering habit, as it was bearing two spikes, one having eight flowers.

— THE INTERNATIONAL FORESTRY EXHIBITION, to be held in Edinburgh next year, is now being fully discussed, and is likely to prove the most extensive show of this character ever held. The Queen has accorded her patronage, and a large number of noblemen and gentlemen are also supporting the project. A guarantee fund of nearly £5000 has been raised, and twice that amount is expected. The General Committee is under the presidency of the Marquis of Lothian, who will be aided by several scientific and practical foresters. The principal classes will be for practical forestry, forest produce, scientific forestry, ornamental forestry, illustrative forestry, forest literature, economic forestry, loan collections, essays, reports, and miscellaneous.

— AROUND the mound near the Cumberland Gate of the Royal Gardens, Kew, efforts are now being made to establish a WILD GARDEN that will undoubtedly prove a great attraction in the early spring months. Great numbers of bulbs are being planted. *Galanthus nivalis* and *Elwesi*, with *Eranthis hyemalis* and *Crocuses*, form a large proportion of those employed, while the common wild Hyacinth has been placed out in thousands. When in flower these will produce a charming effect, and, being near a walk that is much frequented, they will be seen and enjoyed by a large proportion of the visitors. The idea is a good one, and might be still further developed, as there are many positions in the Botanic Garden that could be utilised in this way. Near the lake in front of the Palm house *Colchicums* have been lately flowering beautifully, several of the slopes being quite covered with their purple flowers. At the foot of the mound above mentioned it is intended to plant the

grand specimen of *Polygonum sachalienense*, which now occupies a position near the No. 2 museum. Several other imposing plants will be also introduced.

— ANOTHER consignment of SINGLE DAHLIAS from Messrs. John Jefferies & Co., Oxford, include some beautiful varieties, but are specially notable for the satisfactory condition in which they arrived and for the time the flowers have since lasted. The florets had all been secured by dextrine, a simple means of overcoming the chief defect of these varieties—their fugaciousness. Comparatively few single Dahlias are seen in the florists' shops in Covent Garden Market, owing to this character, the pompons and semi-doubles being the chief favourites.

— A PUBLIC PARK presented to Coventry by Mr. David Spencer, an old citizen, was opened on Monday, the 11th instant. The occasion was also utilised for the performance of two other ceremonies—the unveiling of a statue erected to the memory of Sir Thomas White, a Lord Mayor of London in the sixteenth century and a great local benefactor; and the dedication to the residents of another park, given by the trustees of the Sir Thomas White charities, and planted and laid out by the corporation.

— ON Saturday afternoon last the Hackney Microscopical and Natural History Society held a FUNGUS FORAY. About thirty of the members and their friends, two or three of the best known fungologists in London being among them, met at Chingford, and explored some of the richest ground in Epping Forest. About 100 species of Fungi were found, including one hitherto unknown in Britain, and several rarities. A large number of those collected, after being authoritatively identified, were carried home to be experimented upon gastronomically.

— WE have received the following circular relative to the COMPLETION OF THE "PINETUM BRITANNICUM," which we readily publish:—"In announcing the arrangements for the completion of this work the proprietor desires, in the first place, to express his thanks to the subscribers for the great forbearance and kindness which they have extended to him during its interruption for some time past. The costly nature of the publication and its unremunerative results may perhaps be accepted as some apology for its interruption; but in his desire to keep faith with the subscribers the proprietor feels that it is incumbent on him to proceed with the work, trusting to reap in the future, by the sale of copies of the complete volume, some reward for his labour and expenditure. As originally announced, the present series of the "Pinetum Britannicum" will be completed in fifty parts, thirty-seven of which have already been published. The remainder will be issued as follows:—Parts 38 to 42 on November 1st; parts 43 to 48 on December 1st; parts 49 and 50, with title and index, January 1st. Subscribers who require back parts to complete their sets are requested to make application without delay, as very few remain on hand. There will be a few complete sets for sale after the publication of the last part, orders for which should be at once sent in, price 25 guineas. Communications relative to the work to be addressed to Mr. Edward Ravenscroft, 14, Loudoun Road, St. John's Wood, N.W.; or to Messrs. W. Blackwood & Sons, Publishers, George Street, Edinburgh, and Paternoster Row, London."

— AN address on VARIATIONS IN NATURE, read by Mr. Meehan before the American Association for the Advancement of Science, Montreal, has been published, and contains many interesting facts in reference to this subject. After briefly discussing Darwin's views he gives the following example of variation:—"Near my home in south-eastern Pennsylvania we find the common Virginia Creeper, *Ampelopsis quinquefolia*, with five leaflets. In Texas Mr. Buckley finds it with seven, in northern Pennsylvania it is found sometimes with three. Along the Canadian line it is mostly with five, but sometimes with seven. In south-eastern Pennsylvania the leaflets are usually broadly ovate, slightly serrate, dark green, and the flowers and fruit are borne on rather stout pedicels. In Colorado the leaflets are rather wedge-shaped, deeply lacinate, of a somewhat glaucous green, and the pedicels slender. In south-eastern Pennsylvania the secondary veins are delicate, curved, and diverging from each other as they extend towards the edge of the leaflet; along the shores of Lakes Erie and Ontario, especially on Goat Island, near Niagara, the veins are very prominent, straight, almost parallel, and give the appearance at first sight of Horse-Chestnut leaves. We do not regard these outlying forms as species, we do not even consider them as varieties. But why? Merely because we find in what I will call the central form a tendency to all the characters referred to. If this central one were to disappear I think

Botanists would have no difficulty in regarding the outlying forms as well-marked varieties, if not good species."

— REFERRING further on to so-called WASTE OF NATURE'S FORCES he remarks—"We discover nothing in the behaviour of plants to indicate that they are actuated by individual good further than may be necessary to enable them to fall in with Nature's great aim of preparing for the future. Millions of seeds are produced for every one that grows; millions grow for every one that lives long enough to flower; millions of flowers open for every one that yields seeds, and millions on millions of grains of pollen are produced for every one grain that is of service in fertilisation. But these surplus seeds, surplus plants, surplus pollen are useful, not to the parents which bore them, not in any way to themselves, but as sacrifices to posterity. They serve as food. They die that something else may live. They all work in with Nature's grand aim of developing something for the future. At the present time the eyes of science are turned to the past. We compare the dim view with that which is about us, and we perceive that all things have worked together for the good of the whole. We see that nothing has lived in vain. We know that in the general economy of Nature there is no waste anywhere."

— WE are informed that the usual display of CHRYSANTHEMUMS IN FINSBURY PARK was opened to the public on Sunday last the 14th inst., and the flowers will be at their best from a fortnight to a month afterwards.

— THE HERTFORDSHIRE NATURAL HISTORY SOCIETY will hold a Fungus Foray at Watford on the 27th inst., when several noted fungologists are expected to attend, amongst them being Dr. M. E. Cooke and Mr. W. G. Smith.

— MR. C. HONEY, Stamford, writes:—"I notice in the pages of your Journal an account of CHOU DE BURGHLEY, and can bear testimony to all your correspondent says, and I feel bound to add that after the lead is cut it is the most prolific green I am acquainted with."

— PART V. of "BULBS AND BULB CULTURE" (170, Strand) contains descriptions and culture of Gloxinias, Pancratiums, Tuberoses, Fritillaria, Alstroemeria, Tritoleia, Agapanthus, Muscari, Pæonia, Oxalis, and Amaryllis. Several of these will be scarcely recognised as bulbs, and the title should have been made to include tuberous plants. The cultural particulars are full and generally good, but the woodcuts are too diminutive, and in several cases unfaithful. The names, too, especially as regards the terminations, seem to indicate rather erratic ideas respecting nomenclature.

— GARDENING APPOINTMENTS.—Mr. Arthur Young, late of Holme Lacy, Hereford, has been appointed gardener to S. Barlow, Esq., the eminent Manchester florist, for his new estate Schimdda, at Llandudno. Mr. Noah Coppin, late gardener to F. Pine, Esq., West Tree, Maidstone, has been appointed gardener to C. C. Wyllie, Esq., Walden, Chislehurst, Kent.

— PART VI. of "THE HERTFORDSHIRE POMONA" is now issued, and contains faithfully coloured plates of forty-two culinary and dessert Apples, seven cider Apples, thirty-one Pears, of which nine are perry varieties. Sections and full descriptions of the varieties accompany each plate. The concluding part of the work, with introduction and index, will be published in the autumn of 1884, after the Congress and Exhibition of the Pomological Society of France to be held at Rouen in October.

— MR. DAVIS of Camberwell sends us three handsome blooms of the JAPANESE CHRYSANTHEMUMS JAMES SALTER, ELAINE, AND COMTE DE GERMANY, which we have never seen so fine at such an early date. The blooms are large, clean, and the petals of good substance. James Salter in particular is very beautiful, the soft tint distinguishing it being very clear.

— MR. J. SHORT, Darlington, writes—"In the Journal of October 4th attention is called to an example of successful culture of LILIUM AURATUM. Kindly allow me to add another under rather different circumstances. In the gardens, Heslington Hall, York, a few weeks ago, might have been seen growing in a Rhododendron bed amongst others one stem 9 feet high, having thirty-six flowers, all of them at that time perfectly formed. The bulbs in this bed had received no special treatment, but were planted, I understood, a year or two ago along with the Rhododendrons."

— THE NORTON, MALTON, AND DISTRICT CHRYSANTHEMUM SOCIETY will hold the nineteenth annual Exhibition in the Bower Memorial Schools, Norton, on Tuesday, November 27th. Classes are also provided for fruits, vegetables, agricultural produce, and birds.

— MR. B. COWAN writes:—"Mr. Ford, gardener to Mrs. Pease, Pierremont Hall, has at present a magnificent specimen of LAPAGERIA ROSEA (Fisher Holmes variety) in bloom. It is planted in a span-roofed house on the north side, covers 40 feet by 8. It has flowered principally in clusters of seven and eight each. The flowers were very large, wide in the apex, a deep red or maroon in colour, and almost too numerous to count. This superb plant is in a tub 2 feet square, and is about six years old. It was well worth going a long journey to see, and Mr. Ford told us it was much finer a few weeks since."

— THE "Journal des Roses" for October gives a coloured plate of ROSE ETENDARD DE JEANNE D'ARC, which is said to be a seedling from Gloire de Dijon raised by M. Garçon at Rouen, and sold to M. Jules Margottin, Bourg-la-Reine, in 1878. The stock was nearly lost in 1879 owing to severe frost, but has now been increased sufficiently for distribution. It is of a very delicate pale creamy white, the flower large and full, and resembling its parent in general appearance.

— THE second volume of Messrs. Cassell & Co.'s re-issue of "PAXTON'S FLOWER GARDEN" is now before us, handsomely but neatly bound, and bearing the character of general excellence distinguishing the works of this firm. It contains forty-four coloured plates, the majority very well executed, though a few are a little defective in accuracy of tints. The frontispiece is a representation of the double Bouvardia Alfred Neuner, which is fairly faithful, but the flowers are scarcely so symmetrical as they usually are on the living plant. In the gleanings and original memoranda are many interesting notes respecting rare and curious plants, illustrated with good woodcuts. The book is printed on stout slightly toned paper, and would form a useful and handsome addition to any library.

— THE last issue of the "ILLUSTRATION HORTICOLE" contains valuable coloured plates of Pothos celatocaulis, a distinct Aroid that is fast becoming a great favourite for covering the walls of stoves; Odontoglossum Londesboroughianum, a showy Orchid, with a large two-lobed bright yellow lip and red-barred sepals and petals; and Campylobotrys Ghiesbreghtii variegata, a remarkably handsome-foilage plant, with large acutely elliptical leaves, dark green, with silvery creamy and pink spots and veining, the under surface of the leaves, with the young growths and stems, being of a rosy hue.

PLANTING FRUIT TREES.

It is time to make the requisite preparations for planting fruit trees by draining and trenching the site, adding, if possible, fresh loam. Unquestionably the best of all soils for fruit trees is the top spit of a pasture where the soil is of a calcareous medium-textured loam, and the fresher it is the better. Preparing loam by stacking for months or years may be very convenient for plants in pots, as the growth of the grass of the freshly cut turf is inconvenient, but the decay that takes place is so much loss to the plants. The grit in it would be an advantage rather than otherwise, in rendering the soil more friable, and prevent that grossness of growth which, in many instances, is fatal to the production of profitable crops. Turf being not obtainable, other means must be employed to render the soil suitable. If very heavy, the surface only being loose and ameliorated, with a stiff clay beneath, it would be advisable to burn a quantity of the clay and mix it thoroughly with the surface and some part of the clayey subsoil, which will deepen the soil and be more suitable for fruit trees.

Light and shallow soils would be improved by a good dressing of marly clay, and all soils not naturally calcareous are improved by an admixture of old mortar rubbish. Deep loams are unquestionably the best, yet if they are wet the trees only make indifferent returns, hence the necessity of draining them thoroughly. Close-textured loams are improved by the addition of sand or road scrapings, and there is no doubt of the value of ashes, as well as sand and road scrapings, in improving the texture of clay soil. In the case of soils long subjected to a course of heavy manuring for the production of high-class vegetables, it is patent such will produce a tree quickly, with the certainty of its growths succumbing to gum or canker. An addition of lime, a bushel per rod, would be useful, and a good

firming of such soil highly beneficial in inducing sturdy growth—i.e., short-jointed thoroughly solidified growth.

Manure should be avoided, as the mixing of manure of any kind, leaf soil or other vegetable matter (except it be charred refuse) only tends to force wood, and young trees grow quite fast enough for the laying of the foundation of a healthy and fruitful specimen. In all cases of poorness of soil a top-dressing is the best method of enriching the soil, so that the rain may carry the liberated juices down to the roots, these latter being encouraged to the surface by the mulching of short manure, and this should be kept moist in summer by watering with liquid manure during dry weather.

Soils that are not only light and thin, resting on sand or a gravelly bottom, are the most difficult to deal with, as from the openness of the soil the trees suffer much from drought, making but a poor growth in the summer, and in autumn if it and the late summer be wet, growth takes place, which does not ripen kindly, and the consequence is the trees are much subject to canker, and this is attributed to the roots having passed into the sand or gravel, whereas it is the unripe condition of the wood consequent upon the late growths. There should be a good addition of clay or marl to such soils when the ground is trenched, chopping it into small pieces, and mixing it thoroughly with the lower portion of the soil as the work proceeds. It renders the soil more retentive of moisture in dry weather, and it is remarkable how tenaciously the roots seek and cling to it. Still more apparent is the healthy appearance of the foliage of the trees, and the steady progress of both fruit and foliage in dry periods, whilst those that are not so treated show by their flaccid foliage and checking of the growth the distress they labour under.

The practice of making a bottom for the trees at the stations where they are to be planted of brickbats and old mortar rubbish may answer some purpose. What? If to keep the roots from striking down into the subsoil it must be very inefficient for the purpose, as nothing short of concrete will do so effectually; and if for drainage, it is certainly only a very poor apology for that efficient drainage which consists in removing all water beyond the soil's retentive power within 30 inches of the surface. It is only poverty and drought at the surface that causes the roots to strike down in quest of moisture. Moisture itself is not an evil; it is when it is allowed to become stagnant that the mischief is done. Instead of these receptacles for holding water it is far better to drain thoroughly with tiles, and if the soil be naturally wet, plant on raised mounds; in fact, trees do badly more frequently through deep planting than any other cause, and should be studiously avoided.—G. ABBEY.

WHICH IS THE BEST LATE PEA?

THIS is a good time to ascertain from the multitude of varieties which under the greatest difference of climate, soil, treatment, and circumstances gave the greatest satisfaction. In the absence of a Pea congress or election we look to the gardening journals for information. I have had a wide field of observation lately from Cork to Dublin to gather the views of others, and this seems to be the general conclusion in the majority of cases. Ne Plus Ultra is very generally grown, and holds a well-established reputation among Marrows when sown the first half of the month of May. A few had either heard of or grown Mr. Laxton's new Pea Evolution, Sutton's Latest of All, Kelway's Bruce Findlay, and Carters' Telephone, but none of those was grown as largely or spoken of as highly as Carters' Stratagem. Personally I have found the quality excellent up to the present, and when planted on rich soil and in an exposed position there is no risk of mildew. It requires plenty of room and a deep soil. It is surprising the depth the roots will travel for nutriment; the foliage is rich glossy dark green grown thus, and it has the further great advantage, that when fully exposed and grown robustly it requires little staking. Of wrinkled Peas I found few to excel Bruce Findlay this year.

For latest use I am not sure if Ne Plus Ultra is not still the best. Larger growers may be able to throw light on the point.—W. J. M., *Clonmel*.

LIFTING AND STORING GLADIOLI.

THIS is a matter requiring immediate attention, and upon which the best authorities seem to disagree. That veteran grower "D., Deal," would place each corm in a flower pot to ripen towards the end of this month or the beginning of the next, while Mr. J. Douglas advocates cutting off the plants close to the crown of the bulb at once. I have grown the choicer Gladioli long, and watched the results with considerable keenness, but I must confess I cannot agree with Mr. Douglas's recommendation. I plant from the end of February to the first week in April at intervals, and there is none now ripe or withered but *G. brenchleyensis*, and whether it is lifted or left in the ground that variety lives readily through the winter. I consider that when frost comes towards the end of this month growth has ceased, but maturation, or ripening of the corms, has only commenced. If left in the ground, and

that they are sufficiently deep, with the winter mild and soil porous, a choice variety may escape, but those who grow rare and expensive hybrids will run no such risk. When lifted, how can maturation take place if the stem is cut away quite green? If Mr. Douglas maintains that no injury accrues to the corm by cutting away the stem, our positions will be intelligible. It would be well if there was an expression of opinion on the point, as possibly it may be the explanation of the mystery—the Gladioli failure so many complain of. As often stated in the Journal, my plan is to lift the corms and let the process of ripening or maturation then slowly take place. Leave the labels attached to the stems, no clay usually remains attached, the spawn are undisturbed, plenty of river sand is procured just immediately before it is required, so as to be moist—this is within the reach of most people. I am particular about the sand being moist. The plants as lifted are then placed on a dry loft uprightly, the sand placed around the corms; sand, corms, and stems then slowly dry out, and a month or two after, when examined at leisure, I venture to say every corm will be as hard as a bullet, and not one gone. Everyone may therefore grow Gladioli so far as winter risks are concerned.—W. J. MURPHY.

THE NATIONAL APPLE CONGRESS.

VISITORS to the great Apple Show at Chiswick have found ample material for study and reflection. Those especially who have large collections or who are about to plant extensively have been well rewarded for their journey. No better opportunity could have been afforded of comparing the characters of the numerous varieties, and whether the cultivator requires large and handsome or richly coloured varieties he has had abundant facilities by making a selection. It is true that there is one important quality that could not be ascertained by these exhibits, and that is the freedom with which the several varieties bear; but a means of determining the value is furnished by the number of exhibitors from different districts who stage them in good condition. For example, there are some Apples, such as Peasgood's Nonesuch, which are almost equally good from a great number of widely separated counties, and in these cases it may be safely concluded that the variety is a reliable one in all the important characters. In the official report which is to be ultimately issued under the direction of the Committee, these facts will be probably tabulated, so that it will be seen at a glance which are the most general favourites, and valuable information will thus be furnished to Apple growers. To aid in rendering the official report still more valuable circulars are being issued to all the exhibitors, requesting them to describe the situation on which the varieties shown have been grown, soil, subsoil, stocks, character of tree, best twelve culinary varieties for the district, the same number of dessert varieties, with any general remarks bearing upon the subject. That the majority will fill up and return these forms may be reasonably expected, and as about 130 growers will be consulted a mass of valuable information will be obtained, that when digested and arranged will constitute a compendium of Apple lore never before equalled. It is, however, probable that the public may have some time to wait for this, as the work will necessarily be great, and must be thoroughly done to be of any benefit. In the meantime, therefore, a few selections may be given of the typical varieties, commencing with the

LARGEST AND MOST HANDSOME APPLES.

Two of the largest specimens in the Exhibition are of Gloria Mundi, one in the Middlesex collection, which is nearly 14 inches in circumference, and weighed when cut 1 lb. 2 ozs.; the other is in the Sawbridge-worth collection under the name of Belle Dubois, and is very similar in size, but not quite so deep. Some fine examples of Lord Suffield also equal the dimensions of the first named, Alfriston coming very near, and perhaps in several cases exceeding it in weight, while Loddington is equally notable in a number of collections. The following include all the large and handsome Apples most numerously represented:—Annie Elizabeth, Bedfordshire Foundling, Betty Geeson, Blenheim Pippin, Catshead, Cellini, Claygate's Pearmain, Cox's Pomona, Dumelow's Seedling, Dutch Codlin, Ecklinville, Emperor Alexander, Gloria Mundi (Belle Dubois), Golden Noble, Golden Spire, Gravenstein, Grenadier, Hanwell Souring, Harvey Apple (shown as Dr. Harvey), Hollandbury, Irish Giant, Kentish Fillbasket, Keswick Codlin, Lady Henniker, Landsberger Reinette, Lane's Prince Albert, Lewis's Incomparable, Lord Derby, Lord Grosvenor, Lord Suffield, Manx Codlin, Peasgood's Nonesuch, Queen Caroline, Reinette de Canada, Round Winter Nonesuch, Royal Russet, Scarlet Admirable, Shepherd's Fame, Stirling Castle, Tower of Glamis, Waltham Abbey Seedling, Warner's King, Washington, and Winter Hawthornden. Two very handsome Apples may be added to these, one a new variety that is represented well in a few collections—namely, The Queen, which is particularly good in Messrs. Saltmarsh's and Messrs. Bunyard's stands. The other is Grand Duke Constantine, which we only observed in Messrs. R. Smith's contribution. It is not, however, a new variety, though a very beautiful one, being of great size and finely streaked with rich crimson. It is of Russian origin, but does not appear to be much grown in England, though it is well worthy of attention.

THE RICHEST-COLOURED APPLES.

In no quality is there so great a range of variation as in the colour of the Apples shown, of course taking them generally. The southern exhibits are of the richest tints; but amongst these, samples of the same variety from one county, and even from neighbouring gardens, differ greatly in brightness. Climate and latitude undoubtedly exert the chief effect, but that much is due to soil is observable in many instances. A striking

example of this is included in a collection from Bedford, the variety Manx Codlin being shown of a uniform yellow tint from a standard tree on a clay soil, but the same variety from a gravel soil has a deep red side, the colour also suffusing the other portion of the Apple. The Kentish Apples are supreme in colour, and though several other counties equal these exhibits in size none contains so many finely tinted samples.

The following are the leading coloured varieties, a few being local:—Algarkirk, American Mother, Calville de Dantzig, Colonel Vaughan, Cornish Aromatic, Cox's Pomona, Countess Howe, Court Pendu Plat, Cowarne Red, Devonshire Quarrenden, Emperor Alexander, Fearn's Pippin, Forge, Fameuse, Herefordshire Beefing, Hollandbury, Honeymoon, Imperial, King of the Pippins, Kingston Black, Lord Lennox, Mabbot's Pearmain, Maiden Apple, Margarete Reinette, Marriage Maker, Mignonette Rouge, Nanny Apple, Norfolk Beefing, Premier, Prince's Pippin, Pym Square, Red Autumn Calville, Red Astrachan, Red Cadbury, Red Autumn Calville, Rasenhäger (Sweden), Red Joanetting, Scarlet Admirable, Scarlet Pearmain, Soldier, Swedish Reinette, Sweet Kingston, Tom Putt, Trumpington, Winter Queening, Wilson's Prolific, Winter Reinette, Worcester Pearmain, and Herefordshire Beefing.

STREAKED APPLES.

Though several of these are included in the two preceding lists they may be enumerated together, as they form what might be termed a distinct popular type, and are very attractive:—Beauty of Kent, Burford Red, Citron Apple, Cliffey Seedling, Cowen's Victoria, Devonshire Nine Square, Devonshire Queen, Fameuse, Flower of Kent, Hall Door, Hoary Morning, Jefferson, Margil, Monmouthshire Beauty, Nanny Apple, Pomme de Nieve, Pomroy, Red Rawlings, Redstreak, Ronald's Royal Pearmain, Striped Beefing, Sam's Crab, Sheep's Nose, The Queen, and Webster's Harvest Festival.

VARIETIES CERTIFICATED.

The Fruit Committee held a meeting at Chiswick on Thursday the 11th inst. to examine the numerous seedlings and new varieties submitted, but the result of their labours was not very satisfactory, for only two were considered sufficiently meritorious to deserve a certificate—namely, Grenadier, shown by Messrs. G. Bunyard & Co., Maidstone, which we figured last week, page 321, and Bramley's Seedling, from Mr. H. Merryweather, Southwell, Notts, which is figured in the present issue, page 341. Of the others some were considered fairly good and promising, but further particulars were desired respecting them; one, however, with a grandiloquent title, was rather forcibly denominated "a beast."

I HAVE been much gratified by closely examining the Apples shown at Chiswick. The information elicited and recorded will be very useful, but to trust to this Show alone will be very unwise for intending planters of Apple trees. There should be a Show next Christmas, and also in March, June, and October of 1884. Growers will then have more time to give further details of stock, soil, subsoil, climate, &c.

It has been long known that some sorts succeed well under certain conditions, but are nearly worthless under others. It is quite clear to me that heavy soils with clay subsoils will never be able to compete with Kent in growing Apples for market. Nevertheless, it will be a boon for persons growing for own consumption to know what sorts do best under such adverse circumstances. It is easy enough to improve the top soil, but very difficult to alter the subsoil; and therefore I consider information as to subsoil is most important.

I have a Sturmer Pippin tree which for some years bore good and clean fruit, but lately the produce has been poor in size and specky. This result I attribute to the roots having got down into the subsoil, although as well drained as a water clay subsoil can be.

This season of 1883 has doubtless been in many places (not in mine) a very good one, and thus some sorts have fruited finely which in other years have not done well. Therefore, I think a show in an adverse season would do as much good as the present one; but this will always remain to be the right thing done, as exhibiting the results of a generally good Apple year.

Mr. Harrison Weir's experiments are very interesting. Will he kindly state in your columns the nature of his subsoil, and the sort of stock the Early Strawberry was grafted on that was renovated by Duchess of Oldenburg on it? I have found by grafting Warner's Seedling (a provisional name) on an old cankered Crab-stock Apple tree, that the old stem is less and less cankered every year—indeed, nearly now clean. We must have Plum and Pear shows, and in London, not at Chiswick.—ROBERT WARNER, *Broomfield, near Chelmsford.*

GARDEN CHEMISTRY.

APPLICATION OF MANURES.

BEFORE being able to apply manures to the greatest advantage we must understand how they stand in relation to the soil; but as this will be discussed more fully under another heading it is only necessary to say here, that while the soil fixes and secures part of the manure against loss, other portions, and those the most valuable, are not held by the soil, but are liable to be washed away by the rain. Nitrogen in the organic form, or even as ammonia, is not liable to be thus lost to any serious extent, but these, especially in summer and autumn, are readily converted into nitrates, which the soil does not hold, and which can always be detected in drainage water from fertile fields,

but more especially gardens. This is one reason why manure should always be thoroughly prepared. Fresh manure in spring is not in a condition to yield much food to plants, because it is not prepared. During summer and autumn this preparation goes on in the soil, and often manure is lost because it becomes plant food after the plants it was intended to feed are removed. The general idea is that what is over will be available next season. This is only partly true. So far as regards the best of it the winter rains carry it away in the drainage. When very thoroughly prepared, on the other hand, the plants get the benefit of its virtues at once, grow in the best manner possible, and by autumn there is comparatively little to lose. It has been utilised.

Then much manure is dug in too deeply. Manure should be placed where the roots of plants can find it the moment they push. Too often time is lost by the plants being obliged to stand still till the roots find the manure. Not only does this cause a stunted growth at first when luxuriance is wanted most, but it is also the cause of late luxuriance when luxuriance is an evil. When manure is dug in deeply, or even trenched down as it often enough is, before the roots of many things reach it, the season is half lost and the nitrogen down the drains.

In applying manure for nine purposes out of ten there is no better way of doing so than spreading it over the surface and forking it up with the surface soil; but in order to be able to do so it must be very short and the soil dry, otherwise it should be dug in as near the surface as practicable.

For most crops it is best to apply the manure in spring, and this even in the case of those put in late in autumn. Onions, Spinach, winter Cabbage, spring bedding stuff stand the winter best, and ultimately give superior results when put out in soil moderately rich only, and helped by top-dressings of manure so prepared as to be ready to yield up their goodness at once, or by heavy drenchings of liquid manure.

In the case of fruit trees, unless newly planted, the application of manure is apt to do, not good but evil, should the spring frosts cause the trees to miss fruiting; but when trees, including Raspberries, Gooseberries, Strawberries, are seen to have set a crop, and are not in the best luxuriance, then is the time to give help, not only to secure the finest crops possible, but to prevent the exhaustion that causes future failure. If ordinary manure is used for this purpose as top-dressings it must be thoroughly prepared or it will be of no use. In the case of artificial manures they cannot possibly be too thoroughly diffused, and should, therefore, be carefully sprinkled over the surface and thoroughly mixed in with it.

There are times to give manure and times to withhold it. The time for applying it to nearly all vegetable crops is just exactly when they come into being, for a thoroughly good start in the seedling and at the transplanting stages is more than half the battle. This constitutes one more reason why manure should be very thoroughly prepared and forked into the surface only. To apply it rank and raw, and deeply dug in, is to court failure in every but the best soils in the best condition. For the flower garden surface-manuring in spring secures a vigorous start that lasts, and is supported during summer when dense flowering and hot suns tend to exhaust; and by the time cool nights and autumn rains encourage leafy growth at the expense of floriferousness, instead of this evil being intensified by the discovery on the part of the roots of deeply dug-in manure, the manure is spent and floriferousness secured.

To feed young Vines which are growing with great luxuriance is to run the risk of making—nay, to secure the certainty of causing, growths that may be large, but will surely be full of pith, sap, and not fruitful. To let them starve when a heavy crop is swelling is to attempt to run uphill without steam. The conviction grows on us that all such subjects are best managed with abundance of mineral food. This of itself will not secure the best results, but when it is always present we may be considered to have the steam well up and only requiring to be turned on. Applying nitrogen does this. Nitrogen itself will not secure a response, mineral matter alone will not; but if a plant has at its disposal enough mineral matter, and nitrogen be supplied, the response is immediate. Growth may be, and often is, too luxuriant for fruiting or flowering. Less nitrogen will secure a flowering fruiting habit, but fruit and flowers may be scanty because of stunted growth: then is the time to give more nitrogen. A friend of mine in East Lothian had a fine batch of winter-flowering Pelargoniums. They were fed with mineral matters. To increase their vigour and production of flower sulphate of ammonia was given them. They at once went off into leafy luxuriant flowerlessness. Had the plants been suffering and stunted the effect of a careful application would have been what was desired.

We cannot in the present instance enlarge on this point, but it is without doubt an important one to which not enough attention has been given. One more instance we will give. Some years ago we had a long line of French Marigolds put out in poor soil purposely in order to keep them dwarf. As they usually do under such circum-



Fig. 63.—THE GREAT VINERY AT CHISWICK.

stances, they came very light in the colour. A florist friend told me that nitrate of soda would darken them to any shade desirable. To prove this it was given freely at one end, less so at the other; in fact graduated from nothing at one end to a good dressing repeated at the other. To my surprise it was exactly as my friend had told me. At one end, where most was given, the plants, which at first gave pure yellow flowers, became first striped, then grew darker till they came without a trace of yellow. Those that had none remained yellow, while as the manure was graduated the flowers gradually became deeper and deeper in colour. Not so long ago stinting for want of water was generally practised in order to ripen off Peach trees and even Vines. But this course was not always satisfactory, causing as it did dropping buds and weakly trees. Under glass late and early firing and more moderate growing have been the means adopted to secure thorough ripening, and therefore fruitfulness. I am convinced that by the proper use of mineral food and nitrogen this process can be materially forwarded; luxuriance, hard driving, can be practised with safety when required, when the fruit is swelling or dense floriferousness threatens to break down the energies of the plant; and stinting be practised, not by starving but by judicious and wise feeding.

There is one way manure is given that I must warn against, even at the end of a long chapter. It is giving it to vegetables forced in darkness. Judging from calendars, we should imagine the giving of manure water and rich soil to Rhubarb, Seakale, Asparagus forced in darkness, to be universal in order to feed it or cause greater growth. It does not. It is the matter formed in the green leaf under sunlight that contributes to plant-growth, and it is such matter stored up in stems and roots that is drawn out when forcing in darkness is done. Were there no other evil following except the loss of manure no great harm might result; but giving diluted urine, infusion of animal dung, or guano water to forcing plants to drink is not better than pouring sewage into wells. As found in the plants such are not altered to plant tissues; they remain as poisons filthy and dangerous.

—SINGLE-HANDED.

THE GREAT VINERY AT CHISWICK.

THE National Apple Congress has drawn much attention to the handsome vinery in the Royal Horticultural Society's Gardens at Chiswick, and as it presents one of the most beautiful spectacles that a pomologist could wish to see, we have thought it a good opportunity to give an engraving of it prepared from a photograph taken by Mr. C. Henwood, High Road, Chiswick. The house may be termed the head-quarters of the Exhibition, but does not represent its magnitude. The largest portion of the finest exhibits are contained in it, the contributions from Kent, Middlesex, Hertfordshire, Sussex, Berkshire, and Essex occupying the principal part of the space, four or five smaller houses being also filled with Apples.

An excellent description of this vinery is given in Mr. A. F. Barron's work on "Vines and Vine Culture," which we extract as follows:—

"This noble vinery—probably the largest structure devoted to the cultivation of Grapes in existence—was originally erected as a plant conservatory, forming the first portion of a grand building in the form of a + with a central dome, projected for erection in the Horticultural Gardens at Chiswick, when Chiswick was at its zenith and the leader of horticultural progress. It was built by Messrs. Bailey of London nearly fifty years ago, and, as we were informed by the late Mr. R. Thompson, the cost was something about £4500, a heavy duty then existing on glass. It is a span-roof curvilinear structure of iron and glass, 180 feet in length, 30 feet in width, and 26 feet high, running east and west, and heated by two of Stevenson's patent boilers, fixed by Messrs. Burhidge & Healey. Ventilation is obtained by ventilators on both sides over the piping, and from a ridge lantern; this, although apparently very limited, is very perfect and quite sufficient.

"In the year 1857, the cultivation of plants having been abandoned, it was proposed by the late Mr. G. McEwen, then Superintendent of the Gardens, to plant it with a collection of Vines, and this was accordingly done. Borders on the most limited scale were prepared, both inside and outside; that on the outside was about 5 feet in width, bounded by a broad gravel walk on a raised terrace; and that inside the house was about 9 or 12 inches in depth, and formed on the surface of the stone pavement of the conservatory."

Numerous varieties of Grapes were first tried in the house and afforded an opportunity of determining their relative merits; the worthless sorts were subsequently removed, others being cut down and grafted with proved varieties.

"At the present time the varieties cultivated are chiefly those standard sorts which have been found suited to the house—viz., Black Hamburg or Frankenthal, which is the best of all, Alicante, Gros Guillaume, Madresfield Court, Gros Colman, Lady Downe's Seedling, Black Prince, Black Monukka, West's St. Peter's, Dutch Hamburg, Buckland Sweet-water, Raisin de Calabre, and Muscat of Alexandria.

"The greatest number of bunches produced in one season was four thousand five hundred (4500), their aggregate weight being somewhat over two tons."

It will doubtless be satisfactory to many to learn that the Exhibition is to continue open until the 25th inst., a prolongation of time that will

probably enable some hundreds to visit the Show who have not at present had the opportunity of doing so.

CENTAUREA ARGENTEA.

THIS occurs to me to be one of the most useful of all white-foliaged plants suited for hedging purposes. It is perfectly hardy and easy of propagation, division of the root being the best method, though it strikes freely under handglasses or in a cold frame. It is of a naturally spreading habit, hence easily kept in its place, and it is far whiter than *Cineraria maritima* or *Centaurea ragusina*. I have not seen this plant used much in England, but it is in great favour here. I am propagating all I can obtain of it. This plant would look well mixed with *Verbenas*. I saw a hed of these the other day remarkably bright, and it appears to me that it should be in all gardens where hedging is a speciality.—J. PITHERS.

GARDENERS' BENEFIT SOCIETY.

SEVERAL of your correspondents have been lately advocating the founding of a Gardeners' Benefit Society. They do not seem to be aware that there is such a Society in good working order, and the funds of which are economically managed and husbanded.

About the year 1865 a considerable number of the leading gardeners in the suburbs of London met, and after several meetings brought the subject before the public by holding exhibitions in the City of London. The first was held in the Albion Hotel, Moorgate Street, and figured in the *Illustrated London News* of April 22nd, 1865. The next exhibition was held in Finsbury Circus, and most handsomely assisted by the residents of the Circus. Many will remember the two following exhibitions held in the Guildhall of the City of London, the use of which was kindly and unreservedly granted by the Lord Mayor, the Aldermen, and the Common Council of the City, and resulted in starting the Society with a sum of several hundred pounds. The leading working members of the Committee at that time were the late Mr. Osman Rhodes, who was the original promoter, William Marshall, Esq., James Crute, Esq., and Shirley Hibberd, Esq.

The Society was advertised and made known from time to time in the horticultural papers, and has gone on gradually increasing quietly and unobtrusively since. The funds in hand in January last were—in the Benefit Fund, £1504 16s. 6½d.; Benevolent Fund, £856 11s. 4¼d.; Management Fund, £3 8s. 10d.

I may state here the reason it is not advertised more extensively is from there being no fund for the purpose. The moneys of the Benefit and Benevolent Funds cannot be used for other than their legitimate purposes, and nothing has surprised me more than the lukewarmness displayed by gardeners in supporting such a praiseworthy institution, as our object in founding this Society was not to make it a charity, but to endeavour to make the members provident, and in time of need come upon the funds as a matter of right. Owing to various causes there have been no exhibitions held for its benefit in late years, neither would they be required if gardeners would support it as they ought.

The name of the Society is The United Horticultural Benefit and Provident Society, and the Secretary is Mr. John F. McElroy, The Gardens, Moray Lodge, Campden Hill, Kensington, W., and whose respected employer I notice is an annual subscriber of one guinea. Mr. McElroy makes it a labour of love, working without remuneration at present, and he will be pleased to give any information required. The Trustees, Committee, &c., are all elected according to the rules. The financial part of the Society was vouched for as being safe by A. G. Finlayson, Esq., the Government Actuary. The Society is well named Benefit and Provident, as, unlike any other benefit society, the members' moneys keep accumulating, with interest added each year, each member's account being kept separate; and the rules seem so adequate to reduce the call on the Benefit Fund to a minimum, that they should be carefully read by all wishing to join. There are no entrance fees, and no money fines for non-payment of subscriptions, this being specially provided for in the rules. For instance, my share of the sick pay was for 1877—1s. 9½d.; for 1878, 8½d.; for 1879, 1s. 0½d.; for 1880, 1s. 6d.; for 1881, 1s. 1¼d.; for 1882, 5d.; to January, 1883, 6¼d. The remainder of the members' subscription is placed at interest as before stated. I find I am member No. 1, having been the first Secretary, and joined in 1866, and I have placed to my credit, according to the balance sheet issued in February last, £38 5s. 0½d. There is no burial fund, the member's own money supplying this when required.

The benefits are 16s. per week in sickness, for which the subscription is 9d. per week, and 10s. 6d., for which 6d. per week is paid, and 2s. 6d. to the Management Fund, and 3s. to the Benevolent Fund annually. I trust the publicity now given may induce gardeners to come forward and join a Society founded specially for their benefit.—WILLIAM HEALE, *Lowfield Nurseries, Crawley, Sussex.*

N.B.—The annual meeting is held in February of each year. The sum now invested in 3 per cent. consols is £2485 1s. 10d.

ORANGE FUNGUS ON ROSES, &c.—We have been very much troubled with this of late years. Last year I took up and replanted several hundred Rose trees, which seemed to prevent the fungus coming so soon this year, but it did not cure them, as it appeared again as had as ever last month, and as the fungus is on the lower surface of the leaves it is very difficult to do anything to prevent it. I have seen a fungus much

like it on the Coltsfoot and Marshmallow and the Hollyhock, and also on the common Groundsel. I should like to know if they are alike or of a different kind.—GEO. CLEMENTS.

THE ROSE ELECTION.

GARDEN ROSES.

FROM various causes this election of garden varieties is scarcely satisfactory, at least to myself. Some few among the voters have understood the limitation of age in the newer varieties election to apply also to garden varieties; these returns, having evidently been framed on a misunderstanding, I have set aside. But again, another set I cast aside on first thoughts but afterwards included them, as, although they greatly modify the ultimate result of the poll, yet they are not really misleading in the general total. The returns in question wholly ignore the Tea and Noisette Roses, and in fact appear to have answered the question as though it had been "The best garden varieties among exhibition Roses of Hybrid Perpetual character," instead of "What are the best garden Roses?" To me it appears that this question is open enough to include any variety of Rose, and I am at a loss to understand how some of the Teas cannot be inserted. What, then, it may be asked, are the good qualities of garden Roses? I will try to answer this question according to my light. Firstly, then, it appears to me absolutely necessary that garden Roses should possess vigour of constitution. It is not probable that in ordinary gardens the Roses will be petted and taken care of through the winter; on the contrary, with rare exceptions they will be allowed to take their chance. Here and there one or two, being special favourites, may obtain some extra care, and therefore I should not be surprised at any list of twenty-four varieties containing two or more tender Roses, but I should expect these to be exceptions. Then they need to be free-blooming, and this may be produced either by perpetuality of bloom during the whole season, or by the excessive abundance during a shorter period, as in some of the summer Roses. Yet again, variety of Rose is essential, and as nearly allied to this requisite, distinctness. These qualities I should expect to find in a list of twenty-four varieties, and according to my humble and very fallible judgment, few, very few, of the lists sent appear to be framed on these principles.

I have in this election kept the two classes of voters distinct, not so much because I considered it necessary, but that it renders the return more interesting to compare the opinions of the two different classes of voters. These opinions are curious; for instance, Boule de Neige, Senateur Vaisse, and Mrs. Bosanquet, in all of which, although the nurserymen are only as two to three in proportion, the nurserymen's votes are far in excess of the amateurs'. Bouquet d'Or is a notable instance of the opposite kind, as no nurseryman mentions it.

The columns are the same as in the other election.

Order.	Name of Rose.	Character of Rose.	Date of Introduction.	Raiser's Name.	Amateurs' Votes.			Total.	Nurserymen's Votes.			Total.	Grand Total.
					A	B	C		A*	B*	C*		
1	Gloire de Dijon	T.	1853	Jacotot	14	2	0	16	9	0	0	9	25
2	La France	H.P. or H.T.	1867	Guillot, fils.	10	3	0	13	9	1	0	10	23
3	Jules Margottin	H.P.	1853	Margottin	7	4	1	12	4	1	2	7	19
4	Général Jacqueminot	H.P.	1853	Rousselet	4	4	1	9	6	3	1	10	19
5	Souv'r de la Malmaison	B.	1843	Lacharme	4	4	4	12	2	4	1	7	19
6	Cheshunt Hybrid	H.T.	1873	G. Paul	4	2	4	10	1	2	3	6	16
7	Boule de Neige	H.P.	1867	Lacharme	0	4	2	6	0	3	7	10	16
8	Duke of Edinburgh	H.P.	1868	G. Paul	3	5	1	9	3	2	1	6	15
9	John Hopper	H.P.	1862	Ward	3	5	2	10	2	1	2	5	15
10	Dupuy Jamain	H.P.	1868	Jamain	2	3	4	9	1	1	3	5	14
11	Dr. Andry	H.P.	1864	E. Verdier	1	0	6	7	2	0	3	5	12
12	Celine Forestier	N.	1860	Trouillard	1	2	4	7	0	2	3	5	12
13	Marie Baumann	H.P.	1863	Baumann	3	2	3	8	3	0	0	3	11
14	Alfred Colomb	H.P.	1865	Lacharme	2	3	2	7	2	1	1	4	11
15	Madame Victor Verdier	H.P.	1863	Victor Verdier	2	3	2	7	0	2	2	4	11
16	Charles Lefebvre	H.P.	1861	Lacharme	1	3	3	7	1	0	3	4	11
17	Marquise de Castellane	H.P.	1869	Pernet	2	1	5	8	0	1	2	3	11
18	Baronne de Rothschild	H.P.	1867	Pernet	3	2	1	6	2	1	1	4	10
19	Senateur Vaisse	H.P.	1859	Guillot, père.	1	3	0	4	3	3	0	6	10
20	Prince C. de Rohan	H.P.	1861	E. Verdier	1	1	4	6	2	0	2	4	10
21	Mrs. Bosanquet	Beng.	—	Madame Peau	1	0	2	3	1	2	3	6	9
22	Fisher Holmes	H.P.	1863	E. Verdier	1	0	6	7	1	0	1	2	9
23	Homer	T.	1859	Moreau-Robert	0	2	3	5	0	1	3	4	9
24	Charles Lawson	H.C.	1853	—	0	1	6	7	0	1	1	2	9
25	Common Moss	—	—	—	1	1	4	6	0	0	2	2	8
26	Beauty of Waltham	H.P.	1862	W. Paul	1	1	1	3	0	0	4	4	7
	Princess L. Victoria	H.Cl.	1872	Knight	1	1	3	5	0	0	2	2	7
28	Marie Van Houtte	T.	1871	Ducher	0	3	0	3	0	2	2	4	7
29	Duke of Connaught	H.P.	1875	G. Paul	0	1	3	4	0	2	1	3	7
30	Bouquet d'Or	N.	1872	Ducher	0	2	4	6	0	0	0	0	6
31	Victor Verdier	H.P.	1852	Lacharme	0	0	1	1	0	1	4	5	6

Of the remainder, eleven Roses obtained five votes; ten varieties reached four votes; eighteen others were mentioned three times; as many as thirty-five had but two votes, and it will scarcely be believed that in the total of 182 Roses named, seventy-seven, very nearly half, were only mentioned once. It seems to me, writing only from memory, that in no previous election have so many Roses had but a

solitary admirer, and yet the number of voters amounts to but twenty-eight. I certainly had made up my mind before the receipt of the lists that the lovely Banksian Roses would have had a few admirers, but they are amongst the solitary. Rose de Meaux again has but two friends, one being our esteemed friend "D., Deal," the other the returning officer. This, too, was most unexpected to me. "D., Deal's," list appears to me to meet my ideas of "garden" varieties more than any other, although that of Mr. J. Sladden is also of a similar character. As they may interest some of our readers, I give these two lists:—

"D., Deal's."	Mr. J. Sladden's.
1. Gloire de Dijon	Gloire de Dijon
2. Céline Forestier	Souvenir de la Malmaison
3. Rêve d'Or	Mrs. Bosanquet
4. Cheshunt Hybrid	Common China
5. Princess L. Victoria	Aimée Vibert
6. Blairii No. 2	John Hopper
7. Common Cabbage	Jules Margottin
8. Rose de Meaux	Queen of the Bourbons
9. Common Moss	Crimson China
10. Rosa Mundi	Céline Forestier
11. Settina	La France
12. William A. Richardson	Belle Lyonnaise
13. Rosa rugosa	Madame Plantier
14. Souvenir de la Malmaison	Felicité Perpetuelle
15. Cramoisie Superieure	Crimson Bedder
16. Lamarque	Fisher Holmes
17. Paul Ricaut	Blairii No. 2
18. Persian Yellow	Baronne Prevost
19. Jean Cherpin	Common Cabbage
20. Stanwell Perpetual	Charles Lawson
21. Crested Moss	Paul Verdier
22. Madame Plantier	Dupuy Jamain
23. Longworth Rambler	Fulgens
24. Paquerette.	Common Moss

Personally I am surprised that La France, one of the freest bloomers and most fragrant varieties, finds no place in the first list, but possibly its habit of declining to open in rough weather may have told against it. Still, either of these lists, containing different varieties as they do, yet seem to my view the fittest returns of "garden" Roses.

It must be confessed that this list of "garden" varieties, as brought out by the returns, has an unmistakeable aroma of the exhibition tent. Indeed it is not until we reach No. 25, the common or old Moss, that we arrive at a variety that has not figured in some exhibition stand during the last five years, whilst from 13 to 18 inclusive we find some of our best exhibition sorts of Rose; and out of the thirty-one tabulated very few indeed would not pass muster where seventy-two varieties were asked for.

Again I thank most heartily those who have assisted me by making returns. We may not absolutely hit the exact truth, and the collective opinion may not always be correct, but it is a sure move in that direction.—JOSEPH HINTON, Warminster.

WHITE ELEPHANT POTATO.

LIKE your correspondent Mr. Harrison, I find that the White Elephant Potato is, on heavy soils, a wonderful cropper, and I can safely say no other Potato grown here can match it for cooking qualities and flavour. I obtained 2 lbs. from Messrs. Daniels Brothers, Norwich, three years ago (to whom, I think, this Potato owes its publicity), from which I had over 80 lbs., many of them weighing 2½ lbs. each, and I have this year an immense crop of large sound Potatoes; but I find that if they are left in the ground too long after showing ripeness they are liable to disease. Therefore take them up in good time and you have the remedy.

The first year I grew them I exhibited a dish of them at our local show, and was told by the judges that they were cattle Potatoes, only fit for pigs. Since then some of these judges have grown them; and to show the fallacy that even judges are liable to fall into, I will just relate that I managed to get a dish of these very Potatoes prepared for the judge that took the greatest objection to them, and upon his being questioned as to the quality he declared it was a good, dry, floury Potato, and no better could be wished for. I have this year grown about eighteen different varieties, and took all the first prizes in our Cottagers' Show. My judgment is, there is no Potato for a poor man to surpass the White Elephant.—LOUIS BISSENDEN.

PANSIES AND VIOLAS.—Your correspondent "H., Notts," has contributed notes on the above flowers. Can any of your correspondents tell us the difference between Pansies and Violas as sold and grown, and I might also say exhibited, at the present time? I once put this

question to the late Mr. H. Hooper of Bath, whose decease I am sure will be lamented by many florists who had the good fortune to know him, but his answer was not at all satisfactory. The same subject has also occupied the attention of more than one Lancashire botanical society with which I am acquainted, and the decision arrived at being—Sow a packet of seed; call the good large flowers Pansies, the poor ones Violas.—WM. PLANT.

CONGRESS APPLES.

BRAMLEY'S SEEDLING.

ABOUT seven years ago fruits of this Apple were sent to us by Mr. H. Merryweather, Southwell, Notts, and we then predicted that it would prove to be a valuable variety. This prediction has been to a great extent verified, for the Apple has increased in public favour, fruits have been highly commended by the Fruit Committee of the Royal Horticultural Society at South Kensington, and at Chiswick last week it was one of the only two varieties honoured with certificates amongst the numerous seedlings submitted. As the woodcut (fig. 64) shows, the fruit is of good size, somewhat like Ecklinville Seedling, but, very dark green in colour; it also varies in shape and size, some being larger and others smaller than the specimen represented, more oblate and angular. It is heavy, the flesh being white, juicy, and melting, with a brisk but not too sharp acidity.

The variety was raised from seed by Mr. Bramley of Southwell some years ago, and was obtained from him by Mr. Merryweather

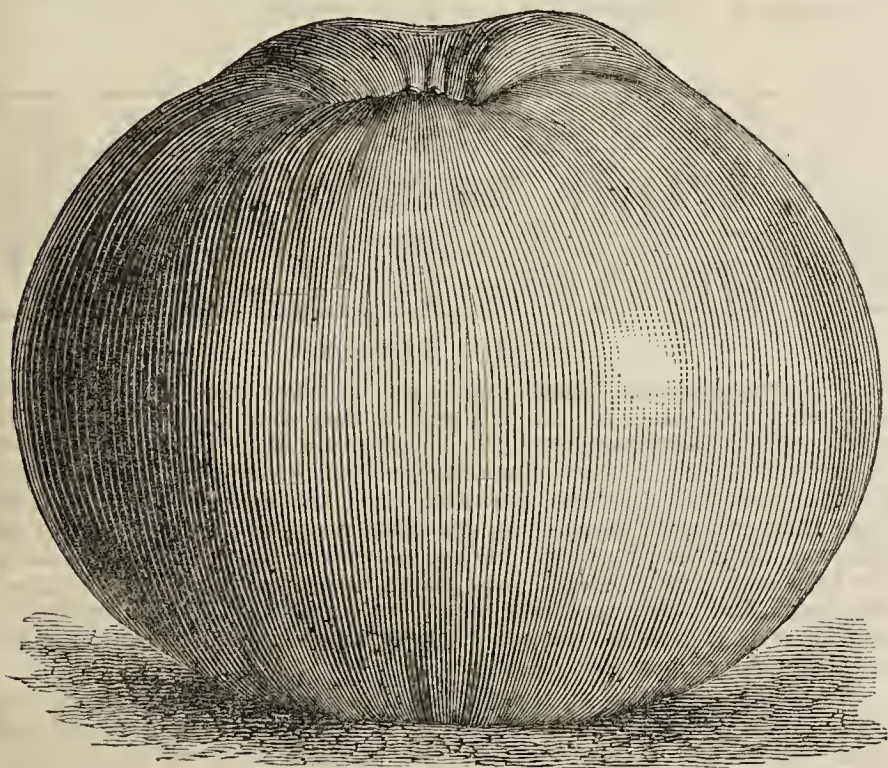


Fig. 64.—Bramley's Seedling Apple.

who distributed it to his customers in the neighbourhood, giving great satisfaction. The tree is strong in habit, quite free from canker, and is especially noteworthy for the character of bearing freely during bad seasons; in fact it is a very constant and abundant bearer. It is said by the exhibitor to be "ready for use when gathered, but can be kept until the following June, and cannot be surpassed as a kitchen variety."

THE INSECT ENEMIES OF OUR GARDEN CROPS.

No. 8.

THE greatly increased culture of the Strawberry throughout Britain has of late made us better acquainted with its insect foes, although we find that in some important points in their history we have still much to ascertain. As was to be expected, new enemies have appeared, tempted to attack the plant by the circumstance that now it is often cultivated, not in the limited area of the old-fashioned Strawberry beds, but upon extensive tracts of land. Other enemies we notice are doubtless species that have long frequented the plant, which, however, were scarcely observed when Strawberries were less grown, and gardeners perhaps less intelligent than they are in our day. The older writers upon gardening, in fact, hardly allude to any insects occurring upon the Strawberry, though they mention that the fruit is particularly liable to the visitations of snails, slugs, and the like, as it offers attractions to the molluscous tribe. It is likely that

some of the damage charged upon slugs was really the work of an insect managing to keep itself concealed.

The majority of the insects that infest Strawberries are beetles of the order Coleoptera, but rather diverse in size and habit. Before referring to these I have to speak of a species belonging to the Lepidopterous order, which has been briefly mentioned in this Journal by one of its well-known correspondents, Mr. Raitt of Blairgowrie. Having placed in my hands sundry particulars regarding its habit, this gentleman requests me to do what he himself could no doubt have done far better, and also to express his regret that from various causes he has been prevented from giving the account of it which he once promised to the readers of these pages. Mr. Raitt remarks very truly that this has the power to prove itself a serious enemy, the loss caused thereby in the vicinity of Blairgowrie during the last few years amounting to many hundreds of pounds. Fortunately no instance quite as bad has been reported elsewhere, but the insect has been found moderately mischievous in other districts, more in the north than in the south, I think. About May, when the new leaves are expanding, it is perceivable that a proportion of them continue folded, and appear to be spotted also, or pierced. Upon opening these we find generally a single "worm," or small larva, then seldom exceeding one-sixth of an inch in length. (From Mr. Raitt's use of the qualifying word "generally," it would seem that at times more than one larva is found resident in a fold of young leaves.) If these are left undisturbed they grow during some months, becoming adult in August, or possibly rather earlier, depending on the season. The bulk of the larvæ, at least, are fully grown in the summer; some, however, are to be detected upon the plants as late as September or October. The moth appears on the wing towards the end of the summer, and continues out till November. Both the leaf and the flower-buds are objects of attack, no doubt; where the leaves have been greatly checked in their development the plant subsequently puts forth few flower-buds, if any.

The circumstance is specially noted by Mr. Raitt that no moths are seen in spring; it is therefore highly probable, he thinks, that the species passes the winter months in the egg state, the egg being well hidden within the buds of the Strawberry. At the same time it is to be remembered that some of the moths allied to this species are known to hibernate and lay their eggs in the spring, but I hardly think it likely that if these insects did so they would have escaped the observation of this careful naturalist. That we should fail to discover the eggs is not surprising, they must be minute objects and usually scattered. Assuming, therefore, that the eggs are laid upon the plants during the autumn, Mr. Raitt thinks that a hopeful method of prevention is to clear the plants about October or sooner, then cover the crowns with earth to check the deposition of eggs. A less hopeful experiment has been tried, dressing heavily with some solid or fluid that might be supposed to kill the larvæ. But in May, 1882, one patch was well sooted, and another syringed with a solution of soft soap and paraffin, yet the insects survived, owing to their being protected by the wrappings of leaves.

Supplementing what is stated by Mr. Raitt, I may add that the insect in question has no familiar English name, but we might call it the Strawberry Moth; its Latin name is *Peronea comariana*. In Britain it appears only to have been recognised as a distinct species about thirty years ago, previous to which date it had been passed over as a variety of *P. comparana*. That insect is common throughout these islands, the larva feeding upon Sallow and Willow. Like most of the genus, these species are difficult to discriminate, from their markings being apt to vary, and specimens of two or three other species of *Peronea* have been taken for *P. comariana*. The wings are greyish or reddish brown, with a dark patch, sometimes lengthened into a bar; head and thorax also brown, the abdomen paler. The larva or caterpillar has the usual aspect of its brethren in the Tortrix tribe, greenish yellow, transparent, having the outer skin so loose that it overlaps the divisions of the body when the creature contracts itself. It has been taken upon the wild Strawberry as well as upon our garden varieties of these. Some naturalists report that it prefers the white-fruited kinds. Mr. Hodgkinson informs me that he has noticed the larvæ by hundreds in the middle of June, and a few weeks afterwards on examination he found that the sparrows had cleared many away, the marks of their bills upon the leaves being sufficiently visible.

The Strawberry is grown pretty freely in North Kent districts which I frequently visit, but the cultivators have not, to my knowledge, had to complain of this insect. Hence it happens that I am unable to say anything about it from my own observation, not having seen the species in life as yet. My friends who are entomologists do not appear to be satisfied that the deposition of eggs takes place during the autumn; it might even prove to be the case that some of the eggs are laid in autumn and some in spring. Mr. Raitt is positive that the flower-buds are infested as well as the leaf-buds; then, unless the larvæ migrate from one to the other, it is natural to con-

clude the moths place eggs upon the flower-buds at the early part of the season. And it is no uncommon circumstance for a hibernating moth to escape notice amongst the many insects of the spring, though it may be quite conspicuous towards the end of the autumn, when winged insects are few. One entomologist tells me he has seen the moths flying in clouds; if so, a considerable burning of weeds just at the time of their emergence would probably kill many, or check the distribution of eggs.

Leaving till next article some species that require to be noticed, we close with a brief reference to a subterranean enemy called vernacularly St. Mark's Fly (*Bibio Marci*), although I am hardly sure there is a good reason why it is thus placed under the patronage of a saint. Most of the larvæ or grubs in this group are feeders upon decaying substances, therefore not to be accounted injurious in gardens should they appear there; but those of *B. Marci* principally attack roots, and occasionally cluster about a plant in parties of twenty, thirty, or more. The Strawberry is one of the species it prefers, and another is the *Ranunculus*. This grub when adult is a little over half an inch in length, brownish, and studded with stiff short hairs, which serve instead of legs. In the male fly the eyes are remarkably large, almost joining each other; the female has them wide apart and inconspicuous.—ENTOMOLOGIST.

LORD DERBY APPLE.

I AM a great admirer of this fine Apple. We have only one strong bush-shaped tree, but this very rarely fails to carry a heavy crop of fruit, being superior in this respect to several others growing under similar conditions. The whole of the fruit generally grow to a great size, some measuring $13\frac{1}{4}$ inches in circumference, and they have when fewer in number measured 14 inches round. With us the fruit vary in shape considerably, as some are oblate or somewhat similar to the Grenadier Apple figured on page 321, though less symmetrical, while others are conical, as figured on page 320. In my opinion it is essentially a kitchen Apple, as, although juicy and sweet when ripe, they are much too clumsy for dessert purposes. Court Pendû Plat is my ideal dessert Apple, and I wish raisers of dessert varieties would take that for their model instead of going in for large size.—W. IGGULDEN.

FONDANTE DE CHARNEU PEAR.

THE VALUE OF WALL SHELTER.

AT last I have obtained some fruit of this little known but most excellent Pear. I have only one tree of it, a fine pyramid of such robust free growth that I had to resort to root-pruning to induce it to form fruit buds. This was done two years ago, and fruit buds are so abundant as to afford promise of a full crop of fruits next year. This year I have only a few dozens of fruits, some of which are just ripe, and prove so delicious as to induce me to thus prominently call attention to it. When it is better known it will undoubtedly take a leading place among our best dessert Pears, and it can only be from ignorance of its value that it is, and has been so long neglected. I had great difficulty in procuring a tree of it, but by the aid of the late Messrs. William & Thomas Osborn after much inquiry I was at length successful, but it is doubtful if it could be found in any nursery in this country now, for it is not mentioned in any of the fruit catalogues which I have seen.

The fruit answers so exactly to Dr. Hogg's description of it in the "Fruit Manual" that I cannot do better than transcribe it here:—"Fruit large, sometimes very large, the ordinary size being $2\frac{1}{2}$ inches wide, and $3\frac{1}{2}$ inches long; pyriform, uneven in its outline. Skin smooth, pale greenish yellow, with a faint tinge of red on the side next the sun, and thickly strewed with large russet dots. Eye large and open, with erect acute segments, set in a shallow uneven basin. Stalk upwards of an inch long, slender, curved, and inserted without depression by the side of a fleshy lip. Flesh tender, buttery and melting, sugary and richly flavoured. An excellent Pear, ripe in November." I may also add the interesting note of its origin:—"This was discovered as a wildling by M. L'égipont, growing on his property at Charneu, a village between Verviers and Aix-la-Chapelle, in the province of Liège, Belgium, in the beginning of the present century."

The ripening of Pears is so proverbially uncertain that it is difficult to fix the exact time, but November is undoubtedly about the time when this Pear is at its best, most of the fruit now being still firm to the touch, and with that faint tinge of yellow which indicates the beginning of the ripening process. The fruit is only of the ordinary size, notwithstanding the extraordinary vigour of the tree; but this is probably attributable to the tree being a pyramid, and in order to obtain fruit of an extraordinary size a palmette verrier or cordon of it should be trained against a wall. I intend cutting down half

a dozen cordons of Pitmaston Duchess, which is worthless and grafting Fondante de Charneu upon them.

The great difference which wall shelter makes in the size and form of many sorts of Pears is singular and important. One might naturally suppose that the finest and most handsome fruit would be found upon the most vigorous tree, irrespective of situation; but it is not so. So far as my experience goes wall fruit is always superior to that of trees of any form out in the open. I have just now gathered the fruit from a Marie Louise pyramid, growing only about 20 feet away from a west wall. The crop was moderate and the tree vigorous, so that there was nothing wanting so far to promote the full development of the fruit, yet it was little more than half the size, and not nearly so handsome as fruit of the same kind from a palmette verrier against a north wall only a few yards off. Nor is this a solitary instance. The same thing invariably occurs here with the fruit of Beurré Rance, Citron des Carmes, Louise Bonne of Jersey, Doyenné du Comice, Beurré Clairgeau, Williams' Bon Chrétien, Madame Treyve, Huyshe's Victoria Winter Nelis, Bergamotte Esperen, and Fondante d'Automne, all of which I happen to have planted here against walls of various aspects, and also out in the fruit garden. The late Mr. J. R. Pearson said, "Few persons have any idea of the excellence of many Pears when grown on a good wall," to which it might once be replied that few persons had wall space at their disposal for such a purpose. But now that the value of cordons is fully understood almost every garden may have its selection of choice Pears on walls, for twenty cordons only require the space once devoted to the huge horizontal tree with its spread of 30 feet.—EDWARD LUCKHURST.



KITCHEN GARDEN.

Winter Protectors.—These should all be ready and in order before frost or severe weather sets in, and as this may come at any time now it will be well to make preparation. The Bracken Fern is one of the best materials that can be used for placing over Celery, Lettuce, and all young or tender vegetables in winter; and this should be cut now, as when left until quite decayed it crumbles away when dried and is of little use. It should be cut when dry, allowed to lie on the ground for a few days, and then be taken in and stacked or stored in a shed. Frames, handlights, and sashes requiring repairs or paint should be attended to now, as it is a great advantage to have these in good condition when using them as protectors in winter.

Blanching Endive.—All the Endives grow and spread outwards, and to have them delicate, white, and tender in the centre they must be tied up and blanched. It generally takes about three weeks to blanch them after being tied up, and the first should be tied up now and a small batch at intervals throughout the autumn and winter. Any short pieces of matting do to tie them with. All the leaves should be gathered in a cone-like form and then bound rather firmly together.

Open Air Tomatoes.—These have stopped growing, and as a few degrees of frost will spoil the fruit it should all be cut and the plants thrown away. The smallest fruits need not be saved, but all from the size of a pigeon's egg upwards will be useful and should be looked after. The best way to treat them is to tie eight or ten fruits together and hang them in a warm airy place until they ripen. If many fruits can be cut now they will keep up a supply until Christmas.

Rhubarb for Forcing.—Where Rhubarb is wanted as early as possible or about Christmas, the roots often refuse to grow freely, partially through their often being grown in the shade and being not well matured, and also owing to their not being well rested before forcing. In damp soil it takes them a long time to become dormant, but if lifted now and placed in a shed with a few leaves over the roots they will soon be completely to rest, and when introduced to the forcing quarters they will grow readily. Rhubarb which is only being cultivated in the ordinary way in the main quarters should have all the old leaves removed as soon as they decay, and then spread a good coating of manure over the crowns.

Lifting Late Potatoes.—Probably all these have not been dug yet, but they should be placed under cover now quickly, as the weather will not benefit them in any way. Potato-digging should only be done when the weather is fine and dry.

Earthing Celery.—Celery in all stages of growth must have attention in this way. That which had some soil placed to it a month or more ago will have grown more now, and should have a final earthing-up. The utmost care should be taken that none of the soil falls into the centre of the plants; but when each plant is bound with a piece of matting there is not much danger of this happening. In banking the soil against the

plants the outside should be beaten firmly and be made quite perpendicular, so as to throw off the rain.

Young Cabbages.—Snails and caterpillars may have eaten some of these in the quarters lately planted, and the blanks should be filled at once, that the plants may become established before winter.

Kidney Beans.—Under ordinary culture these are almost over, but dwarf varieties still fresh and green may have their period of usefulness prolonged by covering them with frames or other protectors. Late plants grown in frames should have air admitted to them every fine day, and superfluous damp should never be allowed to collect about them, as this will make the tender young fruit decay, and it will also prevent the fruit forming. A large batch of Osborn's Forcing variety should be sown in pots now to bear fruit about Christmas. We like to put six or eight seeds into a 3-inch pot, grow them in these until the plants are 4 inches high, and then place them in 8-inch pots. Other persons grow them satisfactorily without repotting. Good soil and not less than a temperature of 65° is necessary to do them properly.

Winter Cucumbers.—These should now be strong and healthy, and capable of bearing fruit from November onwards. Keep the shoots well thinned out. Never allow the leaves to become dirty. Insects should never obtain a footing at this season. When they do it is most difficult to eradicate them, as the plants have not the same vigour to resist them as they have in spring or summer. Syringe on fine days, and any leaves on which there are insects should be sponged. Where the young fruits are coming in clusters nip them all off but one, as this will be quite enough at each joint now. The temperature at the top and bottom should not be lower than 65° or higher than 75°.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Early House.*—If the trees in the earliest house have not been pruned no time should be lost in finishing this operation, in order that the wood may be properly cleansed and dressed. The trellises and woodwork should also be washed and painted if necessary, and when these operations are completed tie the trees carefully to the trellises. Protect the outside borders with a layer of dry fern to throw off the wet, having all ready for forcing when the time arrives.

Second and Midseason Houses.—The trees in the house that ripened their fruit in June have shed their leaves, and should now be pruned; but if disbudding, thinning the growths where too crowded, and cutting out the bearing wood of the current year as soon as the fruits were gathered, was attended to very little pruning will now be necessary, as the shoots will have ripened to their extremities. If, however, there be too much wood thin out the weak, and only cut back any shoots that have sappy growth, removing also weakly attenuated shoots intended for next year's bearing that have only single bloom buds to firm wood with triple buds, making sure that the pruning eye or joint has a wood bud. The house and trees should then be thoroughly cleansed, and the whole put into thorough-going order ready for a fresh start. The trees in mid-season houses will be parting with the foliage, and should be assisted by brushing them with a light broom. If any rooting or lifting is contemplated it should be performed whilst the leaves are upon the trees, as it is important that root-action be encouraged immediately following the operation.

Late Houses.—The trees in these will be ripening the wood and plumping the buds. They must not lack water at the roots, and should have plenty of air. When the wood is firm root-pruning or lifting when necessary should be performed. Young trees that make vigorous growth and show a proneness to late growth should have a trench taken out about 3 feet from the stem and as deeply as the roots, and cut off all outside the radius, leaving the trench open for ten days or a fortnight, when it may be again filled up firmly, the surface soil being removed down to the roots and fresh material replaced and made firm, a good watering being given, and mulch the surface with short manure.

Weakly Trees.—Trees that have made weakly growth in consequence of heavy cropping may be induced to break strongly another season by having two or three good waterings with liquid manure, which should be applied after the removal of the mulching and hard surface soil down to the roots, afterwards top-dressing with about 3 inches of good loam from an old pasture, adding a little charred refuse and old mortar rubbish, not adding any manure except as a mulch to the surface. Pruning in the case of weakly trees may be more severe than when the trees have made vigorous growth; but the best time to do this, or rather thinning out the past year's wood, is immediately after the crop has been gathered, in order that there may be the free action of light and air on the young growth to ripen it and perfect the buds for next year's crop.

Pruning Young Trees.—Trees that are young and extending should only have the wood thinned out where too crowded, and should only have the growths cut back to originate shoots for filling the vacant space with regularity, and any shoots not ripened to their points may also be cut back to firm wood; but where gross shoots have been stopped during the season of growth little shortening-back or pruning will now be necessary.

The planting season having again come round we may give a selection of varieties, of which many of the recent introductions have size, and in some instance colour, to recommend them; but it must be said of the majority that they are deficient in quality as compared with the older sorts. *Early Peaches*:—Alexander, Hale's Early, Large Early Mignonne, À Bec, Dr. Hogg, and Crimson Galande. *Midseason*:—Grosse Mignonne, Alexander (Noblesse), Royal George, Belle Beauce, Violette Hâtive, Dymond, and Bellegarde. *Late varieties*:—Stirling Castle, Barrington, Late Admirable, Nectarine Peach, and Prince of Wales.

Nectarines:—Advance, Lord Napier, Hunt's Tawny, Elruge, Violette Hâtive, Pitmaston Orange, Pine Apple, Humboldt, and Victoria are good.

Cherry House.—The lights having been removed as advised some time back they should be replaced before severe weather; but before doing so it will be well to have the rafters well scrubbed down with soft-soap and water, and the house thoroughly cleansed; the remaining foliage ought also to be removed, and the trees dressed with an insecticide. The house should be kept well ventilated, except when frost prevails, so as to keep it as cool as possible. If planting fresh trees is contemplated the needful compost should be prepared, so that the work may be expeditiously performed when the trees from outdoors are fit to remove, as they are when the leaves have generally begun falling. The top spit of a pasture where the soil is a medium-textured loam, with a sixth of road scrapings, is the most suitable compost. Trees that have been trained to walls for two or three years are best. In the matter of varieties, Black Tartarian, May Duke, Elton, and Governor Wood are suitable.

MELONS.—The latest crops are now ripening, and should have a somewhat high temperature and dry airy atmosphere, or they will not ripen well or be of good quality. By artificial means a day temperature of 70° to 75° should be maintained in dull weather, with 10° to 15° rise on clear days, and 65° to 70° at night, having a little ventilation constantly. Water will only be required at the roots to prevent flagging.

PLANT HOUSES.

Eucharis amazonica.—Where these plants are grown largely for flowering during the winter months, and have been treated liberally through the summer without allowing them to flower, they should now be in the best condition. Those that have fully matured their growth should have less water at the roots and then removed for two or three weeks into a temperature of 50°. Cold draughts must be avoided, and the plants must only have sufficient water to prevent the foliage flagging. They must also be watered very carefully after they are again brought into warm quarters. After a short rest the plants will quickly produce their flower spikes. If the plants rested are in small pots and full of roots feed them liberally after their spikes are visible. By resting a few well-grown plants at different times or at intervals of a few weeks, a valuable supply of blooms will be maintained. With plenty of plants in small pots and the resting properly carried out, it is by no means difficult to have flowers during the whole winter. *E. candida* is worth growing because it can be flowered in very small pots, and on this account is valuable for room-decoration; its flowers, which are much smaller than those of *E. amazonica*, and will be found invaluable for bouquet-making.

Tabernaemontanas.—The varieties of this useful plant are producing their double white flowers nearly the whole year round. *T. coronaria* fl.-pl. is more adapted for spring and early summer flowering, while *T. camassa* produced its flowers in greatest abundance about August. This has been the character of our large plants, and in order, if possible, to induce the first-named variety to flower during the winter we cut it hard back, and after it had commenced growth we pushed it on rapidly, until a few weeks ago it was placed under a little cooler treatment. It is again in brisk heat, and has commenced showing a fair number of flower buds. Hard cutting-back appears to suit them well, for our plants have made remarkable growth, and we intend to subject them to the cutting-back system annually, especially so if we can make them flower during the dullest months of the year by so doing.

Gardenias.—Where a few old plants were retained and pushed on rapidly to make their growth early in the season, and then subjected to a little cooler treatment, will have, if in any way confined at their roots, abundance of flower buds in various stages of development. These will come forward rapidly if placed in brisk moist heat, especially if they can be accommodated with a little bottom heat. When introducing them give the plants a little Standen's or Crown Manure, both of them being very good for these plants, as the young growing fibry roots soon show on the surface. We have great faith in the application of the manures named, to be applied to the surface of the soil, and the feeding with guano and other stimulants through the water pot that has been in practice so long will soon be obsolete with us, for more harm than good often results from this kind of feeding, especially when the work is left to inexperienced hands.

Ferns.—Those that are grown for cutting, whatever the varieties may be, must have light positions, and where the temperature is not too high and air can be freely admitted when favourable. These conditions must be strictly observed if the fronds are expected to last long after they are cut. These plants are not unfrequently, when grown for these purposes, kept too moist, too much shaded, and too high a temperature. Fronds cut from plants grown under such conditions are almost useless, and often shrivel before they can be arranged in the vases. Plants that have been subject to such conditions may yet be wonderfully improved if they are shifted into another position and the conditions named above carefully carried out. These plants must not suffer from having insufficient water, and feeding must be resorted to if the plants are thoroughly root-bound.

Narcissus and Roman Hyacinths.—If these plants were potted when advised they will be taken from the plunging material and at the present time be in frames. At first light must be admitted to them gradually, or else their foliage will be injured. As soon as the foliage is green they may, if wanted in bloom as early as possible, be placed in a temperature of 55° at first, and then 60° after they have commenced growing. Keep

these plants as close to the glass as possible, and give them abundance of water.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Propagating Shrubby Calceolarias and Violas.—The present is a good time to insert cuttings of Calceolarias, and it is not yet too late to propagate Violas. Frames, in size according to the number of plants eventually required, should be employed, and if a few only are grown then handlights are suitable. The former to be stood on a hard dry surface, some rough partially decayed manure thrown in and made moderately firm; next, about 6 inches in depth of any fairly good soil available, and on this a thinner layer consisting of equal parts of sifted loam and leaf soil, with a liberal addition of sharp sand or road grit, this being levelled, faced with sand, and lightly smoothed with the back of a spade. The cuttings to be made from rather firm flowerless shoots, these being shortened and trimmed to about 3 inches in length, and dibbled in firmly at from 2 to 3 inches asunder each way. Water them in, put on the lights, keep close and shaded from sunshine during the day, give a little air during warm nights, and when found to be rooted, say in about seven or eight weeks' time, give all air possible. The aim should be to check growth till later on, when it can be encouraged under more favourable circumstances. It is useless to attempt to strike flowering shoots of Violas, those only which are springing from near the stem being suitable for the purpose. Cuttings of Gazania splendens may be inserted and treated similarly to the Calceolarias.

Perennials.—Cuttings of good sorts of Antirrhinums, Pentstemons, Pansies, and Phloxes may yet be dibbled-in in handlights disposed at the back of a north wall or in a cool shady position. Use plenty of leaf soil and sand in the compost. Select cuttings from the least sappy young shoots, dibbling these in firmly. Water them in, keeping them close and shaded as required. New beds of either of the foregoing may be formed during favourable weather, and this will lighten the usual heavy spring work. All are better for frequent divisions and replanting in rich and deeply dug fresh soil. They will need mulching with either leaf soil, short manure, or cocoa-nut fibre refuse, or otherwise may be injured by frost. Well-rooted cuttings or layered plants of Carnations, Picotees, and Pinks ought to be separated from the parent plants, and either potted up or planted out in deeply dug beds, to which has been added a dressing of horse manure, this being especially suitable when collected from the roads, and therefore gritty. Any extra choice or delicate sorts may well be potted off singly in 3-inch pots, wintered in cold frames, and planted out early in spring, this being particularly advisable where slugs are troublesome. Strong well-hardened seedlings may also be planted out; but these in many cases will soon be eaten by slugs unless the beds are surfaced with cocoa-nut fibre or the ashes from a garden "smother." The slugs should also be trapped either with Broccoli leaves or heaps of bran. Choice Dianthus and Pyrethrums are also much preyed upon by slugs, and those very solicitous to preserve them should lift and place them in boxes of good soil, and cover with frames. The Pyrethrums may be divided at the same time.

Flower Beds.—Advantage should be taken of dry weather to clear off Geraniums and other summer bedding plants—no matter how fresh they may be—in order to refill the beds with the spring-flowering plants. If this is delayed till cold wet weather intervenes the work cannot possibly be well performed. Such plants as Silenes, Saponarias, Limnanthes, Forget-me-nots, Wallflowers, and Daisies are all more gross-feeding than the majority of the summer bedding plants, and consequently the beds ought to be enriched with plenty of short partially decayed manure. In dry weather this can be better dug in, and the bed made firm about the plants, so that the latter be less likely to be up-heaved and injured by frosts. In the next calendar reference will be made to suitable combinations of hardy plants and bulbs. The carpet beds, where protected by canvas or even branches of evergreens, are still attractive, and may well be spared a time longer. The choice succulents dotted about the designs can be protected during the nights with inverted flower pots, taking care, however, to stop the holes of the pots. If the designs or groundwork are formed with hardy plants, these will admit of the introduction of other hardy plants, which, if duller in colour than the former delicate occupants, will still preserve the figures, and render the beds ornamental during the winter.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 5.

(Continued from page 303.)

It may be argued against the use of shallow frames that the bees are liable to perish in winter in consequence of their having to change their clustering place more frequently than if they were on large frames of comb containing double the quantity of food. This sounds reasonable enough in theory, but in practice we have found the result entirely opposite, and where stocks in our apiary have perished at one end of the hive while plenty of food was stored at the other end. Such disasters have only occurred in hives with large deep frames, and in no single in-

stance have we known it happen with the shallow frames. The reason is not far to seek. We winter the bees on nine frames, which are about equal to six of the Association standard size. Now if the floorboard of a deep-framed hive is withdrawn in cold weather, and we can look from below up among the combs, we observe the bees clustered to within about 3 inches from the lower edges. When the warm sun plays about a hive on a sunny day in winter it causes the cluster of bees to expand a little, and they feed while this movement is going on. Any tyro in bee-keeping knows that bees do not hibernate like queen wasps or humble bees, but that they require food, probably every day in the coldest weather. When the sun's rays do not help them in the way mentioned, either the act of feeding or the desire for food brings into play the wonderful power bees possess of increasing the temperature of the hive at will, and they spread themselves out to seek food as it were; but they do not expand sufficiently to pass under the bottom of the combs, and hence the necessity for cutting winter passages to assist them in reaching food. These winter passages only lessen the evil, but do not do away with it. Now we contend that a shallow frame does. The bees when the least expansion of the cluster takes place can pass freely under the combs, take up a new position on them, and no winter passages are necessary.

The well-known broad-shouldered top bar of Mr. Abbott has been adopted, and the frames slide on metal runners raised one-eighth of an inch above the back and front of the inner walls. The sides of the body of the hive are level with the top of the frames, the back and front being also level on the outsides, while the cork-packed space between the outer and inner walls is five-eighths of an inch lower, and has a half-round groove along its whole length under the frame ends to allow free finger-room for manipulating. It will be seen that the distance between the ends of the frames and the inner walls of the hive is regulated by the raised outer walls, and when the frames are in position their tops and the walls form a perfectly level platform.

Broad Frame for Sections.—During the last year or two much importance has been attached to the advantage of working sections in the body of the hive. The system does not, so far as we can judge, appear to find so much favour in practice as in theory, for we have found very few bee-keepers indeed who regularly follow the plan of obtaining the bulk of their section honey in this way, though a great many have, like ourselves, tried it and given it up. There can, however, be no doubt about the great advantage of starting sections as well as finishing them off in the body of the hive under certain conditions which generally exist at the beginning and end of each honey season. Our broad frame has a top and bottom bar, each five-eighths of an inch thick, hinged at the side, and holds three 1 lb. sections of the ordinary $4\frac{1}{2}$ by $4\frac{1}{2}$ size, or two $1\frac{1}{2}$ lb. sections $6\frac{1}{2}$ by $4\frac{1}{2}$.

Spare Frame Box.—This very useful adjunct to our hive is $14\frac{5}{8}$ by $13\frac{1}{2}$ inside measure. It holds nine frames, and during a great portion of the year remains on the top of the quilts ready for use. The object for which it was originally devised was to hold the frames which are removed indoors when reducing the number of combs in preparing the bees for winter, and it is of course always used for this purpose; but it is so useful when manipulating for holding frames of comb foundation, section frames, queen-excluding diaphragm, &c., that we always let it remain from March to October on the top of the hive. Sometimes it is filled with frames of comb, and when placed by the side of a rack of sections is used for slinging purposes; we thus have sections at work and slinging going on at one and the same time. Last but not least, in cases of emergency it forms a makeshift hive admirably adapted for second swarms or for accommodating driven lots of bees. We have had as many as half a dozen stocks at one time located in these spare frame boxes till we had time to get hives ready for them.

Entrances.—These are three in number. The centre one is 6 inches long and half an inch high, the side ones are each 3 inches long and are $4\frac{1}{2}$ inches from the larger or centre one. This last has two sliding doors, each $3\frac{1}{2}$ inches long, while the side entrances have each one door the same length. These doors, by means of a sort of dovetail cut in the upper side and a corresponding cut in the slide in which they work, will not fall out when the floorboard is withdrawn. The side entrances are kept closed for a great part of the year.

It is well known that bees are often much distressed in very hot weather in consequence of the great heat in populous stocks at such times. To obviate this it is usually recommended that the floorboard be withdrawn a little, or the hive raised up so as to allow a free current of air underneath, while the bees pass out in front and rear. Our objection to this was the crushing, so horribly grating on the nerves, which in spite of

the greatest care was sure to take place sometimes while replacing the wedges under the floor in the evening. With three entrances, 12 inches long in the aggregate, the air can pass under the whole of the hive without disturbing the floorboard, and we find none of the evil effects of overheating.

When it is desired, half a dozen frames may be used for slinging from the body of the hive while sections are on, and the side entrances render it unnecessary to watch that drones are not imprisoned when inserting the queen-excluding diaphragm. In addition to this there is the advantage of the bees not being compelled to work through the excluder zinc. Another special use for the side entrances is that we are never at a loss for a nucleus hive; the exercise of a little ingenuity in arranging the entrance so that the queen may not mistake it being all that is required, and we can form a nucleus of from two to five frames of the very best size and form for the purpose.

A close-fitting block of wood having a projecting screw in the front side to facilitate its withdrawal, is inserted in each of the side entrances when they are not in use, and are pushed up flush with the inner wall of the hive to prevent the bees passing round the dividers when they happen to be placed across the entrance.—**WM. BROUGHTON CARR.**

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.—The eighth annual Exhibition of this Association, which is advertised to be held in the Exchange Hall, Grantham, on the 19th inst., is expected to prove a great success, the entries being numerous, and the competition for the prizes offered will probably be keen in several of the classes. On the following day a honey fair will be held, and 2 tons of honey are anticipated. A correspondent states "the town is beginning to be all of a buzz already," a result, no doubt, mainly due to the zealous and enterprising Honorary Secretary of the Society, Mr. Godfrey.

TRADE CATALOGUES RECEIVED.

- Francis & Arthur Dickson, Chester.—*Catalogue of New and Select Roses.*
 L. Delaville, 2, Quai de la Mégisserie, Paris.—*Catalogue of Bulbs and Tubers.*
 Thomas Rivers & Son, Sawbridgeworth, Herts.—*Catalogues of Fruit Trees and Roses.*
 George Cooling & Son, Bath.—*Catalogue of Roses and Fruit Trees (illustrated).*
 Cranston's Nursery & Seed Company, King's Acre, Hereford.—*Catalogues of Roses, Fruit Trees, and Forest Trees.*
 Thomas Horsman, 102, Godwin Street, Bradford.—*Catalogues of Roses and Bulbs.*
 Joseph Schwartz, Route de Vienne, Lyon.—*List of New Roses.*
 L. Späth, Berlin.—*General Catalogue of Plants.*
 Constant Kerkvoorde, Wetteren, Belgique.—*Catalogue of Fruit Trees and Roses.*
 William Paul & Son, Waltham Cross.—*Catalogues of Roses (illustrated), Fruit Trees, and Shrubs.*
 E. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Seed Corn (illustrated).*
 William Kerr, Dargavel, Dumfries.—*Catalogue of Seed Potatoes.*
 William Rumsey, Waltham Cross.—*Catalogue of Roses.*



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

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

Treatment of Water Lily (*Devoniensis*).—There will be no difficulty in preserving the plant if you place it in a large pot or tub, and sink this about 6 inches to a foot beneath the surface of the water. A compost of good loam, leaf soil, and a little well-decayed manure is the best that can be employed, and in it the plant will grow strongly.

Seedling Dahlias (*W. H. C., Kent*).—The blooms sent are not equal to many varieties that are now in cultivation, and if you visit a large

collection, either public or private, you will form a better idea of the improvement which has been effected in recent years.

Yellow Tomato (*F. W., Isle of Wight*).—You can take out the seed if you choose before sending the fruit, but in that case it would probably not reach us in the best condition for estimating its merits. We cannot undertake to comply with your alternative proposition. We think Messrs. Daniels gave you good advice to try the variety another year and compare it with others, as only by that means can its merits and distinctness be satisfactorily determined.

Calceolarias (*Inquirer*).—There is no better place for Calceolarias at this season of the year than a cold frame; but they must be placed on ashes or otherwise arranged so that worms cannot enter the pots. The plants cannot be placed too near the glass, but they will do very well at the distance you name provided the glass is kept clean. The soil must never be dry, and an insect never be seen on the leaves. They may remain in the frame as long as they are safe from frost.

Blinds Decaying (*Cambridge*).—Although we do not think that waterproofing would materially prevent the blind rolling, we are of opinion that as tiffany is so cheap, it would be easier, better, and more economical to cut off the decaying strip and attach a new piece. Waterproofing is a tedious process, and you might not succeed to your expectations, and it would be better to purchase material already waterproofed, if you require it, when making new blinds. A method of waterproofing is published on page 305, our issue of the 4th inst., in answer to a correspondent who required it for covering a temporary structure for protecting Chrysanthemums.

Cypress Unhealthy (*A. B. C.*).—We fear your letter has been overlooked, but as it is not dated we are unable to determine for how long; however, nothing has been lost by the delay. The only method we can suggest for renovating the specimen is to remove the exhausted soil from the roots and cover them with a mixture of fresh loam, wood ashes, and leaf soil, pressing it down firmly, and surfacing it with manure to keep it moist and exclude frost. In all probability young roots would take possession of the fresh material, and healthier growth would then follow. The greater the distance the soil is removed from the stem the better, and no time is more favourable for the work indicated than the present.

Variiegated Currant (*Ludlow Subscriber*).—Variiegated forms of the Black Currant are occasionally met with, but as a rule the leaves are not so distinctly marked as those you have sent, from half to two-thirds of their surface being creamy white. It is rarely these variiegated bushes grow freely, most of them having a stunted appearance, with small wood and malformed leaves. The fruit they produce is also small and inferior in quality. We quite agree that the bush from which you have sent us a spray has a pretty effect; and if some of the strongest growths were used as cuttings and inserted the young trees so raised would be more vigorous than the old, and some of them at least might retain the variiegated character of the parent bush.

Roses in Clay Soil (*J. M.*).—No doubt the application of the road drift (which we presume is gritty) and manure, applied as liberally as you propose, will be of great benefit; but we quite fail to comprehend the circumstances which prevent you taking up and replanting the Roses, since you appear to be able to dig the ground between them. The work would be more quickly done if the ground was first cleared, and certainly better for the Roses after they were replanted, as adding a thickness of 6 inches to the surface would bury the roots too deep, while they would still remain in the strong cold soil, and could not derive the benefit they ought by the more gritty compost above them.

Dividing Vallotas (*Sussex*).—If you wish to increase the number of your plants the small bulbs may be separated from the others and potted just when the plants commence growing in the spring. For producing large brilliant masses of this fine autumn plant dividing is not necessary, but larger pots, or rich top-dressings may be given as required to insure strong healthy growth. Potfuls of bulbs producing from fifty to 100 trusses are highly effective. Two rows of Roses will be ample for your bed, planting 2 feet apart in the rows and quincunx fashion—that is, the plants in each row not opposite each other.

Employment in the Tea Plantations (*W. C. B.*).—If you have no private and influential friends who could obtain you a situation such as you desire, the best course would be to endeavour to enter the Royal Gardens, Kew, stating at the time that you desire to go abroad. There are many situations for which good salaries are paid, and we know several young gardeners who have succeeded extremely well in various parts of India, as well as in the tea plantations. The gardeners taken on the Kew staff are expected to have a general knowledge of indoor and outdoor garden routine, to be fairly educated, and to have good moral characters. If you apply to the Curator, Mr. J. Smith, he will forward you the necessary form, which must be filled up, signed by your employer, and returned to Kew, when, if your credentials are found to be satisfactory, your name will be placed upon the books to await a vacancy if there is not one at the time. Between thirty and forty young men are employed, and some are constantly leaving, so that it is not likely you would have to wait very long.

Peach Flowers Falling (*Lodge*).—Defective root-action, immature wood, dry soil, and a moist and close atmosphere during the flowering period, are all contributory causes of the evil of which you complain. In all probability you would do well to raise the roots of the trees at once, placing them in fresh soil, and keeping the border regularly yet not excessively moist. Read Mr. Bardney's article on page 290, the issue of the 4th inst., and follow the practice there detailed. In the spring when the trees are flowering draw gently a plume of Pampas or Feather Grass over them after it has previously been used on the free-setting variety, and the blossom will probably set freely, but only if the root-action is good, the border moist, and the wood ripe. Your long stringy Peach is probably worthless; why not remove it and plant a good variety?

Working in Hothouses (*B.*).—In some gardens probably a man may have time to take off his coat every time he enters a hothouse, and put it on again when he emerges into the open air; but these are what gardeners know as "easy places," and are not common. In the majority of gardens

where glass structures are numerous and much forcing is done the men are too few in proportion to the work to render such precautions practicable. Much work has to be done in a limited time, especially towards the close of every afternoon, and the men have to move quickly, and possibly this brisk movement is beneficial, for certain it is that young men who are naturally healthy seldom take cold when thus engaged, whatever changes of temperature they have to endure. Men who are not healthy ought not to share in this occupation, nor should slow standing-about men, who are almost certain sooner or later to pay the penalty of their resting habits by receiving a chill that may have serious consequences. At the same time even active men should not be reckless, and pass from a tropical temperature to a cold potting shed, and there remain for half an hour with no more protection than they had in the heated house. If any of our readers can give what you ask—namely, “some directions how to work in houses with a high temperature, and at other times in the open air, with the least injury to health,” we will readily publish the information.

Making a Boiler (H. J. G.).—As you “know nothing about boilers” you had better employ someone who does know something about them to make one for you. We will, however, answer your questions. The boiler should be entirely closed; the flow pipe to be taken from the top of it, and the return entering near the bottom. An aperture should be made for the escape of air at the highest part of the flow pipe, but will seldom require to be open, never so long as the water circulates freely, as it will do if the pipes are properly arranged, and then the boiler will be quite safe. The flow pipe is best taken vertically for a foot, or as much more as you like, then conducted along the house with a slight rise to the further end, the return to have a corresponding fall, but in no case must any part be below the boiler. The feed pipe may enter the return hot-water pipe close to the boiler, the cistern supplying the water to be on a level with the highest part of the pipes in the house. A boiler containing half a gallon of water, or even less, would suffice for your gas pipes; but they are too small, and half the length of twice the size would be better. You had better consult some practical man on this subject, and this, with our reply, may enable you to succeed in your object.

Vines Cropping Indifferently (Rosa).—The mealy bug, though calculated to injure, and, in fact, spoil the crop, would not cause the Vines to crop so badly unless some insecticide were used to destroy the insects and has also proved injurious to the Vines. This we apprehend is the case, as you state the Vines have few spurs. Instead of cutting down the rods, or removing them and replanting, it would be better to take up a cane from the bottom of the rafter of each Vine next season and train them up without stopping until they reach the top of the house. The laterals should be allowed to make as much growth as the space will admit without interfering too much with the light, to which the principal leaves should have full exposure. When the wood of the cane becomes brown and hard the laterals should be shortened by degrees until they are brought in close to the cane, which last, when the leaves have fallen, may be cut back about one-third of its length, and depressed the following season before the eyes start it will break from the base and through its length, showing fruit plentifully. The cane should be disbudded, leaving shoots along both sides at about 18 inches apart. This cane will supplant the old rod, hence when the Grapes are cut the old rod should be removed and the young cane left in its place. This will not cause any loss of crop. As the border has only been half made, by which, we presume, half the space is meant, it would certainly be advisable to increase the width; but if the term be used figuratively, or that the border is a bad one, it certainly would be advisable to lift the Vines and make a proper border, which should be done so soon as the leaves give indications of falling. Even if the border be only “half made” it would, were lifting not resorted to, be advisable to remove the surface soil down to the roots, and if these are deep raising them and laying in fresh compost within a few inches of the surface, or if not lifted cover the roots with fresh loam, to which has been added some crushed bones and a small proportion of charred refuse. See that the drainage is good, as the Vines will not thrive in a water-logged border. Syringing will not bring mildew, nor in any way injure the Grapes, provided the water be clear and used judiciously. The mealy bug may have been brought into the house with the plants. The Grapes will never be satisfactory until the pest is exterminated, for which there is no better remedy than the judicious application of petroleum, the Vines and house being syringed with a solution of it after the leaves have fallen, thoroughly wetting every part, and repeating in the course of a few days, or so soon as the Vines become dry. A wineglassful to three gallons of water is a proper quantity, and when applied should be kept thoroughly mixed by a few sharp squirts into the watering-pot, and afterwards every alternate one on the plants and watering can. This may be repeated just before the Vines are starting into growth, and with careful attention in looking for and destroying any insects that may appear during growth, very little injury will be done to the Grapes next season. The plant must, however, be thoroughly cleaned.

Names of Fruits (Kidder).—*Apple*.—2, Kerry Pippin; its shape is not explainable. *Pears*.—3, Red Doyenné; 4, Easter Beurré. We cannot name the other. (R. J. L.).—3, not known; 4, not known; 5, Doctor Harvey; 11, Keddleston Pippin; 13, Cox's Pomona; 14, Cox's Orange Pippin. (Long-craft).—7, Adams' Pearmain; 8, Reinette de Caux; 9, Dumelow's Seedling; 10, Blenheim Pippin; 11, Petworth Nonpareil; 12, New Hawthornden. (L. B.).—1, Greenup's Pippin; 2, Golden Reinette; 4, Cobham; 6, Flower of Kent. (Fareham).—Maréchal de Cour. The flower appears to be a good variety of *Aster novæ-belgii*. (W. B.).—*Pears*.—1, Gansel's Bergamot; 2, Beurré Sterckmans; 3, Beurré d'Amanlis. *Apples*.—1, Blenheim Pippin; 2, Nelson Codlin; 3, Court Pendu Plat (C. J. Nicholson).—1, Beauty of Kent; 2, Nelson Codlin; 3, not known; 4, Greenup's Pippin or Yorkshire Beauty; 5, Lord Suffield. (Mrs. Shepherd).—1, Court of Wick; 2, Golden Pearmain; 3, Nonpareil; 4, Fearn's Pippin. Warner's King is a large kitchen Apple, and Lord Burghley is a small dessert. (John Larner).—The Apple is no doubt Cox's Orange Pippin, but the other we do not recognise. It is probably a local variety. (W. Thornton).—1, Beauty of Kent; 2, Golden Noble; 3, Boston Russet; 5, Golden Russet; 6, Winter Greening. (W. H. Wakeley).—1, Bedfordshire Foundling; 2, Round Winter Nonesuch; 3, Pennington's Seedling; 5, Wyken Pippin; 7, Sops in Wine; 8, Cox's Pomona. (H. Brevis).—Probably Winter Nelis. Why do you not graft the tree with

some variety that will ripen? (E. Harvey).—The large Apple is Alfriston, the small one French Crab. (W. S.).—2, Sturmer Pippin; 3, Golden Winter Pearmain; 4, Golden Russet; 5, Nonesuch. (E. B.).—No. 2 is Lewis' Incomparable; No. 3 is probably a small specimen of Rymer, and the others are correct.

Names of Plants (Rev. E. F. C.).—Your plant is *Dahlia glabrata*, which is well known in gardens; the colour varies a little in plants obtained from seed, but those sent resemble the common type. It is a graceful and distinct species. It was figured and described in this Journal, page 285, September 29th, 1881. (G. W. B.).—*Pleione humilis*. (J. C.).—Specimens too imperfect and crushed to be determined.

COVENT GARDEN MARKET.—OCTOBER 17TH.

We have no alteration to quote, our market remaining the same, being well supplied and all classes of goods cleared at previous rates. Best samples of Apples somewhat higher.

		s. d.		s. d.		FRUIT.		s. d.		s. d.	
Apples	.. .. .	1	0	3	0	Melons	.. .. .	2	0	3	0
"	.. .. .	0	0	0	0	Nectarines	.. .. .	2	0	6	0
Apricots	.. .. .	0	0	0	0	Oranges	.. .. .	6	0	10	0
Chestnuts	.. .. .	0	0	0	0	Peaches	.. .. .	2	0	12	0
Figs	.. .. .	0	9	1	0	Pears, kitchen	.. .. .	0	0	0	0
Filberts	.. .. .	1	0	0	0	" dessert	.. .. .	1	0	3	0
Cobs	.. .. .	1	0	1	2	Pine Apples English	.. .. .	3	0	4	0
Grapes	.. .. .	1	0	3	0	Plums and Damsons	.. .. .	0	0	0	0
Lemons	.. .. .	25	0	35	0	Strawberries	.. .. .	0	0	0	0

		s. d.		s. d.		VEGETABLES.		s. d.		s. d.	
Artichokes	.. .. .	2	0	4	0	Mushrooms	.. .. .	1	0	1	6
Beans, Kidney	.. .. .	0	3	0	4	Mustard and Cress	.. .. .	0	2	0	3
Beet, Red	.. .. .	1	0	2	0	Onions	.. .. .	0	0	0	4
Broccoli	.. .. .	0	9	1	0	Parsley	.. .. .	3	0	4	0
Cabbage	.. .. .	0	6	1	0	Parsnips	.. .. .	1	0	2	0
Capsicums	.. .. .	1	6	2	0	Potatoes	.. .. .	4	0	5	0
Carrots	.. .. .	0	4	0	0	" Kidney	.. .. .	4	0	5	0
Cauliflowers	.. .. .	2	0	3	0	Rhubarb	.. .. .	0	4	0	0
Celery	.. .. .	1	6	2	0	Salsafy	.. .. .	1	6	0	0
Coleworts	.. .. .	2	0	4	0	Scorzoner	.. .. .	1	6	0	0
Cucumbers	.. .. .	0	4	0	0	Seakale	.. .. .	0	0	0	0
Endive	.. .. .	1	0	2	0	Shallots	.. .. .	0	3	0	2
Herbs	.. .. .	0	2	0	0	Spinach	.. .. .	2	6	3	0
Leeks	.. .. .	0	3	0	4	Tomatoes	.. .. .	0	3	0	6
Lettuce	.. .. .	1	0	1	6	Turnips	.. .. .	0	0	0	4



USE OF GREEN AND FODDER CROPS FOR VARIOUS PURPOSES.

(Continued from page 328.)

AMONGST the seeds sown for fodder or folding for sheep especially, we must not omit White Mustard, for although it is not a particularly fattening food, yet it is well adapted for breeding ewes or any store sheep, and may be taken by sowing twice or thrice during the summer time for folding, if sown in regulated succession. By the same rule it is specially adapted for ploughing under as manure, and in our experience we have found that it not only enriches the land, but it has, to a great extent, a deleterious and poisonous effect upon nearly all our pernicious and weed-like grasses, such as couch or twitch grass, and this effect is particularly noticeable, irrespective of its strong and smothering influence, to all and any growth of weeds.

Although in this Journal we have written upon the cultivation of Maize on the 2nd of December, 1880, yet our present object is to refer chiefly to its use in the green and growing state. We grew this crop, for seed only, soon after the early variety was introduced by Wm. Cobbet, still we have not so much experience as to its value for fodder on the farm. In the Journal of the Royal Agricultural Society of England in 1882, Mr. C. S. Read has referred to it in a letter to Mr. Joseph Darby as follows—"I have grown green Maize the last two years, but the hurricane of October and the frost quite early in this month beat down and half-killed the Maize, but the cart-horses eat it as well in its half-withered as in its green state." It is not generally fit to use before the middle of August, but as it lasts through the autumn when green crops are frequently scarce and cannot be relied upon, it gives it an additional value. We find that in America it is both ploughed in and also converted into ensilage, but it is cut into chaff before placing in the silo, and it is therefore ready for use upon the opening of the silo. Many persons are well pleased with it, and especially when sown after a crop of Vetches cut green in the early part of the summer.

Various opinions exist as to the advantages to be derived from the growth of Maize and also its use as a fodder. These are found in the reports which may be read in the Journal of the Royal Agricultural Society in 1882, from one of which we have quoted. Another statement by a Mr. Sturdy is given from Wareham, Dorset. He says—"For nearly twenty years I have grown Maize here, first in the garden as a vegetable, where it ripens perfectly, and also as a green crop for sheep and to cut for cows. It is only suitable for light sandy soils. I have sown it in the middle of July, but it is rather late, and it is fit to fold sheep on about the middle of September. It seems to exhaust the ground even where it is all fed off by sheep. Green Maize is exceedingly healthy food for lambs. I have grown both round and flat sorts, but prefer the European round. It ought to be tested before sowing, as much of the Maize sold is either so old or has been heated that it will not grow." It is very clear from this statement, as well as our experience, that a crop for feeding on the land or for soiling cattle may be grown by late sowing after such green crops as Trifolium, but still the bulk would not be so great, because it is the early-ripening sorts which come best in late seeding. We have always found the late varieties yield an enormous bulk of green fodder when sown as soon as the young plants may be considered safe from frosts. Mr. C. S. Read tells us that in favourable seasons his crop weighed upon an average 21½ tons per acre, and that he found cows, horses, and pigs all seemed very fond of it, and that he could not see any difference in the growth or quantity of the fodder produced from the seed of round or flat Maize.

Mr. Sturdy has laid great stress upon the growth of Maize on light sands, but we entertain no doubt that the bulk grown would be much in accordance with the fertility of the land, both by its nature and the system of manuring. For the deep soils in the United States, as well as Italy and elsewhere on the Continent, the heavy loams, if dry, give the most abundant crops, and sown as a second green crop at so late a period as midsummer, we have no crop to compare with it in bulk and nutrition as green fodder per acre. There is no question that green Maize may be converted into hay as well as ensilage, but not with the same facility in our fickle climate as in some foreign parts. Green Maize has also been recommended to supply green fodder to the dairy herds with a succession of succulent forage at a period when the pastures in the autumn generally fail or get stale.

In remarking upon Prickly Comfrey as a crop for yielding a succession of green fodder, there are many conflicting opinions as to its profitable growth, and this may be expected while we have so many other varieties of forage crops from which to choose. Upon arable farms one great drawback is that the land becomes foul and filled with small roots of the plant, any of which propagate and grow like the roots of the Artichoke amongst the successional cereal crops, and often prove as bad as weeds. We have various writers upon the subject, both as to its value and abundant produce, but we must in practice look to a comparison of its advantages against other crops; most people, for instance, prefer Lucerne, and we are of the same opinion. Much is put forward by some persons as to the cattle disliking Comfrey. This certainly often occurs at first, but the aversion of the stock to the leaves of this plant may, it seems, be easily overcome by passing them through the chaff-cutter with some dry fodder in admixture like sweet straw, and in this way for feeding cows, especially in a milking dairy where milk is sold, it may be found of some importance. We shall not, however, enlarge our observations, but the reader may obtain full information as to its cultivation in this Journal, dated June 10th, 1880.

Although we have written on the value of Gorse, Furze, or Whin in this Journal on the 18th of September, 1879, yet we consider in these times of agricultural depression it becomes a matter of great importance to the home farmer and land agents as to the growth and use of forage crops, but more especially so upon the hill tops or poorest of soils however situated. We have the idea that more may be done with Gorse for feeding stock than has often been attempted. For instance, we will take the down lands and heath lands of various districts in the kingdom. Now the pasture is very poor upon the former lands, and yet it is used for a sheep walk almost entirely, and, except in a few cases where the proprietor has thought it worth while to plant Larch Firs, it yields next to nothing either to the value of the estate or its capabilities for the feeding of stock. Still we find important instances, one of which we select from the pen of Mr. Joseph Darby as described in the Royal Agricultural Journal of 1882. He says—"Mr. J. Forrester (Lord Portman's manager at Bryanston, Dorset) is accustomed, when the spring

is backward and other green food not plentiful, to have the young shoots of wild Furze bushes gathered by the cartload from the extensive sheep downs belonging to the home farm, and brought to the homestead to be crushed, cut, and mixed up with straw chaff and other food." But we find this hardy wild plant when transferred to field or hill culture frequently becomes quite a treasure to the stock-feeder on poor soils usually destitute of roots or green fodder of any other kinds in the winter months as well as March, April, and May.

We note what Mr. Martin H. Sutton of Reading says of Gorse—"It produces such a large supply of food for such a small expenditure that it deserves the notice of every stockmaster." It is an important point in its value that Gorse when once a plant has been obtained it is like Lucerne and Sainfoin, as it retains possession of the soil and continues to yield valuable produce for a number of years when properly managed. One more point on a sporting estate remains to be noted—that it furnishes excellent cover for game without injuring the produce of folder or spoiling sport, because it comes into use after the conclusion of the shooting season. Horses are particularly fond of crushed furze, and as it comes into use before other fodder crops are ready in the spring it is invaluable for furnishing a glossy coat to the animals in the winter months, not to be obtained when they are fed upon all dry fodder alone, for it is known to contain more nutritive matter than the ordinary roots cultivated on the home farm.

Rape or Cole seed comprises two varieties. The common or dwarf Rape furnishes the most nutritive green food for stock of any plant to be found in our list of fodder plants. It requires great care when folding sheep upon it, for it is so rich and succulent that the animals are often induced to eat it so hastily that they become hoven or blown. Continuous sowing is necessary, for it keeps for use but a very short time when sown thick as usual, for the leaves turn purple, then yellow, and fall, leaving but little food. This, however, may be obviated by hoeing and leaving the plants a good distance apart, or by planting as for Cabbages, when they will throw out a large amount of foliage. The Cole seed is also called the Giant or Tall Rape. We have seen it grow higher than the folding hurdles, and in some districts of the north and north-midland it is found to grow so strong that sheep are left to feed their way into the crop without folding. We have no notes of the weight per acre of this food, but it must be very great in the case of a crop of full bulk. The common Rape or dwarf sort is said to be the most forcing and nutritive fodder. We were asked the question a few days ago if Rape was well adapted for ploughing in as manure. Our reply was, Certainly, for we have no other green crop of the same bulk which yields so much value as manure if ploughed in before the leaves begin to fall. The plan is to cut the crop with the scythe as close to the ground as possible, and below any buds upon the stem of the plants, otherwise, even when buried, they are apt to sprout and require weeding out of the succeeding cereal crops.

[On page 327 last week it was stated that it answers well to mix White Dutch Clover with Italian Rye Grass; it should have been stated, the mixture does not answer well; and on page 323 Dr. Voelckiron was inadvertently written for Dr. Voelcker.]

WORK ON THE HOME FARM.

Horse Labour.—In all districts where Wheat crops will ripen and the climate is otherwise favourable, Wheat-sowing will still be proceeding. Much has been already sown on the cold hill farms, and should soon be concluded, the sooner the better. Farmers who occupy strong flat clay lands have met with some delay, but the weather since the second week commenced has been more favourable, and on such soils it is now a good seed time if the weather continues favourable. A point of great consequence is the laying and size of the ridges for Wheat, for in various counties in the midland districts the large high-backed ridges are approved; but in some of the home and southern counties the five-turn or 8-foot-wide ridges are fashionable; but in some of these districts the very small ridges, which Mr. Mechi used to call dressing the land in corduroy, prevails. However all or any of these may be objected to, still our own experience and observation dispose us to tolerate whatever is customary in ploughing the strong lands for Wheat, because the tenants frequently remove from one district to another, and of course carry with them their experiences as well as prejudices; but it is only fair to say those methods of laying the land for the winter seeding of Wheat which prevail are generally right, with this exception, that strong land when too wet to produce full crops requires more consideration as to the last ploughing than land which has been effectually drained.

We made a full statement last week as to the sorts of Wheat to be sown, and therefore we now only say that Red Wheats will do best upon inferior soils and cold climates, whereas the best varieties of White Wheat require not only warm and dry fertile soils, but also liberal cultivation.

Still we must consider that some of northern counties and Scotland succeed best with spring-sown Wheat; otherwise as a rule it is better to let the land lie over for Oats, drege, or Beans, than to sow late in an almost impossible seed time, like the unfortunate seed time of last year. We believe that large areas last season sown late, say after the middle of November, had far better have remained until the spring and been seeded with early White Oats, for our experience tells us that as many quarters of Oats can be grown as sacks of Wheat, upon land as we cultivate for Wheat with manure. Some horses should now be employed in harrowing and rolling upon the autumn fallows which have been steam-cultivated on every opportunity which occurs of dry days; because if the autumn rains which usually occur soon after this time should occur no more cultivation can be done on the fallows. But the Wheat land will be getting into heavy and in good condition to receive the seed, especially upon Clover leas, but upon fallow surfaces ploughing and seeding daily and simultaneously is the safest plan of proceeding.

Hand Labour.—As fast as the Wheat is sown upon any flat strong land, the surface water furrows should be struck and made out as soon as possible after the work is finished. Taking up Mangolds will require hand labour, also in the case of ploughing-in Turnips for Wheat which have been hoed and obtained good-sized bulbs, will require to be mown over to cut off the greens, the bulbs being picked up and chopped; but the best plan of any, although more expensive, is that the roots should be passed through an old Gardner's cutter and then spread.

Men are now principally employed in filling and spreading dung both on fallow and Clover lea preparation for Wheat. Hedge-clipping should now be finished and borders trimmed, to facilitate scouring of the ditches upon the strong land farms. Upon some arable farms men may be employed in grubbing up fences and draining the ditches where necessary; for it is difficult to understand why live fences should be required to separate the fields upon arable land unless required for shelter; but again, shelter is only of use on pasture lands, because where sheep are fed on arable land they are, or ought to be, folded, in order that their droppings may be applied at the right time and place. The removing of the internal fences enables the home farmer to lay out his land in oblong fields, which is a great saving of horse and hand labour.

Live Stock.—The value of all the best and forward ewes for lambing, both of horns and Downs, is still high, but less by from 5s. to 7s. than last year; the top price for flocks of the finest horned early-lambing ewes in the kingdom has varied from 77s. to 80s. each, while fairly useful stock has made from 60s. to 70s. each, while some of the best early December lambing Down ewes have made as much as the latter figures. At present we may call the price of sheep in general about 5s. per head less than last year. Upon any of the dry well-cultivated soils in the home and southern counties these horned ewes not only yield more return than any other sheep for the food consumed when managed with judgment and liberality, but they will, both ewes and lambs, go to market in good time, enabling the farmer to sow his Lent corn early and in the best condition, a matter of immense importance when we consider that the farmers say they keep sheep to manure the land and bring full crops of grain. Milch cows are doing well yet, there being plenty of grass in most cases where pastures and park lands have been well managed, manured, and carefully fed during the summer months. Bulls now, if not sent to market fat, should be put into the boxes and stalls for further feeding, and may with benefit receive their full allowance of 65 lbs. of Turnips or Cabbage per day, with 4 lbs. of cake, and 2 lbs. of bean meal daily, mixed with the cut roots, and get also good sweet oat straw in their racks, for let it be remembered that hay-feeding cannot be carried out with profit, in fact straw is chiefly required to promote the digestion of other food by ruminating animals.

THE SEED HARVEST OF 1883.—We are now in a position to give some reliable information as to the probable output of the seed crop of the present season. **Red Clover.**—A satisfactory crop is anticipated in all the producing districts, although the bad weather experienced in Europe generally at the time we are writing may prejudice the harvest considerably. The area under red Clover in England is larger than usual. German and French reds are also cultivated liberally, and prospects are very satisfactory. Canadian and American reports anticipate a large crop of red Clover, but as this is considered inferior as compared with European-grown seed, the crop is not important in plentiful home seasons. The markets, however, of all kinds of red Clover being absolutely cleared, values remain moderately firm at present. **Cow Grass.**—A fair average crop of English seed is expected, some being well harvested before the present inclement season set in. We anticipate superior quality of this article to the last two or three years, with lower values. **Alsike and White Clovers.**—Some nice parcels of English Alsike have already reached our hands, and the home crop both of white and Alsike is generally satisfactory. Reports of Swedish and German Alsike are of only a moderate character, and fine samples of German and French white are scarce, commanding full values of last year. **Trefoil** is a plentiful crop both at home and on the Continent; qualities fair average, and prices under last season. **Perennial and Italian Rye Grass.**—The crops of both promise to be abundant, but the samples in some instances bear evidence of damage by rains. We have handled several handsome parcels at favourable rates as compared with last year. **Timothy.**—This crop is plentiful both in Europe and America, and as the home crop seed is always very superior in quality, the American supply does not get attention. **Lucerne.**—A good average crop; samples bold, bright, and

clean. **Broad-leaved English Rape.**—Fine samples are scarce, and last year's values are readily reached. There is an abundance of German seed of moderate quality. **Natural Grasses.**—Fine cleaned samples of Foxtail, Fescues, Sweet Vernal, and Poas are reaching us in only moderate quantities, and command high prices. It should, however, be borne in mind that these qualities possess high germinating properties, in addition to freedom from weeds and rubbish, as opposed to lower grades sometimes quoted. **Swedes and Turnips.**—Undoubtedly the most unsatisfactory crop of the season. The Swede harvest was greatly impeded and the produce reduced by the inclement early summer weather in England, whilst the continental crop, never a large one, is almost nil. **Mustard.**—This is generally a fair average crop, but a brisk autumnal demand has led to firm values for fine English samples. **Hemp and Canary.**—Plentiful crops anticipated, with moderate prices. Summarised, it may be understood that the seed harvest generally is above the average of the past two or three years, and in most cases finer qualities with more moderate values may be expected.—JAMES CARTER & CO., High Holborn, London (and Mark Lane).

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The monthly meeting of the Council of this Society was held at their offices, 26, Charles Street, St. James's, on the 2nd inst. In the unavoidable absence of Lord Carrington, who is now in America, the chair was taken by Mr. Joseph Druce. The Secretary stated that there were at present on the books of the Society 616 pensioners, ten having died during the past three months; and that since the last meeting of the Council £1765 had been received from subscriptions and other sources. Cheques amounting to £3865 for quarterly pensions and current expenses were drawn.

OUR LETTER BOX.

Chickens (B. A. C.)—It is not easy to rear chickens in so confined a run. You would perhaps have done better to coop the hens, and let the chicks run over the whole available space. Do you give them green food and gritty matter, and keep the runs very clean? Minorcas or Houdans of a good laying strain would probably suit you best.

Farming on Poor Soil (Anxious)—The soil being poor and the climate bleak we recommend you to grow Italian Rye Grass from foreign seed, also Lucerne; and as your land is of a dry sandy nature the manure best adapted for both these crops is liquid manure saved at the cow stalls. Before, however, attempting to grow these crops, a good dressing of chalk or lime is necessary. If it has not received any, from 20 to 25 tons per acre of the former would be a fair dressing, and 150 to 200 bushels of lime per acre. With regard to the application of artificial manures, bone superphosphate and nitrate of soda are essential, the former to be applied (when the seed of any grasses are sown) about 4 cwt. per acre, the latter (between every cutting of the grass) 1 cwt. per acre. If you obtain the number of this Journal dated July 24th, 1879, you will find full information as to cultivation, &c., of Italian Rye Grass; and the same information as to Lucerne in this Journal for 22nd of May, 1879. Both can be obtained at this office. If you require to lay down land to grass for constant feeding you will find all the required information in this Journal, also in numbers dated the 5th, 12th, and 19th of February, 1880.

Lucerne (W. W.)—Lucerne will be found too great a risk of being damaged by frost if sown in October; it is best sown in May under the directions as given in this Journal, May 22nd, 1879, page 388. On gravelly soil the land should be broken by the subsoil plough below the depth of ordinary ploughing, otherwise the roots of the plant cannot go down, and will not succeed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.											
October.											
Sunday	7	30.478	47	5.9	N.W.	49.7	57.6	39.8	86.7	33.3	—
Monday	8	30.543	55	14.5	Calm	50.9	62.3	47.3	71.7	43.4	—
Tuesday	9	30.434	55	2.5	W.	52.4	59.4	52.4	69.0	52.3	—
Wednesday ..	10	30.099	51	0.4	N.N.W.	52.2	56.2	43.8	61.9	38.5	—
Thursday ..	11	29.882	51.8	51.8	N.E.	52.0	60.2	45.9	75.7	41.8	—
Friday	12	30.075	49.7	18.6	N.	51.8	58.4	47.8	85.4	39.7	—
Saturday	13	30.096	48.8	48.8	E.	51.4	61.0	46.9	79.3	34.4	—
		30.230	51.3	50.4		51.5	59.3	45.6	75.7	41.2	—

REMARKS.

- 7th.—A fine day though cloudy.
 8th.—Fine and mild, but not bright.
 9th.—Misty morning, dull day.
 10th.—Foggy dark morning, brighter in afternoon, but generally misty.
 11th.—Misty dark morning, fine mild day.
 12th.—Fine and mild.
 13th.—Fog at first, fine mild day.

A very fine week, calm and dry, with high barometer.—G. J. SYMONS.



25	TH	Last day of Apple Congress at Chiswick. Sale of Vanda Sauderiana [and other Orchids at Mr. Stevens' Rooms, Covent Garden.
26	F	
27	S	23RD SUNDAY AFTER TRINITY.
28	SUN	
29	M	
30	TU	
31	W	

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

DURING the past few weeks more than ordinary attention has been directed to the subject of gardeners' insurance—that is, of persons who are engaged in gardening operations as a means of livelihood, making, so far as they are able and as facilities are afforded, some provision for themselves when no longer able to work, or to their families who may be left without adequate means of subsistence. No more important question than this can engage the attention of any body of operatives; and it would be a matter of surprise if gardeners were not fully alive to the prudence of making some immediate sacrifice for the accomplishment of an object so worthy of their serious consideration and so deserving of their prompt and united action.

The properly trained and average-educated gardener of the present day is not wanting in intelligence. In this respect he ranks at least on an equality with the skilled mechanic; while not a few who are engaged in the calling with which we are identified have by close study and persevering efforts in self-improvement—both as regards intellectual attainments, high moral qualities, and general deportment—raised themselves distinctly above the level of mere handicraftsmen, and won, as they have merited, the esteem of those of higher social rank than themselves.

All this is matter for congratulation; but then the circumstance must be admitted, and we regret its existence, that the average gardener is not equally remunerated with the average mechanic, and not a few of the best and most accomplished of gardeners cannot, even by the exercise of habits of frugality, do more than maintain themselves and families in a befitting state of respectability. Some, we are glad to know—a few hundreds probably—are so circumstanced that they can provide for the comforts that they have a right to enjoy in the eventide of life; but the vast majority, the thousands of industrious men, are not able by their own efforts to make any adequate provision for the future, even if the blessing of health is vouchsafed to them during the ordinary term of an industrious career. Recognising this fact, for fact it is, it becomes incumbent on all to co-operate with the object of effecting by mutual help that which it is so desirable to attain—a means of livelihood for themselves when they can no longer labour, or for those who are dear to them who may be left helpless in the world.

This is essentially a practical question, and it is better to admit the position at once and make the best of it than to lose time in indulging in speculative theories instigated for raising, in some way or other, the wage rate of gardeners. This cannot be effected by any artificial means whatever. So long as young men are trained as gardeners in the present liberal manner, and in far greater numbers than vacancies can possibly occur for them to fill, so long will, and must, the wage rate of gardeners remain as it is, or fall

lower. It is not the habit of millionaires even to pay more than the market value of anything they may purchase, whether it is skilled or unskilled labour or any material commodity; and gardeners act on exactly the same principle, for none of them will give a shilling for a knife, no matter how good it may be, if he can get one of the same quality for ninepence. Far better, then, will it be to recognise the real position of the craft and act accordingly than to indulge in any golden dreams of the future, and go on dreaming until the time of a sad awakening occurs, and they find themselves worse than before—willing but not able to labour, and with nothing to rely on but the casual charity of others to enable them to live.

The remedy lies in co-operation of a material kind for a substantial purpose—contributing during years of health and activity to a common fund from which the members can claim as a right a share of the benefits which it offers in the time of adversity.

The Gardeners' Royal Benevolent Society, which has lately been the subject of discussion, was established for the benefit of gardeners or the widows of gardeners in their old age. But this "charity," to quote its Secretary's description, is not well understood, and does not enjoy the confidence of those to whom it appeals for support; and as its acting official has distinctly declined to enlighten the public on the administration of the Institution in the only way in which he could do so effectually, we can only conclude that any efforts of ours to that end would not be agreeable to him, and therefore turn to another source, in the hope of finding a means of helping those of our industrial readers who are desirous of helping themselves to do so prudently, safely, and profitably.

We are well aware that a great number of persons engaged in gardening as a vocation are members of some of the great general benefit societies, such as the Foresters, Odd Fellows, and other organisations of that nature. They are to be commended for their endeavours in thus making provision for the adverse contingencies of life; but the Society which we desire to bring as prominently as possible to the notice of our readers offers far greater facilities to its members, while it is not less safe. Our primary object in doing this is to benefit gardeners, and not to advertise the claims of this particular society. If any other institution exists of the same nature that offers greater advantages to its members, and is equally and indisputably safe, we shall be glad to be made acquainted with it, and will not less willingly urge its claims for support.

The United Horticultural Benefit and Provident Society was started by gardeners for gardeners, and its directorate consists wholly of gardeners—the Trustees, Messrs. G. & J. Wheeler and J. George; Treasurer, Mr. J. Hudson; and Secretary, Mr. J. F. M'Elroy, being well-to-do members of the craft, and the Committee shrewd, practical, business men. That they are equal to their duties the flourishing state of the Society demonstrates, and we have no doubt whatever that once its character becomes fully known it will command the support of gardeners generally, and the number of members will rapidly increase.

We have been cognisant of the existence of this Society for some time, and have quietly watched its progress, naturally hesitating in a matter so serious to publicly recommend it until we were abundantly satisfied with the soundness of its principles and of its satisfactory working condition. On neither of these points have we the slightest misgivings, and we do not hesitate to speak of it in unequivocal terms of approval.

Since the publication of Mr. Heale's letter on page 339 last week we have carefully examined the books of the Society, and nothing could exceed the alacrity with which Mr. M'Elroy placed them at our disposal. We were invited to scrutinise every page, examine every item, and point out any fault. We did examine closely, but could find no fault, and the extremely clear and accurate manner in which

all the transactions are recorded is a credit to the Society and its Secretary.

Established in 1866, it made comparatively small progress during the first few years, and on the present Secretary commencing his duties twelve years ago only numbered forty members. Since then there has been a constant and steady increase, and, what is particularly important, a vastly greater proportionate increase of funds, the balance sheet of 1882 showing £2485 1s. 10d. invested in consols, and ninety-six subscribing members. The increase of the sick fund over the preceding year was £182 17s. 6½d., and of the benefit fund £54 10s. 8d., or a total of £237 8s. 2d.; and against this what were the disbursements?—the extraordinarily small sum of £21 18s. 5l., this including cost of management, sick pay, and moiety, according to rule, to the Benevolent Fund, thus showing a balance on the year in favour of the Society of £215 9s. 7d. And what becomes of the rapidly increasing moneys invested? What are they for, and where do they go? Mark the reply. Each member has a separate account, and is furnished every year with a separate balance sheet. He is credited with the money he has paid during the year, which is added to his accumulations during all preceding years, also with the interest arising from his fund; then is deducted his moiety of the sick pay that has been incurred during the year—which last year did not amount to 6d., and the remainder is banked for him. For instance, we take as an example the account of one member. For this purpose the book was opened at random and the first account extracted: it is that of Mr. George Ingram of Balham, a comparatively young member.

	£	s.	d.
Deposit balance for 1882	9	2	2½
Interest added	0	5	3
Contributions for the year	1	6	0
	£10	13	5½
Deduct for share of sick pay	0	0	4¾
Total invested	£10	13	0¾

Mr Ingram thus increased his account during the year by £1 10s. 10d., and this was effected by a payment of 6d. per week, or £1 6s., and at the same time entitled him to sick pay during the year if he had needed it. It will be seen by this that 4s. 10¼d. more than he paid in was added to his account; and it will be perceived also that this gratifying result is provided by the interest that accrued on the sum invested. We now arrive at a very important circumstance that is worth remembering—namely, the probability, amounting almost to a certainty that, after a member has contributed to the funds for, say, seven years, that the interest alone of his money invested will meet his full share of liability for the sick fund, and every penny he pays in will go to increase the amount of his deposit. This, be it remembered, is his own money payable in full, with interest added, to whoever he appoints to receive it in the event of his decease. But if he lives he cannot draw it himself until he is seventy years of age, by which time the accumulations will amount to something substantial. The account cited is an actual one, and if the member referred to compares it with his balance sheet he will be able to point out any inaccuracy, if any has occurred, in the transcription of the figures. Every member's account is thus kept separately, only some being older are much larger; as for example, Mr. W. Heale has placed to his credit £38 5s. 0½d.; Mr. G. Wheeler, £37 14s.; Mr. F. Moulard, £37 14s.; Mr. J. George, £37 13s. 11½d.; and Mr. Heims, £27 17s. 6¼d. Should these members continue subscribing until they reach the age of seventy there is scarcely the remotest doubt that the aggregate sum to which they will then be entitled will amount to at least £500. It will be seen, therefore, that this Society, besides affording relief during sickness, acts as banker for its members, and practically becomes a life insurance company as well.

It is in the above important respect that it differs from the ordinary benefit societies, and the advantages cited of this Gardeners' Benefit and Provident Institution cannot be

over-estimated. The fundamental difference between the two was forcibly stated to us by Mr. George Baker, late gardener at Coombe Cottage, Kingston-on-Thames, and now of Membland Hall, Ivybridge, Devon, to whom the Society is much indebted for its success, and who was its Treasurer for many years. "I have paid," observed Mr. Baker, 7d. a week into the Odd Fellows (or Foresters, we forget which), since I was eighteen years of age, and I am now fifty. I have, fortunately, had nothing out in that time, and if I go on paying all my life there will be £12 at my death." And then he continued—"I have paid 1d. a week less into our Gardeners' Society for seventeen years, and now have nearly £40 to my credit, and if I continue paying as long as I paid into the other I shall have £100. This is £100 if alive at seventy, against £12 at death, and 1d. a week paid more for the latter privilege than the former!

It may be thought, however, that the past year was specially favourable, and that the balance sheet of that year is not a fair index of the state of the Society. We frankly state this was our opinion, hence we copied the income of the benefit fund for the past five years, and the disbursements to the sick fund during the same period. We found what we anticipated, that the year in question was a good one, but the one preceding was better as regards the bill of health. The average of the five years will, however, fairly represent the condition of the Society, and this would reduce the deposit account of the members by the full amount of nearly 2½d. The figures are as follows:—

		BENEFIT FUND.					Sick Disbursements.				
		Income.									
		£	s.	d.			£	s.	d.		
1878	...	107	5	0	1878	...	3	3	4		
1879	...	116	3	6	1879	...	4	10	0		
1880	...	129	16	6	1880	...	4	0	0		
1881	...	135	3	6	1881	...	1	11	6		
1882	...	144	2	3	1882	...	2	2	8		
Five years' average	}	...	126	10	1¾	Five years' average	}	...	3	3	5

This shows a balance in favour of income, of no less than £123 6s. 8¾d. What more can be needed to demonstrate the safety and stability of this excellent fund? But it may be thought we have omitted to deduct the expenses. This is not so, for the management fund is kept separate, and is supported by a special contribution from each member of 2s. 6d. per year.

The weekly sick pay to which members contributing 2s. a month is 10s. 6d. for twenty-six weeks, and half that amount for twenty-six weeks more; those subscribing 3s. a month have 16s. and 8s. respectively. If a member's illness is protracted beyond a year he is transferred to the benevolent fund, and the Committee do the best they can in each case. During this time no money is taken from his deposit, and when he is receiving pay no larger amount than two days' sick pay monthly may be received from him; but there is a slight reduction from his payment:—½d. from each 1s. if he joined under twenty-five years of age, 1d. if between twenty-five and thirty-five, and 1½d. if between thirty-five and forty-five. This goes to the benevolent fund, and it serves another purpose by reminding the member that he is contributing a little more to the sick fund than if he were well, so in a double sense the sooner he is well the better. There are other points worthy of attention, but they cannot be mentioned now.

Members are eligible to join the Society between the ages of eighteen and forty-five years, and there is no entrance fee. An unknown person desirous to join must send a medical certificate countersigned by either a clergyman of the Established Church or a well-known gardener or nurseryman, and must also furnish a copy of the register of his birth or his baptism, so that there may be no doubt of his eligibility.

We have yet to refer to the benevolent fund, and would especially commend it to the notice of the affluent employers of gardeners, also to nurserymen who may be disposed to contribute. Much good may be done and has been done by this fund, and it is most desirable that it be strengthened.

The before-mentioned benefit fund is quite self-supporting, and the members each contribute one month's contribution to the fund immediately under notice. The interest from the deposits of members who discontinue payment also goes to this fund, the "principal" standing to their credit, and is paid to them or their nominees according to the rules; but the fund is chiefly supported by the contributions of honorary members of £1 1s. a year, or a life payment of £10 10s. These unfortunately are few, and as the Society and its objects become known will, we trust, increase considerably. So few are they that we publish their names. Life members: William Marshall, Samuel Morley, and James Brand, Esqrs. Honorary members.—Amateurs: A. H. Lancaster and J. A. Lewis, Esqrs. Trade and Nurserymen: Messrs. Clay and Levesley, R. Dean, W. Paul (Waltham), Paul & Sons (Cheshunt), James Veitch & Sons, and B. S. Williams.

The rates of contributions and payments were prepared by Mr. A. Finlaison, Government Actuary, who certifies that they may be safely and fairly adopted by the members of the Association. Appended also is the certificate of the Official Registrar of the enrolment of this Society, which entitles it to the privileges of the Acts relating to Friendly Societies.

The Committee also state that "in drawing up these rules they have endeavoured to give every possible assistance to the 'Gardener' compatible with safety; the many benefits contained in them will, they trust, cause gardeners as a body to join the Society and extend its benefits."

They also make the following appeal:—

"To those engaged in horticultural pursuits, both as a means of subsistence and pleasure, we respectfully ask them to use their influence in adding additional members to our list, for in the present day lessons of thrift are being taught in every way by those engaged in promoting the welfare of the nation, and we believe the rules of this Society are framed entirely for the adoption of its principles, as they enforce the advantages of a savings bank with that of a life assurance. By enclosing a stamp the Secretary will reply by affording every information as to the Society's benefits."

His address is Mr. John F. M'Elroy, Moray Lodge, Campden Hill, Kensington, London, W. We shall also be glad to answer any questions relative to this Society, which ought to become a national one, unless there is already in existence an institution of the same nature better deserving the support of gardeners in all parts of the country.

It must be understood that this Society was not established in opposition to the Gardeners' Royal Benevolent Institution; so far from this being so, Mr. M'Elroy is a member of the "Royal" and not of the Society of which he is the Secretary, as he was too old to join. He discharges his duty most efficiently, and gratuitously except when there is a small margin in the management fund, which is given to him; but his chief reward is in feeling that he is doing good, and the members have presented him with a watch in recognition of his indefatigable zeal and valuable services.

THE PHYLLOXERA.

IN the summer of 1879 a friend and near neighbour having discovered, to his dismay, the gall as well as the radicle form of this minute, prolific, and destructive creature on his newly planted Vines, at once, with commendable candour and genuine friendship, communicated the unpleasant news to me. It was an act of friendship, because many would have endeavoured to conceal the fact from even their most intimate friends. In short at, and previous to that time, many private as well as public establishments in various parts of the kingdom were and had been for some time previous silent, and I regret to say not in all cases ignorant harbourers of this unwelcome visitor. From these sources it was being distributed by some means or other, and in one form or other, to every point of the compass, not wilfully, but through carelessness which merited censure.

In the autumn of 1878 I had observed with considerable disappointment and anxiety that the Grapes in a range of three vineries under my care, composed of Hamburgs, Madresfield Court, and

Muscat of Alexandria, failed to swell and colour so well as they had previously done. I could, however, scarcely conceive it possible that these defects were occasioned by an attack of phylloxera, having in the previous autumn not only thoroughly examined and increased the size of the borders, but I had also regularly watched with the keenest eye for any appearance of the peculiar gall formed by this insect on the leaf ever since its name had sounded so unpleasantly in British ears. When, however, in the summer of 1879 my neighbour paid me a visit and with his phylloxera eye fully open, expressed his suspicions that the arch enemy was near, I lost no time in again examining the borders, and to my horror discovered its presence to an alarming extent. I mention these details not only to show how subtle are its movements and how rapid is its increase, but more especially to show that the gall form of the insect was never present on these Vines. Had the roots been infested in 1877 I should most certainly have detected it; I am also equally certain that no galls had been formed on the foliage.

At last, after anxiously watching for nearly a quarter of a century, was I suddenly brought in close contact with the enemy, not merely a few scouts but an army. Those who have been similarly situated will clearly understand my feelings. The knowledge I then possessed of these creatures was somewhat imperfect, as I had imagined that so long as the insect and galls did not appear on the foliage I was safe from its attacks. Here it was, however, and the question was how to destroy it. Having obtained the permission of my employer to use my own discretion in dealing with it, I decided after mature consideration to destroy the Vines. Seeing a report, however, that submersion of the roots in a vineyard in the south of Europe had produced satisfactory results, I determined before making the new borders to construct concrete tanks in which to form them, allowing numerous outlets at the base to answer the purpose of drains, and which could be closed at will so as to allow of the borders being submerged at pleasure. Before finally adopting this method I selected pieces of root swarming with insects and placed them in numerous vessels filled with water, some mixed and others unmixed with earth; these were carefully examined nearly every day under a powerful microscope, and after the lapse of three weeks they were found to be still alive. These experiments, however much they may differ in their results from some similar experiments made by others, were at least quite sufficient to deter me from incurring the additional expense of forming tanks for the purpose of submersion. The effect of submerging the roots for even this length of time would, I thought, be quite as bad as the disease. Whether the time of year when the experiments were made (October and November) when the insects were in a partially dormant condition, and might possibly then be more difficult to destroy, or whether the particular form which infested these Vines (the root form) is more tenacious of life than some of the other forms, I cannot say, but I had unmitigable proof that they passed through the ordeal for twenty-one days apparently uninjured. I therefore decided to subject them, and all future visitors of a like nature, to the more potent element, fire. As quickly as possible root and branch, soil and rubble, were committed to a fire specially prepared for their reception, great care being taken that every particle was thoroughly reduced to ash or cinder. The walls and floors both inside and outside, were then thoroughly deluged and washed with a mixture of quicklime and water; the woodwork and glass was well washed with water and soft soap; the houses were then made as airtight as possible and thoroughly fumigated with sulphur; the wood and ironwork was then painted two coats, after which I felt that a fresh start might with a fair prospect of success reasonably be made.

In preparing the new borders the greater part of the old soil in the form of ashes and cinder was again used by mixing it with fresh loam. Everything being prepared the young Vines, struck from eyes well cleansed beforehand, were planted the following spring, and up to the present time I am thankful to say there is no sign of the reappearance of the pest. Experience has taught me, however, not to be too confident about this mysterious visitor, so every autumn I thoroughly examine the roots not only of these, but also of every Vine under my charge. It is sometimes said that only inside borders are affected, but in this case both inside and outside they were equally bad.

I have frequently tried to account for its sudden and mysterious appearance, but have never yet been able to do so satisfactorily. The most reasonable inference seems to be this: The potting shed, which is also used as the unpacking shed, adjoins this range and communicates with it by a doorway through the back wall. As the Vines immediately opposite this door first exhibited symptoms of weakness and were in much the worst condition when the insects were discovered, it is very probable that a small piece of affected Vine root may have been carried or blown on to the border from some package received. Whether this be so or not, I have since taken very great care that all packing material be kept quite clear from it and at once consigned to the fire. If Professor Riley's observations are correct,

however, we need no longer speculate on this head. I will leave the accuracy of his assertions for the consideration of wiser entomologists than I. He says, if I recollect rightly:—"On one occasion when I was visiting the vineyards in the south of Europe, the air suddenly assumed a yellow tinge, and appeared like a yellow cloud overhead, which suddenly descended on the Vines and everything else in the shape of winged phylloxera." If this be so it seems useless to speculate as to its introduction into any locality, for what guarantee have we that a similar cloud may not descend upon us any day in the summer season? The same authority also says, I think, "There are no less than half a dozen forms of this pest," and the winged one is, I think, the last. Such being the case, how necessary is it that we should immediately destroy it when found, so as, if possible, to prevent it assuming the winged form.

Since writing the above I have seen Mr. Ward's articles on the subject, and should like to make a few remarks in respect to the suggestion he makes regarding the inspection of Vine nurseries. The scheme although good appears to be fraught with many difficulties, and yet, if earnestly carried out on a sufficiently broad principle, it might tend greatly to check the increase and spread of phylloxera. To be of any practical use, however, the inspection must extend to private establishments also, in which places, I fear, the enemy often finds a more secure retreat than even in the nurseries. Why not organise a "National Phylloxera Assurance Society," whose province should be not only to provide the necessary men and means for judicious and efficient inspection, but also to guarantee a part or the whole loss sustained by the immediate destruction of phylloxera when found?

Every private person and every public body would unhesitatingly subscribe to such a purpose if properly organised and perfectly administered.—T. CHALLIS.

P.S.—Since posting the foregoing I regret to add that in making my periodical inspection of the borders I have again discovered the presence of this terrible Vine pest—not in the same houses as before, I am glad to say, but in an older range some little distance from them.

As the roots of these Vines have been annually inspected with the rest, and as no new Vines have been introduced, I cannot in any way account for the present attack; and it is not at all probable that they could have been on the older roots last autumn, while the fibrous roots near the surface were perfectly free from any signs of them.

The Vines and borders are now being consigned to the fire as quickly as possible. In the meantime I am endeavouring to make such experiments with some of the infested roots as will, I trust, be of some practical value. One result already obtained induces me in a slight degree to modify my former impression respecting the effects of submersion. This result may be partly due to the somewhat earlier period of the year in which I have now experimented with the insects, when they are more active and probably more sensitive to injury; but of this and the effects of other experiments I am attempting to make I will report at a future time.—T. C.

NOTES ON HERBACEOUS PLANTS.

Crassula alpestris.—In the corridor here is a large pan of this interesting plant. It somewhat resembles *Sedum sarmentosum* (*S. carneum* of gardens), but the leaves are more cylindrical and of a very lively green. Branches and flowering stems reddish brown, erect, or only slightly inclined, 4 to 5 inches in height. The flowers are pure white, and as freely produced as those of any common Stonecrop. Each cluster consists of twelve flowers, which stand erect, and are scarcely a quarter of an inch in diameter, and in miniature are very suggestive of the flowers of the common Bluebell or wild Hyacinth. The five stamens are furnished with chestnut-brown anthers, contrasting with the five pure white petals. It is a South African species, and occurs at higher altitudes than most of its congeners. Our plant has been in bloom over two months, and two small clumps in bloom are represented on the rockery. It is said to be quite hardy, and if such proves the case it is a welcome addition to our alpine. As we only received it at the beginning of the present year we have not been able to test its constitution. We had, however, very severe and destructive weather during March, which it withstood. It is well known that many of the so-called hardy succulents disappear during winter months as much from the influences of damp, caused often by insufficient drainage, as from frost. It is intended to make special preparation for this plant on the rockery by taking out the soil of one of the compartments to the depth of 12 inches and filling it with stones and broken bricks, on which to place some gritty or sandy soil.

Houstonia cærulea (Bluets of Americans).—This is one of the most desirable of all the low-growing rock plants, and was introduced into Britain long before any bold attempts at establishing rock gardens had been made. It is not an alpine in reality, but it is most fitted

to associate with such plants on account of its dwarf compact habit and floriferousness. It is partial to wet situations, and when planted in such places it grows freely and bears full exposure to the sun with impunity. If grown on the rockery a compost mainly of peat and grit suits it well, and its position should be only exposed to early morning's sun. If grown in pots it requires partial shade, or the pots should be plunged in very moist ground with small empty pots beneath. This insures good drainage and prevents worms getting in. It varies in the colour of its flowers, these being blue, lilac, also white with the faintest tint of purple with a yellowish eye. The flowers, which are scarcely half an inch in diameter, are solitary and borne on slender stems 3 inches in height, which are almost leafless and spring from the centre of the dense rosettes of its small and rather succulent leaves. None of the varieties has originated under cultivation, but all exist in a wild state in North America, where it occurs in moist grounds from Florida to Canada, abundant in some provinces, and either local or unknown in others. It belongs to the same family as the *Bouvardia*, and the flowers of the two genera in the cutting of the corolla bear a striking resemblance to each other.

Centaurea stricta.—The genus *Centaurea* is one of the largest of the Thistle-head Composites, and embraces upwards of 200 either critical or well-marked species, the great bulk of which on account of their wild and weedy appearance are of little or no regard as plants for general ornamental purposes, and this is doubtless the reason we rarely meet with more than a few under general cultivation. One that is most worthy of general appreciation is *C. stricta*. It is as yet rare, and belongs to the same section as the very familiar *C. montana*, both of which have their flower-heads made more showy than they otherwise would be by the presence of the conspicuous ray florets. It is these barren florets which tend most to make such *Centaureas* worthy of merit. Did the common wild *C. nigra*, or Hard-heads of our pastures, only possess ray florets it would be no longer a neglected plant. *C. stricta* is of dwarf habit, only attaining a height of 1 foot, and is remarkable for its pleasing silvery foliage, which adds much to the beauty of the plant, and for some time after it has commenced to make growth it is an object of admiration, but as the leaves become old this silveryness gradually lessens. The fertile or disk florets are violet and purple, those of the ray a pleasing blue. The heads are 2½ to 3 inches across. The leaves are all simple and uncut, except those near the base, which are lobed. It is a true alpine species, and is well adapted for the rockery. For the flower border it is better than *C. montana*, as its branches are not prostrate, but grow erect and support themselves without staking. The species comes from the Maritime Alps, where it grows at an altitude of 7000 feet; it also occurs on some of the other European Alps, as those of Austria. The flowers are produced in July, but our plant is in bloom now, being the second time this year. It was originally growing in a pot plunged in one of the spaces on the rockery, and showed flower buds before I lifted it to transfer to a warm greenhouse, with a view of getting it in bloom for the Manchester Whitsuntide Show. Several heads developed through the little stimulus afforded, and it was one of the thirty alpines exhibited. The growth ripened early and the plant rested early in July, commencing its second season of growth shortly afterwards. The specimen is now much more vigorous than before.—T. ENTWISTLE, *Wood Lawn, Didsbury*.

APPLES FOR PLANTING.

As some intending planters of Apples may be at a loss to know what varieties to select, I herewith give a few particulars of some of the sorts which succeed best here (Hereford). Three years since we formed a pyramid plantation comprising 180 varieties. The following are a few of those which have succeeded best, all of which are worthy of a place in every collection.

Early Julien.—A very heavy and constant bearer, invaluable on account of its earliness. Excellent for culinary purposes, and acceptable for dessert. The tree makes moderate but healthy growth.

Oslin, or *Summer Oslin*.—Early and an abundant bearer, of delicious flavour. The tree is healthy and a good grower.

Lord Grosvenor.—Early, a grand culinary variety, and a most abundant and constant bearer. The tree makes most healthy and vigorous growth, surpassing all other varieties in this respect. It bids fair to supersede *Lord Suffield*, which is much subject to canker in this neighbourhood.

Stirling Castle is, without doubt, one of the very best culinary Apples in cultivation. If it has a fault it is that it bears too freely, and in consequence does not make strong growth. At the same time, being a small grower, a great number of trees may be grown on a small space of ground. It will keep till Christmas, and the quality is excellent.

Ecklinville Seedling.—A grand Apple, in use during Sep-

tember and October. Young trees produce annually heavy crops of immense fruit of first quality for culinary purposes. The tree is very healthy, and a most robust grower, making handsome pyramids and splendid orchard standards.

Ringer.—A grand culinary variety, and a most abundant and very constant bearer. In use during September and October. Healthy moderate grower.

Manks Codlin.—Good, early, and most prolific.

Golden Spire.—Early, distinct, handsome. A most abundant cropper, of good quality. Tree healthy, hardy, and moderate in growth.

Duchess of Oldenburg.—An early sort, which should be more largely cultivated, being an Apple of first quality, very hardy, free grower, constant and an abundant bearer; fruit very handsome. Tree makes very fine pyramids or orchard standards.

Dumelow's Seedling (Wellington).—First class, and in every way suited to this soil and climate, very rarely failing to produce immense crops of fine sound fruit, which will keep till May. The tree forms grand pyramids and splendid orchard standards.

Old Hawthornden.—Succeeds well, and bears constantly heavy crops of fine fruit of excellent quality. Moderate in growth.

New Hawthornden.—Like Dumelow's Seedling, this is quite in its element in Herefordshire, producing fine crops of magnificent fruit, which will keep till spring. Tree strong, healthy, and very vigorous.

Frogmore Prolific.—A most desirable free-fruited sort, of first-rate quality. In use from September to Christmas.

Lane's Prince Albert.—This will shortly be looked upon throughout the country as "the" culinary Apple of the day. The tree is healthy, and for productiveness and quality cannot be surpassed, young trees two years after grafting bearing immense crops of fine fruit, which will keep till March.

Cox's Orange Pippin.—One of the late-keeping dessert sorts that should not be overlooked. To insure success with this variety here we find it necessary to plant the trees on high ground, and in soil of a much lighter texture than is required for many others.

Irish Peach.—A productive early dessert Apple of first-rate quality, as is also Yellow Ingestrie.

Worcester Pearmain.—This makes very handsome pyramids and orchard standards, producing good crops of handsome fruit.

Peasgood's Nonesuch.—Very large and exceedingly handsome, bears well here on young trees. Excellent in quality for either dessert or culinary use. Free grower, and very healthy.

Lady Henniker.—Very good, and a free bearer.

Lord Derby.—Very large, and a most constant bearer. The tree makes very robust growth.

Cellini.—A very abundant and constant bearer, but unfortunately subject to canker, especially when planted too deeply or on ground having a stiff clay subsoil.

Tom Patt.—Probably cultivated throughout this country in larger numbers than any other sort. It is a long-keeping culinary Apple of very good quality, and is without doubt a "never fail." Growth free, healthy, and vigorous.

King of the Pippins and its allies succeed admirably here, producing grand crops of handsome fruit, suitable for dessert and kitchen use. It also makes excellent cider.

Nelson Codlin and *Summer Queen* are both excellent cropping Apples of great merit.

Court of Wick and *Court-Pendû-Plat* are late dessert varieties of great excellence, succeeding well and bearing constantly good crops of handsome fruit.—H. R. ILLMAN, *Hereford*.

ROSES IN POTS.

HAVING read the directions respecting this method of Rose culture that have appeared in the Journal from time to time, I should like to give my experience, gained in a Rose nursery where some of the magnificent specimens that have been exhibited were grown. The trade Roses are grown in the manner I will describe, and which I believe few private growers are acquainted with, as the method so far as I know has never appeared in print. If you think this first attempt of mine worthy of publication I will send a list of the best Roses for pot culture.

Most of the instructions we read on this subject are somewhat as follows—"Pot before flowering in loam, a little decayed dung, and some bone dust; then after flowering plunge the plants in ashes out of doors to ripen the wood," to which I add, "and get red spider." My instructions are, Pot the Roses after flowering, carefully picking some of the old soil from the ball with a pointed stick. If they require a larger pot, let it be only one size larger. Roses do not like a big shift. The soil should consist of good fibry loam (not such as I used instead of better when a foreman, which was clay and leaf soil) one barrowful, decayed manure one harrowful, road or river sand half a barrowful, a 32-sized potful of Clay's fertiliser, and one of soot; if a

few small crocks or pieces of charcoal are added so much the better. Pot the Hybrid Perpetuals first, and for every harrowload of soil left add a third of a barrowful of chopped peat for the Teas.

Pot firmly, and stand the plants in a house or pit (mine is a pit), water them three or four times to thoroughly soak the soil, and be sure they are dry before they are watered again. Keep them close and shaded for a fortnight or three weeks, syringing them twice a day; then gradually discontinue the shade till they will bear the full sun, always increasing the air with the reduction of shade, but close the house or pit in the afternoon, and syringe the plants if the weather is fine. If green fly appears fumigate lightly.

From the latter part of September keep the soil rather dry, but not to let the young growth flag. About Christmas they may be pruned in the usual way—that is, if they are to flower in April and May. If wanted in March prune a fortnight earlier. Stop the ends with painters' knotting like Vines. Before starting, the top soil should be stirred and sprinkled with Clay's fertiliser or blood manure. As soon as active growth has commenced weak liquid manure may be given; the draining from a cowshed diluted to the colour of "husband's" tea is good, but that should be discontinued when the blooms show colour. The fire heat should be about 55° by day, 45° by night; the April and May Roses may have the fire heat turned off when the buds colour unless a severe frost occurs.

Mildew may generally be avoided by ventilating carefully and opposite the wind. For instance, mine is an ordinary lean-to pit facing south; well, with an east wind blowing I should put a small tilt under the west side of the lights, but if mildew should appear sprinkle the pipes with sulphur in the afternoon, start the fire, and damp the pipes with the syringe till the house or pit is filled with steam, then brush the loose sulphur off in the morning.

The May-flowering plants will have to be shaded with thin canvas when coming into bloom. Very dark Roses open better under a mat at any time, as they scorch and turn blue. The instructions given apply principally to amateurs and gardeners like myself, who can afford only a pit to grow them in and are content with Roses in May. I learnt what I know of Rose-growing where bushes are grown 6 feet through, but the remarks apply equally to smaller plants; and if cultivators with little conveniences will try the method next season they will perhaps thank me for the few hints I have given when they see the plants that will be the result of the practice described.

One more hint and I have done. Keep the plants open, and if any shoots as thick as your little finger start from the bottom of the stem, pinch the point out 6 inches above the plant and cut it level with the top at pruning time.

The following list of suitable varieties will be useful to those who have had no opportunity of seeing a collection. I name nearly forty varieties—quite enough for most people, though of course many more might be, and are successfully grown in pots.

Hybrid Perpetuals.—Alfred Colomb, Avocat Duvivier, Baronne de Rothschild, Beauty of Waltham, Capitaine Christy, Charles Darwin, Charles Lefebvre, Comtesse de Serenye, Comtesse d'Oxford, Countess of Rosebery, Dr. Andry, Duke of Connaught, Duke of Edinburgh, Edward Morren, Général Jacqueminot, La France, Madame Lacharme, Madame Victor Verdier, Marie Finger, Marie Rady, Prince Camille de Rohan, Prefet Limbourg, Paul Jamain, Sénateur Vaisse.

Teas.—Alha Rosea, Anna Ollivier, Catherine Mermet, Isabella Sprunt, Jean Ducher, Madame Berard, Madame Chedanne Guinnoiseau, Madame Falcot, Madame Lamhard, Marie Van Houtte, Niphotos, Perle des Jardins, President, Ruhens.

In addition to the above, if you have a lady to cater for who has a thought to spare for other things than single Dahlias and Sunflowers, grow two or three plants of that little gem Rosa polyantha Mignonette, and you will be rewarded by hearing her exclaim "Oh, how lovely!"

—A. L. G.

CELERY FLY—BRASSICA CATERPILLAR.

NEVER in my experience has the maggot of the Celery fly committed such havoc with the leaves of Celery as it has this season. The leaves of Parsnips have suffered from the same pest, and Parsley has not escaped. Now I should like to know if there is anything more potent than dusting the plants with soot on a dewy morning before the deposit of the eggs, and repeating occasionally to ward off the ravages of these pests. One thing is certain, that some six hundred early plants, not many yards away, are not infested, and these were supplied frequently with the stable drainings, but the skeletonised plants have had no such attention, and they may have lacked the salts of soda and potash which the earlier plants had from the urine of the stable cesspool. Some may think that effluvia from the watering with the stable drainage caused the fly to pass over the early to the late plants, but I consider that value of the ammonia, both of the drainings and of the soot, was due quite as much to the portion taken up by the roots and transmitted to the leaves of the Celery. Every plant, it may be contended, is a fitting feeding ground for insect pests of some kind. Once there they will increase and carry forward their work, and diseases of fungoid origin attack alike healthy as unhealthy plants; but either we must admit predisposing causes of parasite infection, or disregard some of the essentials of health, which, it is needless to state, are never ignored with impunity. Many cases in point might be adduced, as the freedom of Peach trees grown under glass from blister, the Tomato grown outdoors being attacked by disease whilst those in a genial temperature under glass are free from its ravages, and we must entirely set at nought the fact that a dry atmosphere encourages

thrips and red spider, and a close, moist, and cold one some of the forms of mildew.

But I have another calamity to record—viz., the prevalence this season of the Cabbage caterpillar. The white butterflies were assiduous in their attentions to the quarters of Broccoli, Savoy, and the different crops of Brassicas, not omitting Turnips. Soon after the butterflies had disappeared sparrows commenced an attack on the eggs, and many leaves of the Brassicas were soon cleared. When the caterpillars appear the sparrows quit the quarters, but then the thrush appeared and devoured the caterpillars with avidity.

Another point. I have a batch of Brussels Sprouts (about a thousand), and these were not infested with caterpillar. Was it due to their being manured with native guano, whilst those that suffered most had ordinary stable and farmyard manure?—G. ABBEY.

THE MADRESFIELD COURT BLACK MUSCAT GRAPE.

JUDGING from the numerous complaints which are still being made by many cultivators respecting the tendency of the berries of this Grape to crack during the ripening process, it is evident that the cause of this peculiarity is either imperfectly understood or ignored by those who fail to grow it free from this defect. Many years ago, soon after it was sent out, I chanced in company with a friend to visit the Horticultural Gardens at Chiswick, where in a small house hung some medium-sized bunches of this Grape perfect in shape, size, colour, and flavour, and without a blemish. The border was dry, the house was freely ventilated, and the atmosphere was cool and dry. A half-hour's walk from Chiswick brought us to another vinery in which were hanging some very fine Black Hamburgs and some Madresfield Court, marvellous in size, but alas! the contents of one-half the berries was on the stage and the floor underneath them. In colour they resembled Prunes, and the flavour was also very similar to that fruit. The border, an inside one and newly made, was wet, the temperature high, and the atmosphere moist. The gardener directed our attention to the Hamburgs with just and pardonable pride, but to the Madresfields he pointed with contempt. My friend smiled, and quietly remarked that the same conditions of treatment were evidently not suited to the two varieties. These two practical lessons learned in so short a time were neither ignored nor forgotten by either of us.

My practice has since been to withhold water almost entirely from the border after the berries attain that transparency which invariably precedes the colouring period. The house is also ventilated as freely as possible, without unduly lowering the temperature, and if the border be an outside one it is carefully protected from rain. Should the weather prove unusually bright at this time, and the foliage exhibits symptoms of exhaustion, sufficient water is given to prevent injury, care being taken if the border is inside not to saturate the whole surface, but to apply it at intervals of about 4 feet, wetting the surface as little as possible, and immediately covering the saturated part with dry mulch. If possible a fine day is chosen for the operation, free ventilation is allowed, and a brisk atmosphere maintained by a moderate artificial heat. Under these conditions this exquisite Grape may be cultivated to perfection, and seldom, unless the weather be unusually humid, does it show signs of cracking; should it do so, however, a brisker fire heat and somewhat freer ventilation will immediately arrest its progress. It matters not whether the border be rich or the soil heavy, provided it is neither cold nor wet; nor is there any necessity either to allow the laterals to grow unduly or to resort to the somewhat unnatural practice of nearly severing the shoots below the bunches. It is, however, of the utmost importance that the pruning at this period consist only in pinching out the terminal points, also to expose every leaf to the action of air and light.—C. W.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

LIKE many other gardeners I have held aloof from becoming a subscriber to the above Institution because I could not see my way clear enough to warrant me in taking such a step without knowing more about the working of the Society. I hope that Mr. Cutler will throw all the light he can on the subject. A few plain questions seem to me to require some explanation. Suppose a gardener is in a position to pay £10 10s. at once as a life subscriber; if disabled would he be entitled to any benefit from the Institution before the one who had been a subscriber of £1 1s. for ten years? For instance, if a gardener at the age of sixty becomes a life subscriber of £10 10s., and the one who has subscribed £1 1s. for ten years, and is of the same age as the life subscriber, which of the two would be considered the most eligible for the charity? Suppose A had been a spendthrift and had no nest egg, and B, who had been provident and had paid his life subscription of £10 10s., and who had also made some provision for declining years, and suppose the two were to be candidates for the charity at the same time, which of them would be considered the most eligible? Here seems to be the difficulty. I, with several other gardeners, have been led to believe it does not much matter how many years a gardener may have been a subscriber; and as regards age he would not be looked upon as eligible for the charity unless he was almost reduced to beggary. This idea is anything but cheering to those who would be subscribers. These are questions that require to be thoroughly ventilated. Suppose a gardener becomes an annual subscriber of £1 1s., say, at the age of fifty, and he is now seventy, and he feels that he is not able to follow his calling; he may have been a hard-working pro-

vident man, and saved a few pounds, and that he naturally feels that he is entitled to some help from the charity he has so long been a subscriber to. Suppose another gardener, No. 2, is the same age as No. 1, and has been a subscriber the same number of years, he may have been in better situations and received better pay than No. 1, but he may have been improvident, and has no little banking account to fall back on; which would be considered the most eligible of the two to be placed on the pension list? I send my name and address in proof of my sincerity to the Editor, and with the object of eliciting information that is required by hundreds besides myself, and if Mr. Cutler does not choose to reply because I do not choose to publish my name the Institution will suffer more than I shall.—A BEDFORDSHIRE GARDENER.

CONGRESS APPLES.

THE two Apples now figured have hitherto been considered identical by many growers, and there is little doubt that a large number of trees of both varieties are growing in many gardens under wrong names. It did not need, however, a very close examination of the numerous dishes of them staged at Chiswick to determine the undoubted distinctness of the two Apples. As will be seen by the engraving, Lord Grosvenor is decidedly the larger of the two, and totally dissimilar in



Fig. 65.—Apple Lord Grosvenor.

form, being distinctly angular; the fruit is 3 inches high and 3½ wide. Jolly Beggar, on the contrary, is only 2½ inches high and is 3 inches wide, being of symmetrical outline; in fact, the two Apples are alike in colour—yellow, but there the resemblance ends. Both, however, are useful varieties, and whoever possesses either will not be greatly disappointed. Lord Grosvenor has a general resemblance to Lord Suffield, but the fruit is more dense and heavy—no small advantage, and trees bear heavily in a small state; the fruit also keeps longer than that of Lord Suffield. Jolly Beggar is still firmer, also a better keeper, and is a very productive variety either as a bush tree on the Paradise stock or a standard on the Crab. What is the origin of Lord Grosvenor? Is it the good old Shepherd's Fame under a new name? Certainly the two varieties as seen at the Congress were identical.

NEW ROSES.

OCTOBER is the opening month of the rosarian's year. Then the catalogues arrive. "Then should the Rose-grower" (I quote a high authority) "examine stock to see if any plants of the past two years are, in his opinion, worth adding to his collection; if any, order those at once." I propose to take the first part of this advice. It is, on the whole, much easier to carry out than the second. Mr. Hinton has told us how to decide on a good Rose—"What I cannot be without!" The present suggestions may be taken as "What I have or should like to have." And first about the Bennett Roses. I may be pardoned a triumph in predictions come true. When Her Majesty is in commerce there are not many who saw her this year at South Kensington and elsewhere who

will be able to refrain from an instant ownership; also Earl of Pembroke, a very fine dark red Marquise de Castellane, and Princess of Wales, a Tea of novel excellence, are now admittedly Roses of position. Mr. Frettingham announces Lord F. Cavendish for next month, brighter than the Duke of Teck, "the petals pointed, a distinction which no Rose yet possesses." This Rose has obtained a first-class certificate. Helen Paul, as a white Rose of the second year, is gaining ground; though we have not yet got what we want, nor are the two white seedlings of Baronne de Rothschild—Merveille de Lyon or White Baroness—either of them likely quite to satisfy. A white A. K. Williams is still a hope of the future. Among Teas I have noted Etoile de Lyon of last year very highly spoken of, and Madame E. Verdier, a darker Gloire de Dijon, and the Hon. Edith Giffard, in the way of Devoniensis, as being of promise; while Souvenir de T. Levet, a red Niphetos, sounds exceedingly tempting.

Considering the fashion for single Dahlias, and the strides they are making in excellence and popularity, I am not surprised to see two single Roses announced this season amongst the novelties—Paul & Son's Single White and Single Crimson Perpetual. I have long thought that this most deserving and very beautiful class was becoming quite overlooked, and therefore hail this apparent return to them of public opinion. If single Dahlias are to be shown, why not single Roses? "D., Deal," please consider the point. A class allotted to them by the National Rose Society would at once reinstate them. What could be more beautiful than a box of Persian Yellow, for example, buds and blooms being judiciously mingled? The Austrian Briar—what a unique colour! Again, Fortune's Yellow: how beautiful as a climber! I see "D., Deal," gives Longworth Rambler a place in the garden Rose list; while Madame Plantier, though rather more than single, has an excellence in the mass not easily forgotten. I should like again to express the thanks of one (I am sure representing that of many) to Mr. Hinton for his two most interesting Rose-election tabulated papers.—A. C.

RIPENING VINE WOOD.

MANY amateurs, and indeed some professional Grape cultivators, err on the side of being too sparing with fire heat in the case of young Vines. In these comparatively sunless and cold seasons it is no easy matter to have wood well ripened, unless much assisted by abundance of artificial heat combined with free ventilation. I was lately called in to see a gentleman's Vines, which have lost a season through the neglect in supplying fire heat. The gentleman thought he would have the wood ripened without having recourse to artificial heat, but he now sees he has made a mistake. He is now trying by means of heat to have some portion of the wood ripened, but the prospect is not good for his success. Disappointment and delay is the result of this want of attention. It is a penny wise and pound foolish plan to think to save a few coals at the expense of the Vines.

If Vines are worth growing at all they are worth growing well, and the simple rule that fire heat is almost essential in our climate to ripen the young wood of Vines should not be forgotten by those who wish to begin well in Vine culture. On this depend the hopes of the ensuing year. Unless the wood be well ripened fruitfulness cannot be expected, and will assuredly not be found.

Nurserymen are sometimes hampered for room when growing young Vines for sale, and consequently crowd them too much, also failing to give them as much heat as they need. When such is done the young canes are not in such a ripe and fit state as they should be, and cannot be expected to do as well as otherwise they would have done.

When, however, a purchaser obtains a well-ripened stock of young canes he has the prospect of their breaking well, and showing and growing well, provided that other things are favourable. If these make strong growths let them be liberally treated to fire heat and air as the season advances, and the result will be wood well prepared for another season, when the expenditure of coals will be amply compensated for by abundant fruitfulness.—VINE-GROWER.

ECCREMOCARPUS SCABER.

A TRULY grand climber for a south wall, and well worthy of being more extensively known and grown than it is. Although introduced into this country from Chili very many years ago, yet it is but seldom met with, and why it is not more generally grown we know not, since it is handsome in foliage and flower, and with ordinary care easily grown. I recently saw a fine example of this grand climber growing most luxuriantly against the south side of the house occupied by Mr. Luckhurst at Oldlands. Here it was allowed to grow freely and interruptedly, twining itself round and amidst the shoots of a robust Maréchal Niel Rose, thus presenting a pretty effect with its bipinnate foliage and orange-scarlet flowers. Mr. Luckhurst tells me that he undertook experiments with some of the shoots with a view to ascertain the amount of growth made each day. He marked certain young shoots in the morning, and on measuring these in the evening found the rate of growth to be from 6 to 12 inches in about the same number of hours. It will thus be seen that this is a rapid grower and would quickly cover a large space.—T. W. S.

WHICH IS THE BEST WHITE ZONAL PELARGONIUM FOR BEDS?—Will some of your readers give the name of the best white-flowering variety

for bedding-out purposes, and the county where grown? In this district Madame Vaucher runs too much to leaf, and White Vesuvius, which is good under glass, comes too pinky outside to be satisfactory.—S. C., Norfolk.

DOUBLE-GRAFTING APPLES AND PEARS.

I AM glad to see that the problem of double-grafting Apples is attracting attention. The experiments of Mr. Harrison Weir noticed by you are most interesting and valuable, and I trust that other, and specially Scotch, pomologists will prosecute similar investigations. I have long advocated this method and personally experimented, but my efforts are yet too immature to publish. We shall see by-and-by.

Double-working Pears has long since been proved a great success. Some fifteen years ago I dismembered a large Pear of the old useless Honey sort that covered the gable of my house, and grafted thereon Comte de Lamy, Beurré d'Arenberg, and Easter Beurré, October, January, and March varieties. These far surpass in quantity and quality (and both are excellent) anything I have or see around me on the Quince. At the same time I treated similarly an old much-cankered Jargonelle, grafting it with Louise Bonne, Doyenné Gris, Beurré Diel, and with as

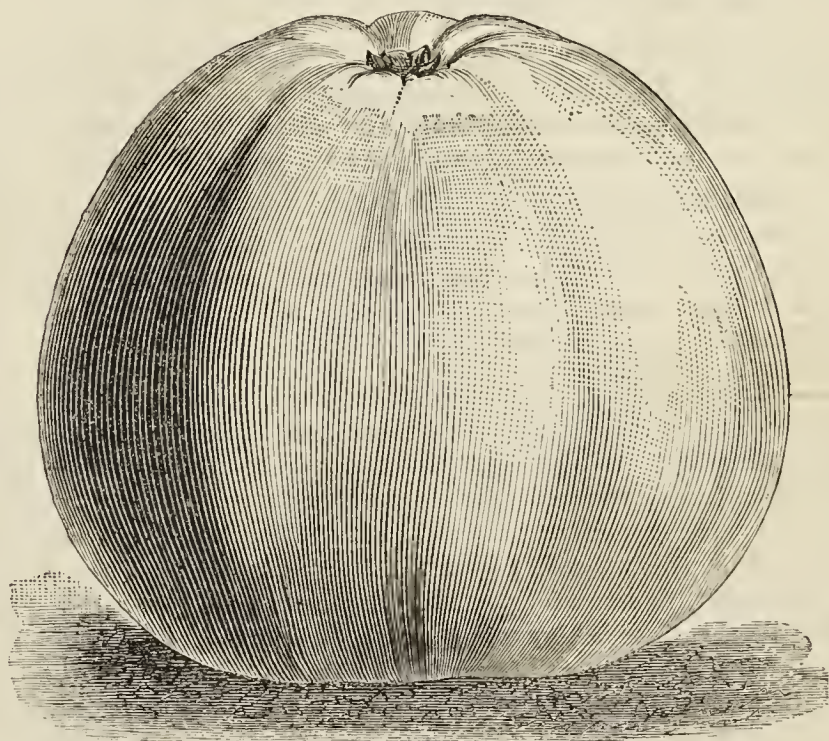


Fig. 66.—Apple Jolly Beggar.

great success, but not more than on the Quince. Another decaying Jargonelle I grafted with Swan's Egg and Muirfowl Egg—old common Scotch sorts as you know, which bear everywhere with us profusely on standards. Strange to say, although I had magnificent crops, neither I nor others who tried could ever ripen the fruit. Years ago I cut them also down and grafted triply with Croft Castle and Hacon's Incomparable. The former bears grandly but ripens badly. The latter has not yet fruited, but gives a good promise for next year. Once more only, not to weary you, I grafted on a Marie Louise (Quince), which is in our climate a shy bearer and with small fruit, such sorts as Passe Colmar and Beurré Diel. Both bear splendidly, but Passe Colmar is worthless in size.

We have much to learn yet, but we have made a noble and much-needed effort in the Apple Congress. Nothing has for years annoyed me more than the reckless disregard of some nurserymen alike of nomenclature and suitable sorts. I have seen a pyramid Cox's Orange Apple and pyramid Doyenné Comice Pear planted 700 feet above sea level.—M. H. N. GRAHAM.

ANEMONES FOR SPRING-FLOWERING IN POTS.

FEW can form any idea of the beauty of these plants when grown in pots for flowering during the spring months. *A. fulgens* is charming when well grown in 3-inch pots, and can be had in flower long before those planted in beds and borders outside. This variety is very effective with its bright scarlet flowers for the conservatory or greenhouse. It is very striking when a number of plants are staged together to form a front row to other plants; in fact, they are much more conspicuous in this position than when a few plants are employed amongst others. The roots should be potted at once in well-drained pots, as a good supply of water is needed while the plants are in active growth. If the tubers are strong one in each pot will be sufficient, but if larger specimens are

required three may be placed in 6-inch pots. The tubers should be well covered with soil, and the pots placed in a cool position. They can be covered with cocoa-nut fibre until the growths are visible, when it must be removed at once, and the plants kept afterwards as near to the glass as possible. No attempt must be made to force them, or failure will result. The double forms are undoubtedly the most valuable for cutting, and should be grown in 6-inch pots, three tubers in each. Any fairly rich soil will suit them, and a mixture of loam, sand, and a little manure will be found admirable. Frost should be excluded from them while they are in cold frames, and abundance of air must be given when the weather is favourable.—SCIENTIA.



WE learn that it is proposed to hold an EXHIBITION OF APPLES at Manchester. Mr. Bruce Findlay, the Curator of the Botanic Gardens, has issued invitations to growers, and it is stated that the Show will be opened to the public on November 1st.

— THE suite of apartments in Hampton Court Palace vacant by the death of the Right Hon. William Beresford have been offered to and accepted by Mr. A. GRAHAM, Superintendent of the Royal Gardens. Mr. Graham already occupies apartments in another part of the Palace.

— MR. CUTLER informs us that the simultaneous collection in aid of the Pension Augmentation Fund of the GARDENERS' ROYAL BENEVOLENT INSTITUTION for this year will finally close on November 30th. We are pleased to hear that the amount collected up to the 23rd inst. is £434 16s. 10d., as against £331 5s. 7d. at the same date last year.

— THE exhibition of CHRYSANTHEMUMS in the INNER TEMPLE GARDENS will, by the liberality of the Benchers, be opened to the public to-day (Thursday), and the display will well maintain the prestige that Mr. Newton has so deservedly earned as a cultivator of these popular plants. About 600 specimens are arranged in the glass house near the Thames Embankment, and they are all remarkable for their dwarf compact habit, vigorous foliage, and abundant buds. In a few days there will be a fine display of flowers; and already there are good blooms of Elaine, Chinaman, James Salter, Comte de Germany, Curiosity, M. Delaux, Chevalier Domage, Golden Beverley, Lady Selborne, Cry Kang, Ossian, and the pretty Pompon Rose Trevenna. A number of new varieties are included, and visitors will have a good opportunity of judging their respective merits.

— THE MIDDLE TEMPLE CHRYSANTHEMUMS are also unusually promising, the plants being in far better condition, more healthy, with finer foliage and larger buds than we have previously seen them. One thousand plants are grown, representing between 400 and 500 varieties, both old and new. They are arranged to form a sloping bank in the show house near the Fountain Court, and the effect that will be produced by a bank 100 feet long when the blooms are fully out may be readily imagined. Prominent amongst the earliest may be noted the indispensable Elaine, James Salter, La Charmeuse, Lady Selborne, Prince Alfred, Tendresse, and Catherine Talfourd. The exhibition will be opened on November 1st, and Mr. John Wright, under whose charge these gardens are now placed, deserves much credit for his first season's success.

— MESSRS. H. CANNELL & SONS, Swanley, send us flowers of some extremely pretty and distinct SINGLE DAHLIAS, amongst which two charming varieties are Midget (Cullingford), with very neat bright scarlet flowers 2 inches in diameter, and with florets of great substance. The other is named Chryso, and is exactly similar in size and shape, but of a rich clear yellow hue. These are two of the neatest varieties we have seen. Other notable forms are Gem of the Stripes, a small flower, the florets white in the centre and with broad dark scarlet margins. Virgo, also small, white. Curiosity is slightly larger, of a peculiar orange-buff hue. Mr. Moore is similar in form, but the florets are rich maroon, lighter at the base. Two varieties of still larger type are Mrs. Wright, with broad florets, white in the centre, margined with pale crimson, and Mrs. Goldring, a very large flower with broad petals of a soft rosy lilac tint.

— FLOWERS were also included of a distinct new Japanese CHRYSANTHEMUM GLOIRE RAYONNANTE, a superb variety of the Gloire de Toulouse style, with the florets quilled nearly to the point, much larger and of a warm lilac tint. It is a handsome and useful variety, the flowers being admirably adapted for vases, owing to their graceful appearance and soft colour.

— MR. JOSEPH WITHERSPOON writes respecting LORD DERBY APPLE as follows—"This Apple I have proved to be a most excellent variety for the north of England, it having borne heavily for the last three years. There it is not so large as Lord Suffield, but is of much the same nature and keeps longer."

— ROYAL METEOROLOGICAL SOCIETY.—The Home Secretary has acquainted the Meteorological Society that Her Majesty has been graciously pleased to grant it permission to adopt the prefix "Royal." The Society accordingly becomes the "Royal Meteorological Society."

— "T. W. S." writes—"I saw the other day a large quantity of the showy old plant AMARYLLIS BELLADONNA blooming in profusion in a narrow border in front of one of the conservatories at Buxted Park. These, I believe, were planted out many years ago, and, as they require but little attention and a limited amount of space, are worthy of a place in all gardens. It is, however, essential that the position be a dry one, and, as a rule, plenty of such similarly narrow borders occur in most gardens, which might be profitably occupied with masses of this showy old plant. I write profitably, since the large yield of flowers at this season will be found useful for cutting for decorative purposes."

— THE same correspondent finds that "IPOMÆA LEARNII succeeds remarkably well planted inside and trained up the roof of the winter garden. We allow it to grow unrestrictedly, and the majority of its shoots to hang gracefully down from the roof. It has borne an immense number of its beautiful blue flowers for months past, and will continue to do so for some time yet."

— THE forty-third ordinary meeting of THE ESSEX FIELD CLUB will be held at the head quarters, 3, St. John's Terrace, Buckhurst Hill (opposite the church), on Saturday, October 27th, at 7 o'clock P.M. The following papers will be read:—1, "Deneholes and their Relation to other Earthworks, &c.," by F. C. J. Spurrell, F.G.S. 2, "Miscellaneous Notes on Deneholes, 1883," by T. V. Holmes, F.G.S., M.A.I. The rooms will be open at 6 o'clock for the exchange of books and for the convenience of exhibitors at the meeting and conversation.

— "C. L." writes—"An enormous specimen of the fungus POLYPORUS SQUAMOSUS was recently found near the Welsh Harp, Hendon. Its greatest width was 3 feet, and the transverse diameter was 2 feet 8 inches, the stem being 7 inches across. Several others of slightly smaller dimensions have also been found in various districts this season."

— GARDENING APPOINTMENTS.—MR. George Newnham has succeeded Mr. H. King as gardener to Mrs. Carter at Ospringe House, Faversham, Mr. Newnham having previously been foreman in the same gardens. Mr. Thomas Hope, late gardener to the Hon. R. F. Boyle of Purley Lodge, near Reading, Berks, is now gardener to the Hon. Mrs. Eyre, Lindley Hall, Warwickshire.

A HORTICULTURAL RAMBLE.

THE ramble was not undertaken for that purpose. It had several objects in view. Clerical duty, the opportunity of visiting some kind and valued friends who had often wished me to do so, the seeing of some historic places, notably a pilgrimage to the "birthplace of the immortal bard," as the Yankees say; but as in all my "gurgling to and fro" horticulture has ever a charm for me, so I determined on this occasion to keep eyes and ears open, to gain information, to see what I could, and to tell afterwards what I thought might interest the readers of the Journal, especially as many of those whom I visited are not unknown to its columns as contributors to the general fund of information its pages give on all gardening subjects. Of the glories of Kenilworth and Guy's Cliff, as they have no horticultural interest I forbear to speak, but

WARWICK CASTLE

must not be left unnoticed. The situation of this splendid specimen of mediæval architecture is beyond expression beautiful. The beautiful stretch of the Avon, the magnificent view from the Laxtons, and the glorious Cedars which form the chief attraction of the grounds combine to form a feature of surpassing beauty which lingers on one's mind ever

afterwards. But if it is said that a brave man struggling with adversity is a sight fit for the gods, then must the position of Mr. Christie, the able and intelligent gardener, be one especially deserving of praise, for I do not know any place where it is carried out under greater difficulties. Take, for example, the rosery. Nothing can be more charming than the selection, nor have I seen one where better taste was displayed in the arrangement; but then it was so surrounded by lofty trees that the sun was to a great extent excluded, consequently the wood did not ripen and the blooming was very indifferent. I can sympathise with anyone who has not the Gladstonian mania of hewing down noble trees which have stood for centuries, but then if a rosery had to be made it would surely have been better to have selected some more open spot where the trees would not have interfered. But this is nothing compared to what has been done in the garden. Some few years a long range of houses for growing Grapes and Peaches, &c., was erected. Now when we consider the height of excellence to which all subjects connected with horticultural buildings has reached, it seems perfectly incredible that a range of buildings like these should have been placed facing east; and more than that, that Peach houses should have been placed behind other houses, with what results may be imagined. It certainly does great credit to Mr. Christie that with all this disadvantage he has been enabled to grow and ripen an excellent crop of Grapes; but this has been done by an expenditure of fire heat which would under ordinary circumstances have been totally unnecessary. But all his skill availed nothing with the Peach house. More luxuriant growth and clearer foliage it was impossible to see; but as the sun never reached the lower parts of the trees, consequently the wood could not ripen, and as a result no fruit could be produced, he had not had more than a dozen Peaches off the fine-looking trees. Who the planner of this marvellous fiasco was does not seem to be well known. Nobody seems inclined to acknowledge the authorship, but it is a remarkable instance of how things "ought not to be done." The garden is, as a good many places of the kind are now, underhanded, and the only marvel to me is how with such small resources Mr. Christie manages to effect what he does. The stove and greenhouse plants were well done, and along what is called the Earl's Terrace, which is not generally shown to visitors, overlooking the river, a good collection of herbaceous and other plants was arranged.

ALDERMINSTER,

from whence my friend the Rev. J. A. Williams has oftentimes sent contributions to the Journal, is about five miles from Stratford-on-Avon, and is pleasantly situated in the midst of quite a model village. There Mr. Williams has a good collection of his favourite flower the Rose. It is not really the vicarage house, which is at some little distance, but one that he has rented, and is quite close to a very beautiful old church which has been partially, and is about to be completely, restored. It is easy to be seen what the ruling passion of the vicar is with regard to flowers, for while other things have a place, *the* place is given to the Rose. It will be remembered that Mr. Williams was formerly at Yardley Wood near Birmingham, where he rendered good service to the cause of the Rose; consequently he has not as yet sufficiently established his collection, but the plants were in excellent health, and, like a good many other Rose-growers, the Teas have carried him captive. His selection of these is good, and he is about to increase his culture of them, and will root out, as I believe everyone ought to do when Roses are so easily procured, all weak-kneed Hybrid Perpetuals and replace them, but will increase his number of plants; and I shall be very much surprised if we do not see his flowers taking a good place at the exhibition table. In another part of the glebe he has planted an orchard, and the young trees were most promising, while in the old vicarage orchard were some of the most splendid trees of Blenheim Orange with the finest crops I have seen for many a day. After enjoying my short visit very much he drove me into Stratford, where one had the opportunity of seeing all the points of interest connected with our great poet, and from thence I went on to Malvern. There were many places of interest in and about the neighbourhood of this favourite resort, but as I had only one day I arranged to spend it at

HOPE END, NEAR LEDBURY,

where my friend Mr. W. J. Grant has his fine collection of Roses. Hope End, the residence of Mr. Hewitt (whose agent Mr. Grant is), is a most lovely spot. The house is a new one, in the midst of a beautifully wooded park, from whence fine views of the Bean and the distant mountains of Wales can be obtained. The place is somewhat famous as being the birthplace of Mrs. Barrett Browning, the poetess—her father, Mr. Barrett, having formerly been owner of the place—and it is said that many of her poems were composed on an islet in the piece of water which lies at the bottom of the valley. Like most places in these western counties Conifers seem to flourish well, and fine specimens of Wellingtonias, Araucarias, &c., are to be seen in the grounds. The garden is a thoroughly old-fashioned one, and does not call for any particular remark; indeed, I was more anxious to see Mr. Grant's garden than that at the big house. His house is situated in the lower part of the valley, while the garden occupies the side of a piece of rising terraced ground. Many good herbaceous plants are to be found here, *Bocconia cordata* I noticed as especially showy; but the Roses are the *pièce de résistance*. Here on the house are fine plants of Maréchal Niel, Rêve d'Or, and other climbing Roses; here, again, in a sheltered nook are good plants of Teas. Teas also occupy the wall at the top of the terrace, while a fine piece of Hybrid Perpetuals evidences that good flowers have been obtained, and are making vigorous growth for another season. But it is at some distance from his house, in a piece of ground which he

has purchased, that Mr. Grant has his chief stock. The soil is good and the ground lies well to the sun, and is not shaded although sheltered. Here on the seedling Briar, Briar cuttings, and Manetti (the two former being preferred), is a fine stock of about 2000 Roses of all the leading varieties. It is needless to particularise the varieties grown, for go where we may the same sorts always are cultivated. There may be a few places where a variety or two is pre-eminently good—as Thomas Mills is more of a favourite in Scotland than in more southern regions; but as a rule Marie Baumann, A. K. Williams, Charles Lefebvre, Duke of Edinburgh, Alfred Colomb, Madame G. Luizet, and such well-known varieties, are sure to form the bulk of the collection, especially where the grower is an exhibitor. He cannot dispense with them, nor can he afford to fill his ground with varieties that will not stand the exhibition test. One knows how very common it is to hear, "How many sorts of Roses do you grow?" and by the uninitiated public you will generally get credit for your powers as a rosarian in proportion to the number of varieties you possess. But an exhibitor knows better. He knows that if he wants Roses for the exhibition table it is no use his encumbering his garden with Roses which, however pretty, are useless for his purpose. One can understand now in going through the country how it is that competition is so great at our shows. The keenness with which the Rose is cultivated brings so many more into the field that, whereas in the earlier meetings of the National Rose Society it frequently happened that many classes were so little competed for that money was oftentimes saved, now such a thing rarely takes place. Members, too, who formerly exhibited in smaller classes increase their stock, and, as in duty bound, go up into higher ones.

My rambles extended from Herefordshire into South Wales, and I had intended to have noticed something of deep interest I had seen there, but must leave them for my next paper. One horticultural treat I missed owing to my not having time enough. Mr. Grant had arranged for me to go to Eastnor Castle, but time went on so rapidly in going through his interesting garden that we had to abandon it; but I should have been glad to have seen our champion fruit-grower at home. This must be reserved, if all be well, for another season.—D., Deal.

NOTES ON CELERY.

THERE may be little to add to what is already known in the cultivation of Celery. This year we have a good quantity of a variety quite new to us, and one of the best we have seen—viz., Harrison's Early Pink. Among half a dozen others it is the favourite. Major Clarke's Red is much like it, and is also a general favourite; not gross, but solid and crisp. Sandringham Dwarf and Turner's Incomparable are with me as unlike the original as can be. They are both about 4 feet high, pithy and loose, instead of short, stiff, and of great girth. I have had Turner's Incomparable stand in good condition to the end of May with very little earthing-up. Height is not a qualification which is claimed for Turner's and its synonyms; but for hardiness and being exempt from "holting," we know of none to surpass it. One evil too common is earthing-up too high, and long before growth is complete, forcing the soil too closely to the hearts of the plants.

The blanching process has always been a subject of varied opinion. Some maintain that the Celery should remain free of the soil till it has attained its full growth. Tie the stems evenly together, then earth-up all at once. From what we have observed in market gardens round London by the one-earthing system, we were induced to a large extent to follow up the practice of doing the work all at once a month before the Celery was required for use; and for more than twenty years we have (except for the earliest supply during August and onwards) earthed-up the whole crop at once. Sometimes this has amounted to over two thousand plants. This year, however, we have returned to the old practice so well known of earthing-up the crop as it advanced in growth, probably about four times. We at no time have been so well supplied with early well-blanching Celery. When each succession is planted a dressing of manure is placed over the surface and a good soaking of water is given. This season we placed mowings of grass over the surface of newly planted roots and thoroughly soaked the ground with weak guano water, and later, before earthing began, stimulants were again applied. The Wortley collars have been used to some extent, and, we believe, with much advantage.

After the experience of this season from a practice we have adopted for many years in a very limited form, we are inclined to fall back on the system which has been in practice long before the present generation of gardeners existed. We put much value on a judicious application of liquid manure. Thomson's Vine manure worked into the surface of the soil and washed down with clean water; or, what is better, heavy rains, which will tell its own tale by a vigorous and crisp growth. Lettuce, Tomatoes, Cucumbers, Melons, &c., are also greatly improved by applications of this manure.—M. T. C.

THE NATIONAL APPLE CONGRESS.

AMERICAN APPLES.

AN interesting addition was made last week to the Exhibition at Chiswick—namely, a collection of about fifty dishes of Apples grown by Mr. G. R. H. Starr at Port William, Nova Scotia, and exhibited by Messrs. Nothard & Lowe of London. They comprised some beautiful, clean, and highly coloured samples of the principal varieties grown in America for

exportation to England, together with others that are more rarely sent. In several cases the specimens were extremely fine, but it was notable that in more than one instance English exhibits of an American variety were even superior to the home productions. This was especially the case with King of Tomkins County, of which a dish of even handsomely coloured fruits was sent from Nova Scotia, and was perhaps the most beautiful in the collection, yet in Messrs. T. Rivers' contribution from Sawbridgeworth the same variety was represented by fruits considerably larger though less highly coloured. Again, good fruits of a variety named Holly were shown, which appears to be identical with the well-known Beauty of Kent, and in several English collections equally fine or finer specimens were notable. A particularly handsome Apple was Chebuct Beauty, a rival in size to Peasgood's Nonesuch, but of an intensely deep, rich, shining red colour; a variety in Mr. L. A. Killick's collection named Batchelor's Seedling was precisely similar to this in colour and form, equally handsome, but smaller. An extremely beautiful variety of American origin and a great favourite in some districts is Maiden's Blush; the fruits are of moderate size, of a delicate wax-like yellow tint with a soft rosy blush on one side—a most pleasing contrast of hues. In its native land it is valued as a culinary variety, and is much used for drying in the approved transatlantic method. De Rocas Seedling is another variety distinguished by its pretty colouring; it is also a medium-size Apple, creamy-white, streaked freely with rich rose. Munson Sweet was an attractive Apple, yellow, with rosy streaks on one side and scattered on the other. Nicnac is also a pretty variety, yellow with a rosy crimson side. Chenango Strawberry is a conical variety prettily streaked with red, and Hutching's Golden Ball is a fine yellow Apple of good size and even form. These are the most showy varieties, and the others are as follows—Sweet Russet, King of the Pippins, good in size and colour; Gravenstein of Waugh, Gloria Mundi, Peck's Pleasant, Dutch Codlin, Fallawater, Catashea, Yellow Belle Fleur, Emperor Alexander, Flushing Spitzbergen or Vandevere, Gravenstein, Reynard, a large yellow Apple, globular in form, and about 3 inches in diameter; Fall Jeannetting, Drap d'Or, red and yellow, pretty; Talman Sweet, Hubbardson's Nonesuch, Catshead, very large; Porter, a fine yellow Apple; Concord Pearmain, Blue Pearmain, Blenheim Pippin, Rhode Island Greening, Lyscom, Baldwin, Rambo, and Cooper's Russet.

CURIOUS OR LOCAL VARIETIES.

From some of the southern and western counties numbers of local varieties bearing homely or curious names were shown, and in Somersetshire these were particularly notable. The cider Apples were not, however, largely represented, or an interesting array of names would have been provided. Such titles as the Pawn Apple, Lopen Never Blight, Cup of Liberty, Golden Farmer, Sugar and Cream, and Honeycomb are of frequent occurrence. The last-named is a pretty Apple about 2½ inches high, yellow streaked with very bright crimson, but most of the others mentioned are not distinguished by any great external charms. The Ten Commandments in the Herefordshire collections is said to owe its name to the number of cells observable when the Apple is cut transversely. In other contributions we notice the Pursemouth, Fox Whelps, Dog's Nose, Sheep's Nose, Striped Pitcher, Egg Apple, Pigeon, Hall Door, in one case named the "Kitchen Door," Wax Apple, Fairy Apple, Summer Strawberry, and Lady's Finger, with many other characteristic or fanciful titles.

Amongst the Swedish Apples several names occur which sound strange to English ears, but with the exception of one variety they do not demand special notice; this one, however, the Akero, is said to be a great favourite in Sweden, and possesses a very distinct flavour. The Apple is about 2½ to 3 inches deep, and 2½ inches in diameter, with a deep eye and slender stalk, sometimes having a prominent fleshy projection on one side; it is dull yellowish in colour, tinged with rosy crimson and dotted thickly with a darker tint on one side. The flavour is slightly acid, but very distinct and rich.

The Blue Pearmain included in the Chiswick and Nova Scotia collections is a curious American Apple which, as the name implies, frequently comes with a bluish tint that is especially noticeable when the fruits are freshly gathered. This is due to a knot of "bloom" which forms upon the surface of the skin and bears some resemblance to the bloom of Grapes. The Apple is also of good flavour either for eating or cooking, but is preferable for the latter purpose.

The Lady's Finger is represented by two different forms, one in Mr. Killick's collection and the other from Herefordshire. The former, which is that known in Kent, is also said to be called Turkey's Egg in Yorkshire. It is cylindrical and conical, 3 to 4 inches deep, green streaked and spotted with crimson. The Herefordshire Lady's Finger is more conical, about 3 inches deep, yellow streaked and spotted with red, and deep red on one side, a projection at the side of the stalk being very prominent. Both are pretty Apples and of good cooking qualities.

One dish of Pigeon is noteworthy in the Essex collections, where it is said that scions were obtained from Baron Von Winterfeldt, near Hamburgh. It is of a strange dull ivory tint, darker on one side, and bearing a peculiar "bloom," somewhat after the style of the Blue Pearmain already mentioned. It has been fancifully named Pomme de Jerusalem, because the four cells are disposed in the form of a cross.

As another though widely different curiosity may be mentioned a box of fruits of the true Service Tree, *Pyrus domestica*, sent from the Oxford Botanic Gardens, in which is a very fine specimen of this tree, probably the largest in the kingdom. The fruits are small, egg-shaped, very austere when fresh gathered, but after "bletting" like Medlars, which they then somewhat resemble in flavour, it is much liked by some persons.

CONFUSION OF NAMES.

As might be expected, the Committee have had considerable work in determining the true names of the Apples shown, for much confusion has evidently prevailed in all districts, as not only have some old Apples gained fresh names in different districts, but some well-known varieties have been strangely confused. The following few examples will indicate this:—

Shown as	Determined to be
Counsellor	Yorkshire Beauty
Rymer de Caldwell	Yorkshire Greening
D. T. Fish and Poor Man's Friend	Warner's King
Cheshunt Pippin	Harrold's Pippin
Hamilton's	Hambledon Deux Ans
Newtown Pippin	Evagil
Cobham	Dutch Mignonne
Belle Dubois	Gloria Mundi
Emperor Napoleon	Small's Golden Pippin
Formosa	La Fameuse
Red Hawthornden	Yorkshire Beauty
Betty Geeson	Ringer
Lord Clyde	Golden Noble
Downton Pippin	Small's Golden Pippin
Old Nonpareil	Sturmer Pippin
Lord Nelson	Nelson's Glory
Flemish Beauty	Count Pendit Plat
Reinette Grise	Kentish Golden Knob
Flower of Kent	Tower of Glamis
Pott's Seedling	Tower of Glamis
Grenadier	Lord Derby
Warner's King	Stirling Castle
Golden Reinette	King of the Pippins
Broome Hall	Beauty of Kent
Barker's Seedling	Warner's King
Gadd's Seedling	Beauty of Kent
Cox's Pomona	Emperor Alexander
Calville	Cox's Pomona
Devonshire Queen	Red Autumn Calville
Spice Apple	Pitmaston Golden Pippin
Rendell's Pippin	Court of Wick
Gloucester Pippin	Blenheim Pippin
Reinette de Canada	Warner's King
Lord Exeter's Favourite	Hick's Faney

GLOXINIAS.

THESE are not so difficult to grow as is too generally, I think, supposed. The flowers are produced in great profusion, and for richness and variety of colour are not easily surpassed. The most that can be said against them is the flowers are too fragile and short-lived to be very serviceable in a cut state.

They are, however, very useful and telling in specimen glasses for dinner-table decoration. Another recommendation is, they may be had in flower at any time of the year; and where choice, easily grown, consequently cheap, flowers are in request, I would recommend their more extended cultivation. Having grown a batch of seedlings this year, and thinking a few cultural hints may be both serviceable and seasonable to those of your younger readers who may feel disposed to grow a few plants next year, I give my mode of procedure. The seed should be sown as early in the season as circumstances will permit. It may be sown either in a seed-pan or pot. Fill the pot three parts full of any rough material to act as drainage, on which place about an inch depth of finely sifted soil. Leaf soil and sand passed through a fine sieve is what we use. Make this perfectly level, and sow the seed evenly over the surface. Cover the seed very lightly with some of the same soil, give a gentle watering through a very fine rose, and place a piece of glass over the whole to prevent evaporation. On the top of this put a piece of paper, which will act as a shading as well as do away with the necessity of watering too often. The less watering the better. At the same time the surface soil must never be allowed to become dry. The seed will germinate freely in a temperature of about 60°. Keep a sharp look-out for the seedlings' appearance. When they show themselves remove the paper and shade only from the rays of the sun. Directly they are large enough to handle prick them out in pans or pots about 1½ inch asunder. When they begin to touch one another pot singly into thumb pots. Three parts peat to one of good loam, with a little silver sand and some charcoal broken small well mixed together, makes a very good compost to grow them in. In due time they will require another shift. Four-inch pots will be found quite large enough to grow them in the first season. They do not like overpotting. The drainage should be good, and they should be potted moderately firmly. Keep them close to the glass in a genial temperature, say 60° to 65° by day, and even higher with ventilation; water only when necessary, and shade from the direct rays of the sun. Water should be kept off the foliage as much as possible.

With the above treatment very creditable plants may be grown and flowered the same year. Indeed our batch of seedlings, which are now flowering profusely and will continue doing so for a month, were only sown on the 23rd of April. When the flowering period is over they may either have a rest given them or be grown on. That depends upon when they are wanted to be in flower. Any good sorts that the cultivator wishes to increase are readily propagated by the leaves. Insert the leaves into a pan of sand or leafsoil, and they will in due time produce bulbs that will ultimately make as good plants as the parent.—J. RICHARDSON, *Calverton Hall, Notts.*

MOSS ROSE—LITTLE GEM.

Moss Roses are favourites with everyone, the neat flowers, delicate or rich colours, distinct appearance, and pleasing fragrance, render

them unrivalled amongst the small-flowered types of Roses. A beautiful addition to the group is that shown in fig. 67, Little Gem or Crimson Moss de Meaux, which was raised by Messrs. W. Paul and Son, Waltham Cross, and sent out in 1880, when it speedily attracted general attention. Its popularity is growing every year, and we venture

arranged, that the flower in all its stages, from the bud to the fully expanded Rose, is a tiny gem. Those who are acquainted with the old Moss de Meaux, a lovely little Rose now almost extinct, may be told that the Little Gem is similar to that variety in size and shape, but the colour is deeper and fresher, and the plant grows freely, which



Fig. 67.—MOSS ROSE LITTLE GEM.

to predict that it will become one of the most favourite garden Roses in cultivation.

An excellent coloured plate of the variety was given in Mr. W. Paul's "Rose Annual" for 1879-80, accompanied by a good description, which we here reproduce.

"The flowers when expanded are not larger than a shilling; the petals are small in proportion, regularly shaped, and so beautifully

the former does not. It makes a beautiful compact-headed tree of small size when budded on short stems of the Dog Rose, the shoots formed after flowering rarely exceeding a foot in length. The form of the bud, flower, shoots, and leaves is well depicted by the artist, but the colour is usually of a much clearer tint, and the mossy envelope is equal, if not superior, to that of any variety in this group both as to style and quantity. Like all the Moss Roses of moderate growth, it delights in

a rich soil and close pruning, and thinning out the shoots where crowded is desirable. For freedom of flowering, when thus treated, we know of no Moss Rose to equal it."

If we recollect rightly this Rose has not been certificated, and if it has not it ought to have been, for both as a garden Rose and for affording charming flowers for cutting, it is a distinct and decided acquisition.

CONVOLVULUS CNEORUM.

THE Silvery Bindweed is a dwarf shrub from Greece with lanceolate leaves. It grows about 18 inches high, and is of semi-procumbent habit, which renders it very effective on the dry sunny aspect of rockwork, where it is hardy in all but the severest winters. The plant is evergreen, and bears a number of shining white flowers, which have the glitter of pearl, and, like it, are slightly tinged with red. Of free growth it soon forms a spreading low bush. Cuttings struck in late summer, wintered in a cold frame, and planted out in spring, form a bush nearly a yard across by September, during which it commences flowering and continues until frost. In order to guard against mishap from frost it is well to strike cuttings in August under a handlight, pot them when rooted, and winter in a cold frame or house. It may be mentioned that plants raised in this way, grown on in a cool house, and shifted into larger pots as required, are very showy for conservatory decoration. The flowers are borne like those of *C. mauritanicus* at the points of the growth, hence stopping must not be continued longer than is needed to lay the foundation of a compact plant. Although not nearly so trailing in habit as *C. mauritanicus* it makes a desirable basket plant, but is best seen as a rock plant. It does well in loam with a little leaf soil or decayed manure, and a little sand to keep it open. Good drainage is essential.—G. ABBEY.

SIX MONTHS IN A VINERY.

NEW YEAR'S DAY, 1883.—Other preliminaries having been attended to, we last week examined the border, or at least that part of it situated inside the house, as to its condition with regard to moisture. This was done by means of a small trowel, which was worked down a foot or 15 inches in several places. The soil was found to be so moist at that depth that when pressed it would cling together and show that water was not yet necessary, and, as it will be at least a month before the roots begin to move, watering may with advantage be withheld till that time. The outside part of the border we have no doubt is sufficiently wet, as it has had some 40 odd inches of rain on it within the past twelve months.

The winter so far having been a mild one, we have not thought it advisable to cover the outside border up to the present time, but were it to come very severe weather a little loose litter would be scattered over it, say 3 inches thick, to be removed in May, or as soon as the sun was sufficiently powerful to benefit the soil. Covering the border is at most a necessary evil, as the surface soil hardly becomes friable during the whole summer after having been covered for some time with moist dung; but still frost and melted ice are injurious to active roots and must be guarded against. I have known very serious checks to occur when this matter has been neglected.

The house is closed for the first time to-day, and a strip of paper is placed against the thermometer with instructions to the attendant to "keep to about 53° to 55°, night and day, by fire heat." These figures are not strictly enforced. Should very severe weather follow, there would be no complaint if the thermometer fell to 50° in the morning; and however much sunshine there may be we shall not for the present open the ventilators, but rather welcome the additional natural heat and house it to the utmost extent. It is a pity one single ray of the sun should be wasted at a time when it is so precious.

January 20th.—The weather during the past three weeks has been very mild for the time of year, the outside temperature seldom falling below 40° at night, and frequently not lower than 45° to 47°.

Two or three times we have had a little hoar frost in the morning, which was welcome so far that it was generally succeeded by a little sunshine. Most of the weather, however, has been dull and warm, and very often foggy. Little fire heat has been necessary to keep up the desired temperature in the vinery, and as there has been but little evaporation damping down has not been largely practised. A little water sprinkled under the pipes three or four times in the three weeks was all that was thought necessary, excepting on one occasion during this week, when the sun shone brightly all day (quite a red letter day this, worth more than a week of the other sort of weather); the thermometer, which was shaded, rose as high as 90° at noon and remained up to 70° till dark. We sprinkled the walls and path rather copiously. The ventilators were kept close, and we thought the following morning that visible progress had been made.

The instructions are still "53° to 55°, by fire heat; no ventilation;" but should the dull warm weather continue we shall deviate from the latter part of the programme, as it takes so little fire heat to keep up the desired maximum; and the outside temperature, owing to the

absence of sun and wind, being almost at a standstill, there will be a danger of the air in our vinery becoming too stagnant. Sunshine for an hour or two or a fall in the natural temperature will prevent this happening. But rather than allow the temperature of our house to remain stationary for a week, we would give a little air and make the pipes a little warmer for an hour occasionally.

Owing to the house having been forced gently for several years, the wood being thoroughly ripened and the natural temperature high, the buds were seen to be swelling a week ago. The day's sunshine I have mentioned came at a fortunate time to consolidate the little growth which had already been made, and it also gave an impetus to the Vine to make more growth. Some of the buds at the upper end of the house (for as I have said before, it is not built on level ground) are already nearly half an inch in length, with round brown-looking points which may soon be expected to unfold and show the shape of the tiny leaves.—WM. TAYLOR.

(To be continued.)

AUTUMN PROPAGATION OF ROSES.

ROSES with us are, as a rule, ripening slowly; neither is this to be regretted, as those dwarfs, especially which from some cause ripened early and lost much of their foliage, are now throwing up strong shoots, and must eventually be much damaged by frosts. At the present time, if pieces of long ripened growth are cut into 1 foot lengths and firmly bedded in the open ground, the chances are the majority of them will strike root. The nearly smooth or thornless sorts, such as Countess of Oxford, Capitaine Christy, John Hopper, Marie Finger, Mons. E. Y. Teas, François Michelin, J. S. Mill, Empereur de Maroc, Miss Hassard, Hippolyte Jamain, Madame Lacharme, Docteur St. Amand, Perle Blanche, Egeria, Dupuy Jamain, Senateur Vaisse, Paul de Malleray, and Madame Chirard are the most easy to propagate in this manner. Soil of a medium texture and to which road grit has been freely added appears the most favourable for the purpose, and it should be well broken up and made firm again, and the cuttings dibbled in to half their length, taking care they touch the bottom of the holes and be well fixed. It is a mistake to crowd the cuttings, as it is quite possible to have them in a flowering state during the following season. I recommend that the rows be made 18 inches apart and the cuttings from 10 to 12 inches asunder in the rows, and it is of great importance that they be inserted at once. By allowing this distance the young plants have room to properly develop, and when replanted the following autumn they lift without much injury to the roots. Heavy land, being generally liable to crack, is unsuitable for Rose cuttings. Neither will they lift well out of it. In any case it is advisable to mulch the cuttings with rough manure or other material, this serving to protect them, and also prevents loosening by the action of frosts.

There are three Roses we find particularly serviceable, as affording the greatest number of cut blooms when on their own roots, and these are Countess of Oxford, John Hopper, and Souvenir de la Malmaison. The latter also strikes readily, and continues to yield perfect though small blooms till frosts intervene. Another good "own root" Rose is Dupuy Jamain and La France. Mons. E. Y. Teas and Maurice Bernardin are very serviceable.—W. I. M.

GARDENS ABOUT BRISTOL.

THERE are few districts where gardening is better practised, nor where gardeners are more united or receive greater encouragement from their employers, than in the neighbourhood of Bristol. This is evidenced by the well-supported Society of Gardeners, which has Clifton for its head quarters, and which, thanks to the liberality of many gentlemen and nurserymen interested in horticulture, are enabled not only to hold two annual excellent horticultural exhibitions on their own ground, but also to successfully compete either individually or collectively at any exhibition where good prizes are offered. This, despite what some critics assert to the contrary, is to me proof positive of the capability of the gardeners, and a tour among them tends to strengthen that opinion. Every place visited gave evidence of the proprietor's love of horticulture as well as the intelligence and care of the gardeners in charge, and this, coupled with the fact of all being located in beautiful districts and commanding some of the finest views imaginable, rendered my rather hurried visit thoroughly enjoyable. Ashton Court is the most famous place near Bristol, both on account of its much superior dimensions and excellent management, as well as the success attending Mr. Austen wherever he exhibits either fruit or vegetables; but this exceptionally fine garden has already been described in these pages. There are also other well-managed gardens I was unable to visit, but trust to do so another season. May starting-point was

STOKE HOUSE.

This, the seat of W. H. Budgett, Esq., is a handsome Elizabethan structure, which has been built upwards of two hundred years, and is still in excellent preservation. It is charmingly situated, the scenery including a grand view of Avonmouth and the Bristol Channel. There is a good expanse of lawn, which is well furnished with deciduous and evergreen trees and shrubs, among these being fine old specimens of Malberries, *Pavia lutea*, *Cedrus Deodara*, Cedars of Lebanon, and *Cupressus macrocarpa*. One of the approaches also runs through a fine avenue of

Elms and Chestnuts. The flower garden is overlooked from the terrace, and at the time of my visit was in excellent order and still gay with the usual summer hedging plants. The conservatory adjoining the flower garden is a substantial structure, built principally of stone and metal, and is in every respect worthy of the place and its surroundings. The roof is festooned with *Taenias* and other climbers, with *Pelargoniums*, *Habrothamnus*, &c., for the pillars and walls. Included in the centre beds are fine specimen Orange and Citron trees, *Latanias* and other Palms, *Dracaena gracilis* and *Araucarias*. On the side stages among the flowering plants *Achimenes* were conspicuous, such good varieties as *Mauve Perfection*, *Garibaldi*, *Ambroise Verchaffelt*, *longiflora alba*, and *Diadem* being the best. Near the conservatory a good rosery has been formed, and among the many varieties grown, both as dwarfs and standards, the most noteworthy as being good autumn bloomers are *Madame Victor Verdier*, *Edouard Morren*, *A. K. Williams*, *Charles Lefebvre*, *Mons. Filion*, *Dupuy Jamain*, *Marquise de Castellane*, *Baronne de Rothschild*, *Countess of Oxford*, and *John Hopper*.

The fruit and plant houses are closely grouped at one end of the kitchen garden, and consequently are less expensively heated and are more under control than is the case in other places where they are scattered. In the latest vinery such good sorts as *Madresfield Court*, *Black Alicante*, *Lady Downe's*, and *Gros Colman* were carrying extra heavy crops, and were finishing well. Figs in pots were trained on the back wall of this house and prove profitable. The Peaches are being re-arranged, and the space will be considerably economised and the trees improved by the operation. Instead of having the trees on the roof only, the front trees are trained to a semicircular trellis, and this will admit of the high back walls being also utilised. *Pitmaston Orange* and *Etruge Nectarines* are preferred, and *Royal George* is still the favourite Peach. *Early Alfred Peach* is found to crop heavily, the fruit being of fair size, highly coloured, and of good quality.

Of the plant houses the most attractive is the stove. It is a long and narrow span-roof structure, with a central path, on each side of which are arranged banks of well-grown Ferns and fine-foliaged plants, and a canopy of flowering climbers completes a very pretty display. Among the Ferns I was much pleased with healthy free-growing specimens of *Microlepia hirta cristata*, and *Lastrea Richardsii multifida*, both being erect-growing crested varieties, and suitable alike for exhibition and decorative purposes. All the best *Adiantums* and *Gymnogrammas* are also well represented, and of fine-foliaged plants the most noteworthy are specimens of *Anthurium crystallinum*, *Croton Weismanii*, *Ananassa sativa variegata*, and *Dracenas* in variety. Orchids are being taken in hand, and a fairly good collection already formed. The end back wall is being covered with *Jasminum graecillimum*, planted in a box of peaty soil, and this free-blooming highly scented Jasmine seems well adapted for this purpose. Much of the roof is covered with a healthy floriferous plant of *Allamanda Hendersonii*, this being planted in a small raised heap of soil enclosed by ornamental stones, the remainder of the roof being occupied by *Stephanotis floribunda* and *Bougainvillea glabra* similarly treated, and *Dipladenias* in pots. In a very slightly heated pit a large batch of stout healthy *Poinsettias* in various heights were growing, and these, when introduced into heat early in November, are calculated to rapidly develop fine showy heads. In one of the cool plant houses thriving specimens of *Lapageria alba* and *L. rosea* are planted in substantial narrow tubs, which are made with divisions which can be taken out and more soil added on each side, the tubs in this manner being gradually filled with soil and roots to the obvious benefit of the plants. *Primulas*, *Cinerarias*, double zonal *Pelargoniums*, and other winter-flowering plants are all well and extensively grown.

In the frame ground a house with a sunken floor and roof formed with old lights is devoted to Tomato culture, and here, with a very little attention, abundance of fine Tomatoes are ripened during the summer and autumn, and the structure is afterwards serviceable for wintering Roses and other comparatively hardy plants in pots. The kitchen garden is not large, but is well cropped with vegetables and fairly well furnished with fruit trees. Such good Apples as *Cox's Orange Pippin*, *Lord Suffield*, *Nelson's Codlin*, *Margil*, and *King of the Pippins* were the most heavily cropped. Fine examples of the useful Anemone *Honorine Jobert* were observable in different parts of the garden, the whole resulting from a few roots cut to pieces and grown in pans during the winter previous. *Gladioli* in considerable quantities and all named were at their best, and *Asters*, *Stocks*, and other serviceable annuals were very gay and the strains good.

Mr. H. K. Ward has for some years had charge of these gardens, and it is worthy of note that his employer apparently fully appreciates his services, and does not neglect his personal comforts, nor that of the young men under him. All are well and comfortably housed, and in addition a good and constantly increasing library is provided for them. Would that more employers would imitate such an example, as by so doing they would at no very great expense materially contribute to the enjoyment, improvement, and steadiness of their employes.—
W. IGGULDEN.

DINNER OF THE APPLE CONGRESS.

On Thursday evening a party of about sixty gentlemen, members of the Apple Congress, assembled at Ashley's Hotel, Covent Garden, by invitation of the Horticultural Club, to celebrate the triumph at Chiswick in the usual way, with a little dinner. Dr. Robert Hogg, F.L.S., presided.

The usual loyal toasts having been duly honoured, Dr. Masters, F.R.S., proposed "Prosperity to the Royal Horticultural Society." He said the

promoters of the Apple Congress were under great obligations to the Council of the Royal Horticultural Society for the liberal provision made at Chiswick for the Exhibition, and for the staff of earnest workers who had contributed in so great a degree to its success. The best Codlin in the Show was the one named *Barron*, and he hoped the compliment intended would not be thought a barren one.

Mr. John Lee responded for the Society. He had been associated with it for fifty-eight years, and considered himself the oldest inhabitant. The influence of the Society had been continuous and powerful for good, and the plants it had secured for our gardens were of the utmost value, and the best testimony to its consistent purpose. He could remember when Douglas sent home from America the Red-flowering Currant, and reflecting on the many splendid acquisitions of Fortune and others for which we were indebted to the Society, he would say that the climax was attained in the present wonderful exhibition of Apples.

The Rev. H. D'Ombraïn proposed the toast of the evening, "The Health of the Committee of the Exhibition." Perhaps, as an outsider, he could the better propose this toast than any of the gentlemen who were mixed up with the Apples. To estimate the service rendered to society by this splendid affair was, perhaps, as yet impossible. In fact, the Committee had not yet finished their labours, and it might be said, perhaps, in the presence of the gigantic task, that it could never be completed.

Mr. L. Killick of Maidstone responded. He said they had indeed been compelled to work as perhaps some of them, though busy men, had never worked before. They were well rewarded, for such an Apple Show had never been seen hitherto. But there was a greater reward now consummated, for such a meeting at the festive board of truly representative men was no common event. The Show was intended for practical purposes, and its practical value was incalculable. The manner in which they were backed up by the cultivators, by the press, and by the public was a matter equally for astonishment and delight.

The Chairman (Dr. Hogg) said all parties were to be congratulated on the results of the endeavour. The Exhibition surpassed all previous undertakings of the kind. He remembered with some pleasure the fruit shows of years gone by, but there had been none such as this, and it must stand alone as an episode in the history of horticulture. It told them of the cohesion of horticulturists and of the horticultural power of the country. The whole of this great undertaking was accomplished in the space of three weeks, and they were indebted to Mr. Barron for its initiation. Perhaps even this success could not add to the esteem in which Mr. Barron was held, for he was always winning and keeping the golden opinions of all who knew him as a practical horticulturist.

Dr. Hogg then presented Mr. Barron with a gold watch and chain that the members of the Committee had provided for the occasion in testimony of their indebtedness to Mr. Barron for his enormous labours and the knowledge he had brought to bear upon the difficult subject of Apple nomenclature.*

Mr. Barron accepted the gift and returned thanks in his own quiet manner, saying that the Exhibition had far exceeded his own expectations, and that he was well rewarded therein. There were 182 exhibitors represented in the Show, and the dishes or lots numbered 10,080.

Mr. William Paul of Waltham Cross proposed "The Horticultural Press," for which Mr. Shirley Hibberd responded.

Mr. Bunyard of Maidstone proposed "Prosperity to the Horticultural Club," acknowledging the indebtedness of the Congress for the opportunity of the present pleasant meeting. The Rev. H. D'Ombraïn acknowledged the compliment.

Mr. Harry Veitch of Chelsea proposed "The Health of the Chairman, and the Chairman returned thanks, saying he believed the unparalleled exhibition of Apples at Chiswick would prove of immense advantage to the country.—(*Gardeners' Magazine*.)

GRAPES AT GILMERTON, EAST LOTHIAN.

THERE is a crop of Muscat Grapes at Gilmerton, East Lothian, worthy of recording, not only on account of the high quality of the fruit, but also because of the weight of crop and the simple conditions under which they are produced. It may be premised that a span-roofed greenhouse divides a short range into three compartments; a vinery at one end being filled with black Grapes, the Muscat house of which I write at the other end, and the greenhouse is between the two. All the Muscats are heavily cropped and fine, but a double-rod *Bowood* at one end is decidedly the finest. The length of rod will be about 16 feet, and on each of these two rods an aggregate of 60 lbs. weight at least is borne. The finest bunches are at the bottom of the house, some of them 4 lb. clusters, full, symmetrical, and large berries. I counted forty-two bunches on these two rods, one having been cut before I saw them.

The following details I obtained from Mr. Brunton while he described the past doings of these Muscats, of which he is justly proud. Their age is twenty-four years, the crop they are bearing this year being nothing unusual. The Vines have never been syringed. They are up to the present day innocent of all knowledge of red spider, thrips, and mealy bug. No plants have been allowed inside the vinery doors. The ventilators are rarely closed, but a piece of hexagon netting is kept nailed across the highest apertures, which open at the top of the vineries to the

* The watch bears the following inscription:—"Presented to Mr. A. F. Barron by a few pomological friends as a souvenir of the Apple Congress, held at the Royal Horticultural Gardens, Chiswick, October, 1883."

north. Mr. Brunton prunes so as to always have plenty of young wood, three and four shoots coming away from one "spur," if we may so term the growths annually left. The border is watered three weeks before the Vines are started, and receives no more till the time to start the Vines arrives the following year. A dressing of manure 1 foot thick is placed over the border when it has been watered, and which is not removed for twelve months. On the outside border a thick dressing of manure is placed at the beginning of each winter. The border is filled with a thick network of roots close up to the surface. The borders themselves were made in a manner rather different from the usual mode. Drainage a foot in thickness was first placed, then the top of the drainage was "grouted" with hot lime and water, and on this the soil was placed. One important item in the management remains to be noted—Mr. Brunton does everything required to the Vines himself.—B.

GARDEN CHEMISTRY.

SOILS.

AFTER the elements of which plants are composed, in importance we must rank the media in which they grow—the soil where the roots extend, and the air from which the leaves extract the bulk of vegetable substances.

Soils vary very much in physical, but even more so in chemical properties. There is a great difference between a sharp sand and a putty-like clay, while peat differs from either. As no garden operation is of so much importance, and as nothing else so much determines the failure or success of our efforts as the choice of soils, it must be of great advantage to have an intimate knowledge of what constitutes the difference among them. On this foundation all gardening practice is built, and success would be surer, while failure would oftener be avoided, if young men were taught what to avoid and what to choose in the matter of soils among their first lessons. Instead of groping their way, after long years of perhaps bitter experience, to the light, or indeed never really reaching it at all, it would then guide their footsteps from the first. As many of the ideas about soils are erroneous no apology will be offered for going rather minutely into this phase of garden chemistry.

All soils, with the exception of peat, are chiefly composed of fragments of rocks, and if even the softest of these be viewed through a good double lens this fact will be apparent. Sand then seems composed of boulders, limestone, or chalk of shells, and even clay looks gritty. For practical purposes an intimate knowledge of geology is not necessary to a good useful knowledge of soils, although the more knowledge one has in that direction as in every other the better. The nature of any given sample is of more importance than the particular formation in which it was found. It is very interesting to know that in the coal measures the soil generally is very poor, and in the old red sandstone generally very fertile; but a sample of good soil from over the coal deposits is for all that to be preferred to a poor one, though decidedly derived from the old red sandstone. In Fife some of the hungriest gravels occur in the district where the old red sandstone crops out, although very good also occurs; and over the coal measures—at the very spot, too, where the carboniferous strata are covered only by mould—good land occurs. In the long fertile tract known as the Carse of Falkirk and Stirling occurs land second to none in Scotland, yet the coal is underneath.

To the farmer the chemical composition of soils is perhaps of paramount importance; to the gardener physical properties come first. For both a good loam is best. To the farmer chiefly because it will often stand the continual drain to which it is too often subjected; to the gardener because such not only suits a majority of garden plants, but because it holds manurial matter better than light sandy soil, and is more easily worked and drained, being also warmer than clay. These are also advantages to the farmer.

The most common ingredients in soils are stones and sand in gravelly or sandy soil; these mixed with clay in loamy soils, clay in clay soils; sand, stones, clay, and lime in calcareous soils, and peat in bog earth. In addition humus is more or less present in all soils.

Sand is derived from the disintegration of rocks. Take a piece of trap and expose it to the air in our latitude. What after a time happens? It begins to decay, and we are all familiar with "rotten rock." The rain moistens it, for, compact though it may seem, it is porous, and water penetrates its structure. The frosts of winter expand this. Now the expansion of water as it becomes ice is quite irresistible. In this respect water differs from everything else. Mineral matters go on contracting the colder they get, and expanding the hotter they become. Water as it gets hot also expands from about 40° Fahr. upwards, but also from that downwards. But for this fact our ponds would in winter become solid ice. In freezing six pints of water become about seven of ice; hence ice is lighter than water, and floats, forming a protection to aquatic plants and animals instead of proving their destruction. But this expansive power proves destructive to the rocks, hence they crumble and fall; but the effect is chemical as well as physical. Mere mechanical force

grinds. The expansion of frost is merely mechanical. Now a piece of trap may be said to be composed of felspar and hornblende, and pieces of trap, no matter how small, are just composed of these minerals; but when triturated by the weather chemical decomposition comes into play. Felspar is a polybasic silicate of alumina, potash, soda, and traces of other bases; when chemical decomposition ensues the mineral breaks up into aluminic silicate, or clay and potassic and sodic silicates, &c. The aluminic silicate (clay) which forms from decaying felspar is very fine and soft. Hornblende, the other mineral in whinstone, as it is called in Scotland, contains much less alumina, but more silica, and as much as 10 per cent. of lime, 15 of magnesia, and 10½ of iron oxide. Sometimes felspar predominates in trap, sometimes hornblende. When the former is most plentiful a heavy clay soil is often formed from it very rich in potash. When hornblende predominates in addition to the potash, lime is also set free, but lime is apt to disappear. The Carse of Gowrie clay is a good example of a clay rich in potash, as much as 2½ per cent. being present in some spots—altogether a unique amount.

Granite does not contain hornblende, but contains a large amount of silica with a varying amount of felspar and mica. The silica appears in the polished monuments, with which most of us are familiar, like glass, and is in the form of quartz. The grey, greenish, or reddish matter mixed with the quartz is felspar. Soils formed from granite are often by no means poor in potash, but always deficient in lime and other necessary mineral matters. For this reason phosphates applied to Turnips in the far north often yield results which astonish those who are unaware of the cause. But most granite soils are very poor sands. Heavy rains wash away the fine clay, and with it everything else, that forms from the felspar, and leave the poor sand formed from the quartz. This fine matter is transported in the mountain streams when in flood; is carried down the brooks and rivers, and finally settles as silt in lakes or perhaps far out at sea. The further it is carried the finer will the matter be. The heavy particles settle first and form gravel; further on lighter sands form, then loams, and finally clays. A good example may be seen of the latter at present in process of formation off Grangemouth. Here the mud which comes from trap and granite hills, from the Ochils and Grampians, settles in the quiet of the Firth of Forth, causing no end of trouble and dredging to the harbour authorities of the upper parts on the estuary, and forming a large addition to the Carse of Falkirk, which is dry when the tide ebbs, and is, indeed, much higher than the cultivated lands within the dykes.

Few soils are so simply formed as these. They are, for the most part, made of rocks which have originally come from the igneous rocks (as those of the class to which trap belongs are called), but which have been degraded and remade times without number by such means as we have indicated.

By the means we have named, sandstones and clay slate and shale rocks have been formed. Another class exists—limestones. These form vast beds, and even hills and cliffs. They are familiar to us as chalk, marl, limestone, marble.

Doubtless in the far back past carbonic dioxide was much more plentiful in the air than now. This when dissolved in water—and it always is present in rain—becomes an acid possessing solvent powers on many minerals. It specially attacks lime. Hence the lime liberated by decaying rocks speedily becomes soluble, and is borne in every stream as bicarbonate of lime (calcic bicarbonate). Aquatic animals, many of them extremely small, separate this from the water and form their shells out of it, shells being carbonate of lime. Dying, their shells have been by ocean currents borne to sea valleys, and in course of long ages their accumulation has resulted in the immense beds with which we are familiar. In the case of corals the growth has been almost tree-like. Marls are just limestones which have been formed in the quiet of recent (geologically) fresh-water lakes. At the bottom of peat beds layers of shell are often found, and an occasional canoe. These have been formed in lakes which vegetation has since filled up. In some such way were the beds of limestone which lie under coal beds formed.

Burnt in the open air, limestones crumble, because they are chemically decomposed. Limestone is a carbonate of lime. The burning drives off the carbonic dioxide. Heated to a high temperature in a closed vessel the stone fuses—melts. Just in this way has marble been formed. Eruptions of trap or lava have fused the limestone, practically in closed vessels, because deep under air-excluding superincumbent layers, and the result is limestone fused—marble.

In all parts of the United Kingdom, but more especially in Ireland, great tracks of peat soils are formed. Peat beds are the remains mostly of mosses and bog grasses. They only form where water cannot get away, and being covered with spongy mosses on the surface, which not only love water but possess the power of holding it, and which have few soil requirements beyond water, keep dying at the base continually and as continually extending at the points, till in process of time beds of solid peat are formed, as much sometimes as 40 feet thick.

What we shall call moor earth is a kind of peat formed over thin poor soils, and often hard rock. It somewhat resembles mould, from which it, however, essentially differs. In this the Ericaceæ thrive. Bog earth is peat in an advanced stage of decomposition, also good for such of the grosser-growing Ericaceæ.—SINGLE-HANDED.

(To be continued.)

THE ROSE ELECTION.

MR. HINTON'S two lists of Roses in the Journals of October 11th and 18th are very interesting, and I venture to make a few remarks upon them. First, as to the new Roses sent out since 1877, or rather including 1877. As only six Roses were to be named as A1, and a great number apparently received a few first-class votes, while three—A. K. Williams, Madame G. Luizet, and Duchess of Bedford—receive thirty, twenty-six, and twenty-one respectively, there would naturally be a great falling-off afterwards in first-class votes. With regard to A. K. Williams, which is the only one which obtains full marks, Mr. Hinton contrasts it with Marie Baumann. With me it is decidedly a better grower; but as I happened to be judging at Manchester, where it was, I think, first shown, and being asked, after having gone through with my co-judges the portion of the schedule assigned to us, to adjudge the new Roses, and to decide with them which was the best stand, and also which was the best new Rose exhibited, we were unanimous in thinking it one of the finest sent out for a long time, and when I reached home I ordered two plants of it with a few other new ones. Next year, if I remember right, at the National Rose Show it received the premier reward as the best Rose in the Show. This caused it to be very much propagated, and I cannot help thinking that over-propagation, using every bud and forcing in heat, caused many weakly plants to be sent out. With me the first plants make very good upright growth, and it has the merit of opening nearly every bud perfectly, and it also forces well, and is a free bloomer.

Madame Gabriel Luizet is also, no doubt, a great acquisition, and I am not surprised that Lady Mary Fitzwilliam, though only sent out in 1882, obtained three first-class votes out of the four recorded, as there was a beautiful stand of twelve exhibited this year at the National Rose Show at South Kensington, and good as the Tea Roses were there this year, I thought it was one of the best stands shown. I quite agree with Mr. Hinton, though I have not grown many of the new Roses myself, but from what I have seen of them not many of the ninety-six will long remain in the catalogues. With regard to the Garden Rose Election I am glad to see our old friend Gloire de Dijon at the top of the tree, but I still doubt its being a Tea Rose, though it is called one; at all events it differs in habit from any other. We must not be surprised that many of what Mr. Hinton would call exhibition varieties come to the front in the list of garden Roses, for after all what we want are those which are free bloomers with well-shaped flowers. I am rather surprised with twenty-five voters that only one received full honours, and that so many different ones were named that the number of votes recorded fall off so rapidly.

Jules Margottin and Général Jacqueminot, though both good garden Roses, are much higher in the list than I should have expected, and I am surprised to find Charles Lawson, which is only a summer bloomer, named as No. 24. "D., Deal," puts Blairii No. 2 amongst his six, which also rather surprises me, as, though I have a good plant of it in a good situation, it rarely gives me a bloom. Céline Forestier, too, with me is also a shy bloomer, though a beautiful yellow, especially on the later shoots. "D.'s" list contains many which I fear would be found in very few gardens now, and it is certainly rather difficult to define what a garden Rose means, as distinct from any other kind of Rose. My idea is, Grow those which are good in habit and constitution, are free in blooming, and that are not too tender in their petals. There are some which like M. Noman, M. Lacharme, and others, will never open in wet weather, the petals being too thin they stick together with the damp. Even La France, beautiful and fragrant and free-blooming as it is, has this fault.—C. P. P.

By an accident I find I have classed Mr. E. Claxton of The Rosery, Allerton, near Liverpool, as a nurseryman. Taking the members of the National Rose Society and led by its list, the "Rosery," misled me. I wish to make the explanation in your columns, as it may cause Mr. Claxton annoyance in exhibiting. I should deeply regret this.—JOSEPH HINTON.



FRUIT-FORCING.

VINES.—*Early Houses.*—Vines from which ripe Grapes are to be cut by the middle to the close of April should now be closed, but fire heat need not be applied until the middle of November, except to prevent the temperature falling below 50°. It is advisable to have

in readiness a quantity of well-worked fermenting materials for introduction into the house when forcing is commenced; two parts Oak or Beech leaves to one part of stable litter, thrown into a heap and turned over a few times, will produce a genial atmosphere very favourable to the Vines before and after they start into growth. Old Vines that have been forced for a number of years will break freely at a lower temperature than young ones or those not previously subjected to early forcing. Especially does this apply when the canes have made a vigorous growth and had only a short season of rest. After the house has been closed for a fortnight a temperature of 50° to 55° at night, and 60° to 65° by day, will be suitable, and yet not too high to begin with at this season. Keep all young rods suspended in a horizontal position over the fermenting material, and syringe the rods and damp the walls and paths two or three times a day, but avoid keeping the rods constantly dripping with moisture, as it is prolific in inducing the emission of aerial roots from the rods. Apply water to the inside border, if necessary, at a temperature of 90°. The outside border must be protected from heavy rains or snow by a good thickness of dry fern or litter, if not already done.

Early Vines in Pots.—Those that have been started about the middle of the month will now be swelling the buds, and should be given the treatment in respect of temperature, syringing, and watering as advised for the early-planted Vines as above given, with a slight increase in temperature on mild nights, and in the daytime ventilating from 65°, and as far as possible effecting a change of atmosphere at least once in the twenty-four hours, as however essential a moist atmosphere is to a good break, a genial sweet atmosphere must not be lost sight of, as a close, stagnant, vitiated one is positively injurious. Keep the heat at the roots steady at 70° to 75°.

Young Vines in Pots.—Fruiting canes intended for fruiting next season and not to be started before December or later should be pruned at once, cutting all laterals close in and reduce the canes in length to 6 or 8 feet according to their vigour and the plumpness of the eyes; dress all the cuts with styptic. Keep in a cool dry house, and do not allow the soil to become dust-dry. Young Vines in pots not strong enough for fruiting should be cut back to a single bud, dressed with styptic, and kept in a dry place, and cool but safe from frost, until the time for starting into growth arrives.

Late Grapes.—Lady Downe's well ripened is unquestionably the finest for keeping up to May; and although the Grapes will now be fit for use, the quality is considerably improved by allowing them to hang on the Vines until the new year. The temperature should be maintained at a mean of 50°, 60° being the maximum and 40° minimum, allowing a free circulation of air when external conditions are favourable. Although damp is the greatest evil to be contended against, the soil of the border must not be allowed to become very dry, and if watering be needed it should be given in the early part of a fine day. To keep down dust the borders should be covered with dry bracken. If outside borders are still exposed cover them with a good thickness of dry material, and place over this lights or shutters to throw off the rain or snow.

Houses of Ripe Muscats.—Careful attention will be necessary where ripe Muscats are hanging, removing all leaves as they become ripe, and examine them frequently for the removal of decayed berries. Anything likely to cause damp must be avoided, and if there have been plants in the house remove them at once. The temperature for the present should be kept steady at about 60°, as a cold stagnant atmosphere is fatal to the Grapes keeping; and though the thick-skinned Grapes are not injured by moderate moisture, these soon decay when there is any excess either at the roots or atmosphere after they become ripe. Black Hamburgs should have a temperature of about 50° with free ventilation whenever the weather is favourable.

Renovating the Borders of Late Houses.—Where it is intended to make any alteration of the inside borders, preparation should now be made of material, so that the operation can be speedily performed as soon as the Grapes have been removed from the Vines. Turfy loam, old mortar rubbish, charred refuse or charcoal, and crushed bone got into a shed and mixed, will greatly facilitate matters. These materials may be used in the proportion of six parts turf, one lime rubbish, and one-twentieth each of charcoal refuse and crushed bones. For drainage nothing surpasses clean broken bricks, and these should be 9 to 12 inches thick. Provision should be made for the free passage of water from the drainage by suitable drains; but it will probably be expedient, as it is when the subsoil is wet or otherwise unfavourable, to concrete the bottom so as to prevent the roots striking into the subsoil, which should of course be done before the drains are laid. Thirty inches is sufficient depth of border, and if the whole of the soil be removed a 6-foot width of new border is quite ample for the first season, as this secures the filling of the border with roots, which properly fed is better than allowing them to ramble over a large space with few roots, and the danger of getting the whole into a sour state before it is needed for the Vines.

Cucumbers.—Brisk fire heat henceforward will be at times necessary, the temperature ranging from 70° to 75° with fire heat, advancing 5° to 10° from sun, and 60° to 65° at night, with a steady bottom heat of 80°. Ventilation must be moderate and careful, and given not to lower but to prevent too sudden and high temperature, admitting a little before 80° is reached, increasing it with the rising temperature, and so as to avoid cold draughts, and reducing it in good time, as a chill is injurious. Water the plants thoroughly when they require it with tepid liquid manure. The atmospheric moisture must be ruled by the weather, avoiding the extreme of too dry or too moist an atmosphere; damping available surfaces morning and afternoon will in most instances be

sufficient, and when sharp firing has to be resorted to it will be required more frequently.

HARDY FRUIT GARDEN.

FRUIT TREE PLANTING.—The Stations.—The preparation of the stations was explained in our last calendar. Let nothing induce you to plant in poor or shallow soil without such preparation. Our advice is not lightly given, and we have had full experience of soils—good, bad, and indifferent. Gardens wherein deep stations cannot be made advantageously are indeed few and far between. They are, however, occasionally to be met with, as for example at Newlands near Faversham, where there is only 14 inches of soil upon chalk, and upon the same formation beds of gravel upon chalk, with a poor thin surfacing of soil. Dwarf bushes and pyramids come into bearing quickly in such shallow soil, and yield excellent fruit for a few years; but the existence of trees under such trying conditions is a brief one, and it is best to resort to heavy surface dressings after planting.

The Time for Planting.—Under favourable conditions of soil and weather fruit trees may be planted from the beginning of November till the end of February; but experience has shown repeatedly that early planting in November answers best. The soil has time to settle and consolidate about the roots before spring; the healing of root wounds also makes considerable progress during winter; rootlets an inch or two long are frequently made before Christmas, and are rapidly spreading in the soil in spring by the time the stored-up sap is exhausted by new growth, which then sustains no check, for its demands upon the roots for food are promptly met and thoroughly sustained.

The Trees.—Plant no sickly or weakly trees. Avoid cheap offers of fruit trees; all hardy fruits of the best sorts may be obtained at most reasonable rates from our leading nurserymen, by whom due care is devoted to the production of healthy vigorous trees, named correctly, lifted and packed in the best manner, and despatched with promptitude. Unpack the trees immediately after they are received from the nursery, and if they cannot be planted, then bed them carefully in trenches, covering every root with soil, and if the weather is frosty shake a little litter over the soil. See that this is well done. We have in the pressure of a busy planting season had trees left in such trenches several weeks, which when taken out for planting had many roots dry and shrivelled, simply because due care was not taken to pack fine soil well about them. The trees lived, but none of them grew freely till the second year; a season's growth was lost—no light matter in fruit culture.

The Planting.—Before planting cut off all damaged roots, spread out the remainder at full length, work the soil thoroughly in among them, cover the top roots to a depth of 6 inches—not more, very deep planting often proves fatal, especially to Cherries—tread the soil firmly over the roots. Shorten the branches or stem to the bud from which new growth is required next spring, fasten the tree securely to wall, fence, or stake; attach a label to it bearing the name and date of planting, and spread a mulching of litter upon the surface. All this must be done at the time of planting and not afterwards, for every detail is to be regarded as indispensable. Enter also the position of each tree upon a plan of the garden, with its name and date of planting, and thus be prepared for any subsequent loss of labels.

Form of the Trees.—For walls: Peaches, Nectarines, Apricots, Figs, and Morello Cherries, all fan-trained, 15 to 20 feet apart, according to height of wall; Pears, Plums, and Cherries, single cordons 18 inches apart, or palmette verriers 15 to 20 feet apart. In all small gardens preference should be given to cordons for earliness and certainty of fruiting and variety of fruit. All large gardens should also have a considerable proportion of cordons. Espaliers: cordons or palmette verriers. Pyramids, 10 feet apart, are suitable either for garden or orchard. Bushes answer well when pruning is not understood; the only care required is to keep the centres open and the branches thinned—distance apart 20 feet. Standards should be 30 feet apart.

FRUIT LISTS FOR MARKET.—These lists contain all the most popular sorts of the Kentish fruit plantations, and the greater part of them are mentioned in Mr. Whitehead's "Hints on Vegetable and Fruit Farming," published last year under the auspices of the Royal Agricultural Society.

Dessert Apples.—Mr. Gladstone, Red Joanncting, Early Strawberry, Kerry Pippin, Worcester Pearmain, Red Astrachan, Devonshire Quarrenden, Ribston Pippin, Cox's Orange Pippin, Court of Wick, King of the Pippins, Claygate Pearmain, Adam's Pearmain, and Sturmer Pippin.

Kitchen Apples.—Early Julien, Duchess of Oldenburg, Keswick Codlin, Mank's Codlin, Lord Suffield, Stirling Castle, Cellini, Wormsley Pippin, Ecklinville Seedling, New Hawthornden, Loddington, Warner's King, Blenheim Pippin, Golden Noble, Lord Derby, Winter Queening, Grenadier, Dumelow's Seedling, Norfolk Beefing, Gooseberry.

Pears.—Summer Doyenné, Lammas, Windsor, Caillot Rosat, Bellissime d'Automne, Williams' Bon Chretien, Yat, Autumn Bergamot, Hesse, Marie Louise, Beurré Clairgeau, Eyewood, Louise Bonne of Jersey, Comte de Flandre, Beurré Bosc, Beurré de Capiaumont, Rondelet, Catillac, Bishop's Thumb, Broompark, Winter Nelis.

Plums.—Early Rivers, Diamond, Blue Prolific, Perdrigon Violet Hâtif, Early Orleans, Corse's Nota Bcne, Dauphine, Belgian Purple, Washington, Prince of Wales, Victoria, Prince Englebert, Pond's Seedling, Coe's Golden Drop, and Belle de Septembre.

Damsons.—Cluster and Prune.

Cherries.—Early Purple Gean, Early Rivers, Adam's Crown Heart, Elton, White Heart, Waterloo, Black Heart, May Duke, Black Eagle, Flemish, Kentish, and Bigarreau.

Nuts.—Pearson's Prolific, Kentish Cob.

Gooseberries.—Whitesmith, Early Sulphur, Crown Bob, Warrington, Lancashire Lad, Red Rifleman, Golden Drop, and Monarch. Preference is usually given to the first four for planting by the acre.

Currants.—Red Scotch, Red Dutch, Raby Castle, Black Naples, Baldwin's Black, and Lee's Prolific Black. In deep, cool, rich soil Black Currants are the most profitable of all market fruits.

Raspberries.—Prince of Wales, Fastolf, Red Antwerp, and Carter's Prolific.

Strawberries.—Keen's Scedling, Princess Alice Maud, Refresher, Dr. Hogg, La Grosse Suerée, Elton Pine, Eleanor, Comte de Paris, and Sir Joseph Paxton.

PLANT HOUSES.

Begonia semperflorens grandiflora.—Plants that are root-bound and have been flowering for some time should have a little artificial manure applied to the surface, which will assist them to make growth and continue flowering. Damp is the greatest enemy of these plants, and the flowers and foliage soon suffer if kept in a close moist atmosphere. A temperature of 60° at night will suit them, with an atmosphere as dry as it is possible. The last batch of plants raised from seed will now be well established in 3-inch pots, and should be dwarf and stiff if they have been kept near to the glass on a shelf, with ventilation when the weather is favourable. A portion may be at once transferred into 5-inch pots, and the others will be most useful for furnishing purposes in the size pots they now occupy. It is surprising what beautiful little plants can be grown in this size, and produce a large quantity of bloom if properly looked after and supplied with an artificial manure occasionally. This is one of the best Begonias that can be grown for winter.

Tydas and Gesneras.—If properly attended to these should be strong and giving every promise of a fine display of flowers shortly, especially the earlier-flowering varieties. The latter are attractive plants for table decoration; their beautiful foliage is very striking and effective, independent of their large spikes of flowers. Keep the plants as near to the glass as possible or they will become drawn, and then much of their beauty is lost. They delight at this season of the year in a rather warm dry atmosphere. Where much moisture is used when mixed with other plants they are liable to damp, or if the syringe is used near them their foliage becomes spotted and injured. Have these plants as much as possible by themselves, where water can be kept from their foliage. Their pots will be well filled with roots by this time, and weak stimulants should be given when they require water; that made from cow manure or clear soot water will be found very good, especially the latter.

Mignonette.—A few standards trained upon trellises may now be allowed to come into bloom, and another batch may be pinched over and tied down for the purpose of forming a succession. Later plants must have all flowers removed as soon as they can be seen, and encouraged in every way until the trellises are well filled with young growing shoots. These plants will now be growing rapidly, and must have the lightest position that can be accorded them. Our latest batches, all in 6-inch pots, are still in frames and as close to the glass as we can arrange them. They will remain in these positions until we are compelled to remove them to be safe from frost. Mignonette should never in any stage of growth suffer by the want of water; if allowed through carelessness to become dry once or twice the whole work of a season is thrown away, for when once the wood becomes hard and the foliage brown from this cause no after treatment can restore them.

Lily of the Valley.—These flowers are always appreciated, and where plants were assisted early to make their growth indoors under the influence of warmth, light, and air, they will now be thoroughly ripened and ready for starting. Plants prepared for early flowering soon produce their flower spikes if plunged into brisk bottom heat and the crowns shaded from light. To succeed home-grown plants single crowns are the best, and these for early flowering should be laid in pans or boxes amongst leaf soil or coeoa-nut fibre: for later flowering they can be placed thickly together in 5 and 6-inch pots. Early in the season they throw up their spikes rather irregularly; but when started in boxes and pans they can be drawn out as they come into flower, and vases filled or pots made up with them. The crowns of these should also be covered and plunged if possible in the propagating or any other close frame. Later in the season this close confinement is not necessary.

THE BEE-KEEPER.

HIVE-CONSTRUCTION, HONEY-PRODUCING, AND PRACTICAL MANAGEMENT OF BEES.—No. 6.

(Continued from page 345.)

Floorboard, &c.—This is 30 inches long and 19 wide, and is made of inch pine, with end pieces 2 inches wide running across the grain, tongued and grooved, and further secured by five 3½-inch nails at each end. Unless the wood is of good quality and well seasoned it has a tendency to sag a little in the centre owing to the length of the floorboard, so we set a loose leg resting on a brick on the ground under each, and this keeps all close up. It works on inclined runners,

and is wedged up in front only. The edge of the floorboard is rounded off flush with the front of the wedge when pushed home. This latter is made of two pieces of inch stuff with stay pieces at each end to give stability to the whole. It is difficult for one not conversant with the technical terms employed by joiners to make these details quite clear, but the accompanying diagram (fig. 68), which represents one end of the wedge and floorboard, will show how the parts are put together, and give an idea of the whole when complete. The rings at the side are to give a purchase just at the right place for withdrawing the wedge easily. No paint must be used where it will give trouble in parts which should work freely and easily, such as about the figure 2 in diagram. The front of the wedge, No. 3, has two pieces of wire bent in Vandyke shape along its whole length; these are useful as a foothold for the bees in windy weather. For about eight months of the year, say from March to October, a very large alighting board 26 inches long by 14 wide is used. It is made of light wood, and has a hinged leg to keep its outer edge about 5 or 6 inches from the ground. It is hooked on by a couple of eyes screwed into the front of the rounded part of the floorboard.

We do not find this alighting board any too large, and its uses are many and obvious—for hiving swarms, preventing crowds of returning bees from being dashed to the ground in windy weather, &c., while no toads or other vermin can creep up it, as they frequently do when the lower edge of the alighting board rests on the ground.

The porch extends along the whole front of the hive. It is

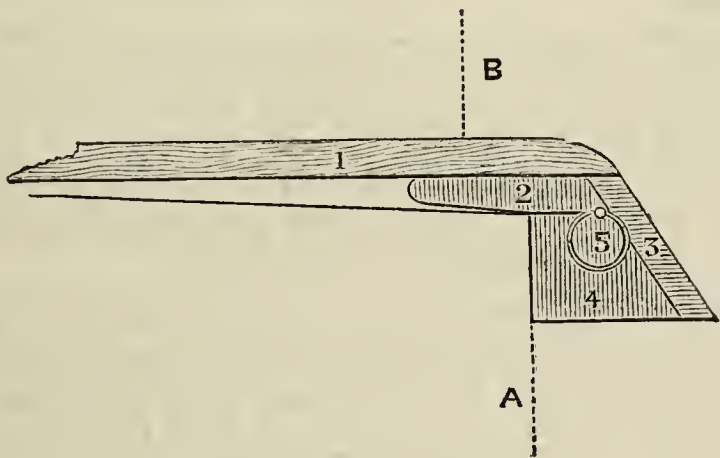


Fig. 68.

The dotted lines (A) indicate the leg of hive against which the stay piece rests. B, The hive front. 1, Floorboard; 2, Wedge; 3, Wedge front; 4, Stay piece; 5, Ring for withdrawing wedge.

4 inches wide, and is fixed close up under the plinth of the roof when the latter is closed. The level part of the floorboard is always dry in wet weather, as no drip can reach it. The roof is 8 inches high in the clear, rising to 10 inches at its highest point. It is made of light stuff, half inch for the sides and sloping portions of the top, and three-quarters of an inch for the ends and ridge piece, which latter is 6 inches wide, and has a groove along the under edges to carry off the rain. Three good-sized holes are cut in each end with a centre-bit, and covered with perforated zinc. The back plinth of the roof is made of stronger stuff than the others to give support for three hinges. A small chain at each end keeps the roof from opening too far back, and a hook and catch to secure it when closed complete the whole.

The hive stands on four stout legs, which are splayed outwards and raise it 14 inches above the ground.—W. B. C., *Higher Bebington, Cheshire.*

CURE FOR STINGS OF WASPS AND BEES— DESTROYING NESTS.

HAVING read the statement about the cure of wasp stings at page 283 of the Journal, I have tried the hollow tube of the key first, and then rubbed the place with a piece of Garlic, which seems to act like magic in removing the pain, and prevents any swelling, but, like all other remedies, it should be done as soon as possible after being stung. I have tried it with the stings from bees as well as wasps. I have also tried liquid ammonia and soda mixed, but not always with the same certainty as the Garlic. I first saw Onions recommended, but thinking Garlic would do better I have only tried Garlic, but I daresay Onions, Chinese Leeks, and Shallots would answer as well, whichever is the most convenient. I have taken over seventy wasps' nests this year, all within a circle of about a mile, so I have prevented them doing me much harm or damaging the fruit. I have taken some very large ones, some nests have been over 12 inches across. I found several in August with lots of young queens in quite as forward as in September other years. I have destroyed hundreds of young queens in the nests before they have had time to hatch out of the comb.

I take them by daylight, with a pair of the American bellows—the same as used for bees—and strong tobacco paper, and then dig the crown of the nest off and kill them with a rammer. I have sometimes

found the few left outside will begin to form another nest, but I have never seen any eggs or grubs in them, so I do not think they do much harm after. I have also found the nests not more than a yard apart, and one place I found three within 2 yards. Last year the wasps did a great deal of damage to the Peaches and Nectarines on the wall. I have gathered over a hundred at a time more or less damaged by them. This year the bees seem to have taken their place, but I find they only attack the damaged ones.

The wasps have been very busy on the Beech, Oak, and large Fir trees on account of the insects on them, and I have known the wasps to clear the Goosberry trees from caterpillars. I have often seen them fly away with the insects. So they do us a good turn sometimes as well as a bad one.—GEO. CLEMENTS.

BEE-FARMING.

I AM anxious to gain some information on the subject of keeping bees, as I have a very serious thought of establishing a bee farm in this neighbourhood, where I am surrounded with some 8000 acres of Heath. I wish to thoroughly acquaint myself with the following requisitions:—1, Is bee-keeping profitable? or is one liable to heavy losses in a bad season? 2, Is it such a thing as a person might take up with a fair chance of deriving a material income therefrom? 3, What would be the number of hives necessary to insure an income of say £400 per annum after all expenses are paid? 4, Is Heath alone without other feeding ground within a mile sufficient, in the event of a wet season during the flowering time, to insure a good crop? 5, What are the best hives to use and what are the best strains of bees to introduce? 6, What is the name of the best author on practical bee-keeping? 7, Does it require a very intimate knowledge of bees, their habits, and management to succeed? 8, Are there any bee farms in the neighbourhood of Surrey, and if so where? Having been a subscriber to your very interesting Journal for upwards of twenty years, I shall be glad for any assistance that can be rendered in this matter.—F. H. P.

[What do experienced apiarists say?]

SWARMS OF BEES IN SEPTEMBER.

THE reply given by "P. H. P." on page 325, in answer to my note on the above subject is not what I anticipated, being always under the impression that if the position which the bees occupy was favourable they would stop there and perish, as I have seen many do. Those it had been supposed were strong enough to stand through the winter, and being in straw skeps no attempt was made at feeding them, the bees probably knowing that by going further they might fare worse. I can understand bees turning out of their homes when altered circumstances compel them to do so, such as trees blowing down in which they are located, and an excess of rain finding its way into their abode, compelling them to seek fresh quarters. When discussing the matter with one who has watched and studied bees for many years, though not aiding his observations much by those of others, he was of opinion that in favourable autumns the bees would swarm as late as September, not from poverty but overcrowding. If this be true it would be supporting my fears—viz., that I had overcrowded my hives and fed them into the delusion that summer had come again. I must here state that the fears were only imaginary, as I had no reason to suppose that the bees were from our hives at all, but, knowing that I had made ours extra full and heavy, I was anxious to know if they were likely to thin themselves so late in the season.—C. WARDEN.

TRADE CATALOGUES RECEIVED.

- Bruant, Poitiers, France.—*Catalogue of Fruit Trees, Shrubs, &c.*
- F. W. & H. Stansfield, Sale, Manchester.—*Catalogues of Hardy Perennial and Alpine Plants, and British Hardy and Exotic Ferns.*
- Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Roses.*
- James Cocker & Sons, Aberdeen.—*Catalogue of Roses.*
- Kelway & Son, Langport, Somerset.—*Catalogue of Gladioli.*
- Charles Turner, Slough.—*Catalogues of Roses, Fruit Trees, and Florists' Flowers.*
- André Leroy [successeurs], Angers.—*Catalogue of Fruit Trees, Roses, &c.*
- George Cooling & Son, Bath.—*Catalogue of Roses and Fruit Trees (Illustrated).*



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

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

Vine Roots.—We have received a package containing Vine roots and foliage, but no letter relative to them. Perhaps the sender will communicate with us if he desires any information on the subject of his specimens.

Pampas Grass (*Denne*).—We cut some spikes last year at this time and placed them in vases in a room, and they are as "feathery" and about as fresh as ever. They should be cut when quite dry, before they assume a brown hue, and they will keep well in any dry room.

Chrysanthemum segetum (*W. Rayner*).—This is the name of the plant you have sent, and is popularly known as the Corn Marigold. The flowers have been fashionable of late, and extensively grown in gardens. In all probability if some of the sturdy plants that are showing flower buds so freely were taken up carefully and potted they would expand their blooms freely in a greenhouse during the winter, and be very bright and acceptable.

Grenadier and Bramley's Seedling Apples (*W. B. Goslin*).—These come under the denomination of large Apples. The measurement and weight of one of the best fruits in each dish exhibited at Chiswick are as follows:—Grenadier, 3 inches high, 12 inches in circumference, 10 ozs. in weight; Bramley's Seedling, 3 inches high, 11 inches in circumference, and 12 ozs. in weight. Both are undoubtedly good varieties. Bramley's Seedling we have grown, and know it to be a good grower and bearer of fine fruit.

Crimson Clove Carnations (*J. S. F.*).—Our correspondent, Mr. Muir, raises his own plants from layers, but not for sale; besides, he resides some 300 or 400 miles from you, and you can get half a dozen plants much nearer than that. There is scarcely a nurseryman or florist of standing who cannot supply plants of this fine old border flower. Try some local dealer, and he will no doubt be able to send you what you want; if not, they can be had from York.

Seedling Apple (*S. L. S.*).—We consider your Apple a promising variety, and advise you to send fruits when in the best condition to the Fruit Committee of the Royal Horticultural Society; in the meantime we will keep those you have sent until they are quite ripe for examination and description, and shall be glad if you will favour us with your name and address in case we may require to write you for any further information. The habit of growth of the tree though not common is not altogether singular.

Plunging Bulbs (*J. J.*).—The pots may be placed anywhere in the open air on a layer of ashes or other base impervious to worms, and covered 5 or 6 inches deep with cocoa-nut fibre refuse. This is the best material, and is used by the most successful cultivators of Hyacinths for exhibition; but ashes, leaf soil, or old damp sawdust will answer the purpose very well. The pots should remain buried until they are filled with roots and the crowns have pushed to the length of from half to three-quarters of an inch. In withdrawing them they should not be at once exposed to the full light, but covered with moss or paper funnels for a time till the growths gradually assume a green hue; after this they cannot have too much light.

Heating Greenhouse (*Idem*).—The boiler you name will answer very well, and you can have pipes attached to it of any length desired. They ought at least to go the whole length of a lean-to house, and if across the ends all the better, while for heating a span-roof they should go all round the structure. The quantity of piping to use depends wholly on the temperature that is desired to maintain. Your former letter, to which you refer, has not reached us.

Gardeners' Benefit Society (*T. W. T.*).—You will perceive that the subject of your letter has been anticipated in the first article of our present issue. We are quite aware that a great number of persons obtain situations as gardeners that are no credit to the craft; but the fact remains that employers have the right of engaging them if they choose to do so, and no amount of writing would prevent them. Whether such persons as you allude to are eligible to join the Gardeners' Royal Benevolent Society we are unable to say; perhaps the Secretary might inform you if you were to write to him, but we doubt if they would find it easy to get a well-known nurseryman or gardener to recommend them to the United Horticultural Benefit and Provident Society previously referred to.

American Walnut (*A. M.*).—The name of the tree to which you refer is *Juglans nigra*, the Black Walnut or Black Hickory Nut. In Loudon's "Encyclopædia of Trees and Shrubs," it is stated that the growth of the tree is remarkably quick, more so than that of the European Walnut. At eight or ten years of age it begins to bear, and age increases its fertility. No tree will grow under its shade, and even grass is injured by it. In forty years, in good soil, it will attain the height of from 50 to 60 feet. The heartwood, which is black, remains sound for a long period, when exposed to heat and moisture; but the sap wood speedily decays. When properly seasoned the wood is strong, tough, and not liable to warp or split. It is never attacked by worms, and has a grain sufficiently fine and compact to admit of a beautiful polish. The tree is universally raised from the nut, which after being imported, ought to be sown immediately, as it seldom retains its vital power more than six months after it has ripened.

Insects on Melons (*H. Woolton*).—Your plants are attacked by an aphid similar to that which infests the Hop and other plants. If Melons are grown in a house and trained to a trellis overhead the insects may be prevented by frequent syringings and the occasional application of an insecticide such as quassia water, nicotine soap, or Gishurst compound; but they should never be allowed to increase to such an extent as is shown by the leaf you have sent to us, as then they can scarcely be destroyed without destroying plants that are half-killed already. If the plants are grown in frames and cannot be syringed on the under sides of the leaves the case is more difficult. In this event the leaves should be carefully sponged once a week with any of the above preparations; but the remedy must always be applied on the

appearance of the first insect. If this is done, and a moist genial atmosphere maintained, the plants may be kept clean. We have had experience with the same insect, but have grown healthy plants and good crops of Melons nevertheless. When we failed it was because we did not apply the remedy soon enough, and permitted the insects to cover the leaves thickly: they then, and only then, proved the victors.

Roses for Autumn (*Somerset*).—To your Hybrid Perpetuals you may add the following:—Bessie Johnson, La France, Jules Margottin, Mrs. Baker, Ferdinand de Lesseps, and Duke of Edinburgh. To the list of Teas add Catherine Mermet, Marie Van Houtte, Souvenir d'Elise, Perle des Jardins, Madame Bravy, Madame Lambard, Niphotos, and Anna Ollivier. The crimson Perpetual is a variety of the Damask Rose. The blush China is the Monthly Rose, and one of the latest of the free bloomers. If you need abundance of flowers for cutting at this season you should grow a number of plants of it, and an equal number of Souvenir de la Malmaison. The old Cabbage Rose is not an autumn bloomer, nor do the Hybrid Perpetuals flower with equal freedom every autumn. Much depends on the season; but usually with the aid of liquid manure and intelligent summer pruning most of them will flower freely in the autumn. The position is suitable for Tea Roses.

Insects in Mushroom Bed (*J. W., Leeds*).—The specimens simply enclosed in an envelope arrived in a crushed, dried, and shapeless mass, so that it is quite impossible to identify them. If no Mushrooms have yet appeared you may sprinkle the surface of the bed with ammoniacal liquor, which you can readily obtain from gasworks in your town, diluted with six times its volume of water. If Mushrooms have appeared, we think if you dissolve 2 ozs. of salt in a gallon of water and apply it at a temperature of 120° to 130° it will destroy the insects and not injure the bed. You do not say, however, that the insects have done any harm to the crop.

Galls on Pear Leaf (*Inquirer*).—These woolly excrescences appear to be the work of a species of Phytoptus, or gall mite, belonging to a family the transformations of which are imperfectly understood. It is considered that they are six-legged while young, eight-legged in their mature condition. A number of them of different ages may be observed living in the same gall upon the "happy family" principle. It has been noticed that they will infest one tree year after year, while others of the same kind standing close remain untouched. Their journeys, whenever they occur, are at night, it is believed. No one has suggested any method of checking their propagation, except the removal and destruction of infected leaves.

Commercial Gardening (*Yggdrasil*).—Your plan is not practicable. You cannot learn the business of florist and seedsman combined with market gardening, and gain experience in vineries in any "first-rate nursery," whatever premium you may be willing to pay. Your object, we perceive, is to make yourself competent to manage a small market garden and florist's business combined, and we know of no way in which you could gain the requisite information so quickly as in a well-conducted nobleman's or gentleman's garden. In such a garden vegetable culture and forcing, fruit culture and forcing, the propagation of all kinds of popular flowers for in and outdoor decoration, and the making of bouquets for various purposes are practised. By working two years in a garden where such work is well done (and such gardens are plentiful in every county) and observing closely the system of cropping and methods of procedure, entering in a book everything that is done, also the results whether favourable or otherwise of each operation, an earnest and intelligent man of business aptitude might in two years gain knowledge that might be turned to good account in a commercial undertaking in a favourable locality. By stating your requirements and objects to a good gardener he would no doubt, in consideration of a premium, undertake to afford you all the facilities in his power, and in the meantime allow you the usual weekly wages that are paid to assistants. This is the best advice we can give you, and you would not have had a less useful reply if you had sent us your proper name and address; and we may observe that your letter would not have been answered so fully if we had not known that our remarks are calculated to be useful to others who are desirous of obtaining information on this subject.

Primulas Dying (*J. A.*).—We have received the Primula, which is in a very unhealthy state, in fact irrecoverable, and you ask us to state "whether the plant or yourself are in fault." While recognising the fact that old plants of Primulas are very prone to decay, we are not able to commend your method of culture. The plant has not only been much overpotted, but the soil last used is too light, soft, and rich. Not a root has penetrated it, and, worse than this, those that came in contact with it have died. The plant would certainly have been better if it had been allowed to remain in the 5-inch pot. When once a Primula becomes decidedly root-bound shifting in nine cases out of ten is a mistake, and it is much better to let the plant remain in the small pot, supporting with weak stimulants. Repotting should always be done before the roots coil firmly round the sides of the pot, and the soil for the last shift especially should be of a more turfy character than that you have employed. At least half of it should be turfy loam, while yours appears quite destitute of that material, and resembles sifted leaves and decayed manure such as would be suitable for sowing seed in. Very fine healthy plants can be grown in 5-inch pots. You must not, however, expect old plants to thrive year after year, but raise young ones annually from healthy offsets or cuttings, and by exercising care in the selection of soil, also in potting and watering, you ought not to have any difficulty in growing the plants satisfactorily. You will find an article on double Primulas on page 326, vol. vi., our issue of April 19th of the present year. If you do not possess the number and require it, it can be had from the publisher in return for 3½d. in stamps, and quoting the date we have given.

Apple Trees not Bearing (*Lundy's Lane*).—Although you have given an excellent description of your Canadian orchard, you have omitted two items of information that have an important bearing on the case. Many Apple trees blossom freely yet bear no fruit, while others grow so luxuriantly that they produce no blossom. In the absence of information on these points we must found our reply on the circumstance you narrate of one tree bearing freely that had been split by ice. This indicates that the trees have grown robustly, and that a check is essential for the

production of blossom. Pruning such trees and leaving the roots untouched would make matters worse, as still stronger and more fruitless growths would follow. It is only when trees of this nature are much crowded that pruning is beneficial, and then it must be limited to removing some of the branches entirely, not shortening the whole of them, so that sun and air can have access to the foliage of the trees. But the chief remedy for rendering luxuriant trees fruitful is root-pruning. As soon as possible take out a trench half round the older and stronger growers at a distance of about 4 feet from the stem, and cut off every root, also all those penetrating downwards, undermining for that purpose 2 feet below the surface, quite to the centre, or immediately under the stem of the tree. In severing the roots do not leave any bruised or jagged ends, but cut each smoothly with a sharp knife. A tree thus operated on will then be exactly half dug up. Fill in the soil again, and if calcareous matter could be added so much the better, making it quite firm. This will check the growth of the tree materially and promote the formation of fruit spurs; yet if the growth next year is still too strong, shorten the roots on the other side of the tree similarly, and shorter, firmer, and more fruitful growths will follow. If they do not you may conclude the root-pruning has not been severe enough, and that possibly some strong roots striking straight down into the subsoil have been left uncut. There is no work on the Apple such as you appear to require, and information to meet each case can only be had through the press that is devoted to such matters. Our "Fruit Gardening for the Many" (4½d. post free) contains concise and sound information on the culture of hardy fruits, and may afford hints that may be of service to you. It must be remembered, however, that varieties recommended for this country are not necessarily the best for Canada. We do not know of a better work on Vines in the open air than De Breuil's "Vineyard Culture," as improved by John A. Warder, and published by Clarke & Co., Cincinnati. There is no work on the subject published in this country.

Arrangement of Pipes and Valves (T. A. O. F.).—You must have valves at the points marked F and G in the plan you have sent, then to all your other questions our answer is in the affirmative. You cannot, however, confine the heat to any one of the three houses at pleasure, for as you are, no doubt, quite aware, you cannot have heat in B without having it in A also, nor in C without having it in both A and B. The proposed arrangement with valves on the return as well as on the flow pipes will answer well, provided you do not want to force the Vines for very early Grapes. Your main point of perplexity is the valves at F and G. Suppose, for instance, the valve at D is closed and you have no valves on the return pipes, the cold water from the houses B and C would then by its greater density flow into A, the very thing that it is desirable to avoid. You must not only have a boiler guaranteed to heat the requisite length of piping, but to heat the water easily, and you will act wisely by not having the connecting pipes between the boiler and range of houses too small. We should prefer them as large again as shown in the plan, and the flow pipe should enter the boiler as near the top as possible. The cistern should be level with the highest point of the pipes in the vinery, where also an air pipe should be provided.

Selection of Fruit Trees (W. K., Langport).—Each of your walls, 50 yards long, will require ten trees 15 feet apart. For the south wall five Peaches—Early Beatrice, Dr. Hogg, Grosse Mignonne, Belle Bauce, and Walhurton Admirable; five Nectarines—Advance, Lord Napier, Stanwick Elruge, Balgowan, and Pine Apple. For the west wall two Apricots—Kaisha and Peach; four Plums—Green Gage, MacLaughlin's Gage, Reine Claude de Bavay; and for late fruit either Coe's Golden Drop or Blue Imperatrice: four Cherries—Early Purple Gean, Empress Eugénie, Black Tartarian, and Governor Wood. Other trees—Figs: Brown Turkey, and Brunswick; Medlars—Dutch for size, Nottingham for flavour, Damson-Cluster, and Prune; Raspberries—Prince of Wales, Yellow Antwerp, Carters' Prolific; Strawberries—Vicomtesse de Thury, Sir Joseph Paxton, Marguerite, Lucas, James Veitch, Dr. Hogg, Frogmore Late Pine, and Helena Glöede. Fifty Apples—Dessert: Red Joanetting, Mr. Gladstone, Kerry Pippin, Worcester Pearmain, Yellow Ingestrie, King of the Pippins, Margil, Pine Golden Pippin, Cox's Orange Pippin, Pine Apple Russet, Mannington's Pearmain, Cornish Gilliflower, Melon Apple, Lodgemore Nonpareil, Bess Pool, Lord Burghley, Summer Pippin, and Court Pendu Plat. Kitchen Apples: two each of Duchess of Oldenburgh, Keswick Codlin, Ecklinville Seedling, Warner's King, Stirling Castle, Loddington, Tower of Glamis, Golden Nohle, Northern Greening, and Gooseberry; one each of Lord Suffield, Small's Admirable, Cellini, New Hawthornden, Blenheim Pippin, Winter Queening, Alfriston, Striped Beefing, Hanwell Souring, and Dumelow's Seedling. Fifty Pears—two each of Williams' Bon Chrétien, Louise Bonne of Jersey, Comte de Flandre, Seckle, Doyenné du Comice, Fondante de Charneu, Comte de Lamy, Marie Louise, Marie Louise d'Uccle, Knight's Monarch, Fondante d'Automne, Dana's Hovey, Winter Nelis, Jewess, Huyshe's Victoria, and Easter Beurré; one each of Doyenné d'Été, Citron des Carmes, Jargonelle, Beurré Giffard, Summer Beurré d'Arenberg, Beurré d'Amanlis, Madame Treyve, Colmar d'Été, Souvenir du Congrès, Thompson's, Urhaniste, Durondeau, Beurré Clairgeau, Beurré d'Arenberg, Forelle, Zéphirin Grégoire, Beurré Bachelier, and Emile d'Heyst.

Names of Fruit (T. W. Sanders).—5, Lewis' Incomparable; 6, Beauty of Kent. The Pears are probably French or Belgian varieties not adapted to this climate; not one of them is worth growing, and we do not know their names. (W. A. M.).—1, Bedfordshire Foundling; 2, Striped Beefing; 3, Golden Winter Pearmain; 4, Braddick's Nonpareil; 5, Cox's Orange Pippin; 6, Hollandbury. Nelson's Glory is Warner's King, the other is Emperor Alexander. (J. F. W., Deal).—The Peach is no doubt the Salwey, but your situation evidently does not suit it. It requires to be grown in a warm sheltered spot. (J. L.).—1, Chaumontel; 2, Marie Louise; 3, Golden Noble; 4, Striped Beaufin; 5, Scarlet Pearmain; 6, Franklin's Golden Pippin. (Longcroft).—15, Goff; 17, Quince. Sorry we cannot recognise any of the others. It is a pity you had not taken the opportunity of the Apple Congress to have taken them to Chiswick and compared them. (Colville Browne).—1, Beurré Rance; 2, name not known; 6, Comte de Lamy. We do not recognise any of the others, and they are all inferior. See our reply to "Longcroft." (W. Thornton).—2, Braddick's Nonpareil; 3, Coe's Golden Drop; 4, Ten Shillings; 2, Pear Napoléon; 3, Nutmeg. (W. Graves).—The Apple is not known; it is probably a local variety.

Names of Plants (J. H.).—1, A dark-coloured variety of Dahlia glabrata; 2, Helianthus decapetalus. (J. W.).—Francoa appendiculata. (W. C. Preston).—Oncidium micropogon. (W. M.).—1, Vanda tricolor; 2 and 3, varieties of Odontoglossum Alexandrae.

COVENT GARDEN MARKET.—OCTOBER 24TH.

Good samples of Apples have well maintained the rise of last week, but common goods are heavy. Hothouse fruits in good supply with no alteration. A few St. Michael Pines to hand affecting home fruit.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 0 to 3 0	Melons	each	2 0 to 3 0
"	per barrel	0 0 0 0	Nectarines	dozen	0 0 0 0
Apricots	box	0 0 0 0	Oranges	100	6 0 10 0
Chestnuts	bushel	0 0 0 0	Peaches	dozen	2 0 12 0
Figs	dozen	0 9 1 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts .. ..	.. lb.	1 0 0 0	"	dozen	1 0 3 0
Cobs	per lb.	1 0 1 2	Pine Apples English ..	lb.	3 0 4 0
Grapes .. .. .	.. lb.	1 0 3 0	Plums and Damsons ..	..	0 0 0 0
Lemons .. .. .	.. case	25 0 35 0	Strawberries .. ..	.. lb.	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	lb	0 0 0 0	Mustard and Cress ..	punnet	0 2 0 3
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 0
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts ..	½ sieve	2 6 3 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	"	Kidney .. cwt.	4 0 5 0
Carrots	bunch	0 4 0 0	Rhubarb	bundle	0 4 0 0
Cauliflowers	dozen	2 0 3 0	Salsafy	bundle	1 0 0 0
Celery	bundle	1 6 2 0	Scorzoneria	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	basket	0 0 0 0
Cucumbers	each	0 4 0 0	Shallots .. .. .	.. lb.	0 3 0 2
Endive	dozen	1 0 2 0	Spinach .. .. .	.. bushel	2 6 3 0
Herbs	bunch	0 2 0 0	Tomatoes .. .. .	.. lb.	0 3 0 8
Leeks	bunch	0 3 0 4	Turuips	bunch	0 0 0 4
Lettuce	score	1 0 1 6			



IMPROVED DAIRY CATTLE.

ANY improvement which can be obtained in our breeds and the selection of dairy cattle still ranks high in the estimation of dairy farmers, for there never has been a period within the past fifty years when dairy farming was so profitable as at present. It is therefore extremely important to consider what can be done to improve those breeds which hitherto have been used for the production of milk and butter only. This has been the case especially for the past fifty years with the Channel Island cattle, whether Guernseys, Jerseys, or Alderneys. Previous to 1830, however, we had a breed of cattle commonly called Normans, in all probability deriving their name and nativity from Normandy, and it is said even at present many animals from Normandy are imported to this country and sold as Channel Island stock. These Normans were valuable as dairy stock, and in some respects were preferable to the ordinary Channel Island cattle of the present day. We found them in our own dairy and in numerous dairies in the southern counties. They were large roomy animals, capable of making heavy weights when fed for the butcher. They were not only large in outline, but were also very wide on the back and deep in the carcass, with short legs and strong bones, but remarkably kind and neat in the head and horn, with capacious udders and large teats. They were capital milkers as to quantity and the quality good, although the cream yielded was not so rich as our present Guernsey stock, but quite equal to the general run of Jerseys of the present day. With the Norman cows it was a general custom when they went dry or barren to feed them for beef, for which purpose they paid well, and they were particularly adapted for use as a suckling dairy, for we have obtained from them very heavy calves and of beautiful quality of veal, equal at weight for age to any calves produced by the Devons or Herefords of the present day. We have referred to this old breed because they were in some respects an illustration of improvements required at the present time, for it is well known that in the majority of cases where attempts have been made to feed for beef barren animals from a Channel Island dairy stock, that it has never been as a rule a profitable transaction even when they have been made fat enough for the shambles. They are, however, when out of profit for the dairy usually sold as useless for fattening at the present day.

The points we wish to prevail in the improved animal for dairy purposes next demand consideration. The points or requisites we

desire combined in one animal are milk, butter, and beef in the most abundant and profitable forms and conditions in which it is possible to obtain them. We have no race or breed of cattle which will furnish these three requirements at present in the greatest quantity, quality, and condition from one and the same stock. Shorthorns will yield us milk and beef in abundance under good and proper feeding, but the butter is absent more or less both as to quantity and quality feed as we will. The same remarks will apply in degree to nearly all our celebrated beef-producing stock, whether they are called Devons, Herefords, Sussex, or Longhorns, &c. Then we have the milking and butter-yielding stock, such as the Channel Island stock, including the Guernsey, Jersey, and Alderney cows, also the Ayrshire and the Dutch imported stock. All of these are good milkers, but varying in degree as butter-makers, yet they are one and all not calculated for feeding as beef-producing animals. The Guernsey stock is the best of those named, not only in quantity and quality of milk and butter, but also in their produce of beef of good quality, especially in those choice strains where the breeders have carefully looked to the production of animals of good outline and capacity for carrying flesh of good quality under judicious management and feeding.

The polled cattle or the Welsh breeds have in some instances a claim on our attention for both milk and beef-making, but they are unsuitable for the purpose of crossing when we are seeking to produce a race of cattle perfect in all the requirements we have named. Still a few observations upon the character and qualities of the Suffolk polled stock may not be amiss, for we shall not knowingly omit any animal and its capacity from our lists which may possess any of the requirements we are seeking. The Suffolk polled stock has been well described by a celebrated breeder, Mr. Gooderham, who says their milk and cream tests are very favourable and their beef-making character well known. There is, however, one special point as dairy stock of great consequence, that of never going dry, for it not only adds greatly to the annual product of milk, but it almost amounts to an insurance against puerperal fever at calving time. Undoubtedly this breed combines the points of good milkers and butter-makers, but not to the fullest extent, with also good beef-making capacity, but being also polled animals unfortunately excludes them from our list of animals we are seeking for having special points and purposes.

We must now refer more particularly to what we wish to produce as the best breed of dairy cattle for the future, for our aspirations lead us to endeavour and acquire in one race of animals the combined capacities which we cannot find in any single breed, to the extent at any rate which we desire. We shall therefore be obliged to fall back upon crossing to a certain extent to obtain what we seek. In fact, what we desire is an improved Guernsey breed, for in our experience we can surely obtain from the best pedigree stock at present the richest milk, yielding the choicest butter both in quantity and quality which can be produced from any variety of the Channel Island cattle. The Guernseys, too, at present are said to be the greatest milkers as to quantity of the Channel Island animals; but be this as it may, what we require is that they should yield as much milk as some of the best strains of milking Shorthorns, and yet retain the highest position as butter-makers which they now possess. As so many dairymen and amateurs take so much fancy to the Jerseys, and of late years so much pains have been taken to raise them in public estimation, still we must not be led away and believe that the Jerseys as improved possess all that is necessary in a perfect dairy cow. That it is not possible to cross the Jerseys so as to produce an animal capable of furnishing all that we require is at once seen in the fact that when she goes dry she cannot be made profitable by feeding for beef, nor could we mate the Jersey stock with any other known breed of cattle to furnish the beef in any appreciable quantity without deteriorating the milk and butter-making capacity. In the Guernsey stock the question of crossing at once assumes a different form, for these are large and roomy cattle and in various instances have been known when barren or gone dry to fatten freely and make a weight of beef of some profit to the feeders. Then arises the question, How can the point of beef-making be extended simultaneously with an increase of milk, and yet retain the excessive butter-making capacity which they now possess? This is a task which we have undertaken to explain, for we do not require what is usually termed a cross-bred animal only, a Guernsey in an improved state, by having taken what we require from some other breed, and that breed we pronounce to be the Shorthorn.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are at present chiefly engaged in the preparation of the land and seeding it with Wheat, winter Beans, and winter Vetches. Wheat-sowing and drilling especially must be done, the sooner the better; and we wish the home farmer to remember the result of delay in the seed time of last year, and which, in some instances, amounted to a serious disaster on various farms, particularly of cold, strong, flat-lying land. We, therefore, consider that in the event of the seed time being delayed in any future year, like last year, it would be far better not to

sow the land with Wheat at all, but wait until the spring for fair weather and sow Lent corn, the light lands with Barley, and the strong soils with Oats or drege, for we always reckon that as many quarters of Oats can be grown as sacks of Wheat per acre, unless the seed time for Wheat is favourable and at the early period. The fine weather which occurred the second week of the present month has enabled the farmers who now, for the most part, make their ricks near to where the corn is grown, to do a few days' thrashing, it being important for the condition of the straw as well as of the grain that it should be done in fine weather. The delivery after sale of the corn will take some horse labour in proportion to the distance of the farm from the mill or the railway station. Some of the Wheat is, however, in various districts much out of condition, owing, in various instances, to the ricks being partly made or not thatched when the rain came, and the consideration of this circumstance ought to induce the erection of Dutch barns by the owners of land, which may be erected in various parts of a farm or an estate. The home farmer could then secure his grain near to where it is grown, and also secure it under cover whether little or much has been carted, and thus be somewhat independent when storms occur, and not be subject to losses through ricks being partly built or unthatched. We note in some districts the water meadows, as well as other productive pastures, have been cut for hay the second time, and after a time has, in some cases, been ricked in fair condition. This is a matter requiring consideration where there is a large consumption on the farm, especially by dairy cows in the winter months. As to the benefit arising from ensilage, especially in late and moist climates, because all late aftermath, either Clover or meadow grass, can be preserved without risk of damage by the weather as ensilage, with a properly constructed silo, and properly filled, can be secured for use in the winter months. Upon some farms without any arable land capable of producing roots it is of the highest importance, and will frequently render unnecessary the large consumption of hay, and also diminish the amount of the feeding stuffs otherwise frequently required.

Hand Labour.—Men are now employed in spreading manures for Wheat on the Clover leas if not already done, also the winnowing of corn lately thrashed, unless the corn is cleaned and prepared for sale at one operation of threshing and winnowing at the same time by the same machine. Where the Turnip crop is being prepared for ploughing under before the Wheat is sown, this work may be partly done by women, who may assist the men in breaking down the roots, by carting them into the Gardner's cutter for men to grind in readiness for ploughing in, which cannot be done and the roots so effectually buried in any other way.

Live Stock.—The fashionable mode of feeding sheep by the use not only of hay and roots, but of cake and corn also in many instances, which not only incurs heavy costs but increases the labour bill in various ways; and as we note that so many farmers have been obliged to sell all their sheep to enable them to hold on their farms, and numbers of them have been obliged to quit their occupations, it is fast being found out that the large capital employed in sheep-farming and the consequent costs of labour and materials for feeding is a system only adapted for wealthy men, who if they lose by any particular transaction in farming are not thrown out of their farms. The fairs lately held for the sale of both cattle and sheep have again been higher in price than for a month previous. The dairy cows have now plenty of grass where it has been carefully preserved, so that each month should furnish for them some grass, although it may be supplemented further on by roots and hay or straw, and perhaps ensilage with the greatest benefit. The fattening and feeding bullocks for Christmas markets will now require the finishing touch of the feeder by an increase of all the best and most nutritious food and fodder, to give the animals the best and most glossy coat when shown for sale.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain	
	Baromet- er at 29s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sunn.		On grass.
1883.										
October.										
Sunday	29.967	56.2	53.0	S.E.	51.1	64.4	47.4	95.8	39.8	0.440
Monday	29.779	51.9	50.3	S.W.	52.2	64.6	48.4	98.4	44.4	0.457
Tuesday	29.418	56.9	52.4	S.W.	52.0	61.6	48.7	91.2	45.5	0.057
Wednesday ..	29.409	54.6	49.6	W.	51.1	59.7	50.6	101.6	45.4	0.058
Thursday	29.976	46.9	47.0	W.	51.1	55.7	42.1	93.7	36.0	—
Friday	29.953	50.6	48.6	S.W.	51.1	56.3	46.3	55.3	41.5	0.174
Saturday	29.750	46.7	44.7	N.W.	51.1	51.9	44.3	82.7	40.6	—
	29.759	52.0	48.8		51.2	59.2	43.8	88.2	41.9	1.186

REMARKS.

14th.—Fine warm morning with gusty wind; almost continuous rain after 3.30 P.M.
15th.—Fine pleasant day, high wind and rain at night.
16th.—S.W. gale in early morning, squally day with heavy showers, fine and calm in evening.
17th.—Fine during the greater part of the day, sharp shower at 7 P.M., gale in evening.
18th.—Fine and bright, high wind in morning, calm evening.
19th.—Wet, calm, and dreary.
20th.—Fine pleasant day, cloudy in morning, but gradually getting brighter; glorious moonlight night.
Although the total amount of rain was large, more than half of it fell at night, and the week was pleasant for the time of year, as it was frequently fine and bright, and there was little mist or fog. Temperature remarkably similar to that of the preceding week, and about 3° above the average. There were several great and rapid changes of atmospheric pressure.—J. J. SYMONS.



COMING EVENTS

1	TH	Sale of a new Vanda at Mr. Stevens' Rooms, Covent Garden.
2	F	Apple Show at Manchester.
3	S	
4	SUN	24TH SUNDAY AFTER TRINITY.
5	M	
6	TU	
7	W	Eastbourne Chrysanthemum Show.

THE PAST ROSE SEASON.

WHEN are you going to give us your *résumé* of the Rose season as you generally do?" is the burden of several letters that I have lately received. Circumstances have prevented my doing so before now, and for one reason I am not sorry, as it enables me to take in my review the autumnal-blooming as well as that of the Rose season proper, and thus to make it somewhat more complete.

I must preface my observations by saying what I have stated in former years, that I have exceptional advantages in taking my survey, the chief of these being that I am not an exhibitor. To some this might seem a disqualification, but I look upon it as just the reverse; for this reason—an exhibitor is so apt (it may be unconsciously to himself) to estimate the season by what his own success as an exhibitor may have been. If he have gained many prizes he is so apt to gauge the season by that, and think, that as it has been a good one for himself so it must have been for others. If he have failed he is very hard upon the badness of the year, because he has not come to the front; but a non-exhibitor, as he is uninfluenced by these feelings, can look upon matters more dispassionately. I have, besides, probably visited more Rose shows than anyone else, either in my capacity as Secretary of the National Rose Society or as judge; the only two of any importance that I have missed being the Crystal Palace and Bath, and these simply for the reason that I could not be in two places at once; for I have had in many cases to refuse earnest solicitations to act as judge because I have been otherwise engaged, and in many of these cases have been asked to nominate someone to take my place—a mark of confidence which I highly value. Besides this I have had the opportunity of visiting Rose gardens in all parts of the kingdom before and after the exhibition season, especially those of our chief amateur growers. I have seen the Rose gardens at that famous home of the queen of flowers Reigate, at Canterbury, at Darlington, Bath, Alderminster (the Rev. J. A. Williams'), Ledbury (Mr. Grant's), and have attended shows at Canterbury and Reigate, at Cardiff, Darlington, Sutton, Liverpool, &c.; so that, if with all these advantages I am not able to form a correct judgment of the season, I must be, as the lads say, "a duffer."

Before the Rose exhibitions had commenced I ventured to hazard the opinion that it would be a better Rose season than any we have had for some years past, and that if the weather in July were favourable we might expect such exhibitions as we have never before seen. Well, the weather in July was not favourable. In my own locality—not a rainy one—we had rain on one-half of the days of the month, and often these came most inopportunistly for exhibitions. Thunderstorms were prevalent. Thus the day before the Reigate Show a tremendous storm burst over the neighbourhood and diminished the exhibits by nearly one-half. The night before the "National" at South Kensington the same thing occurred in some localities, as, for instance, at Slough, where there was a division of opinion as to whether the Roses should be cut

at night or in the early morning. The latter carried it, but the result was disastrous, as a heavy fall of rain greatly damaged the flowers; but yet withal I believe the opinion I expressed has been generally coincided in. But how difficult it is to get a consensus of opinion may be instanced by your own pages. Several well-known growers expressed their opinion in the Journal about the National Show at Kensington and how widely apart they were, one declaring that it was the best this Society had ever held save that at St. James's Hall, another that it was the worst the Society had ever held! When doctors differ who is to decide? Let me say in passing that I believe the idea about the St. James's Hall Show is a sort of superstition that it would be well to get rid of. It was the first, and, like the first International Exhibition in Hyde Park, people never can think that another can be like it; but I have no hesitation in saying that one-half of the exhibits of South Kensington could not have been got into St. James's Hall, and this mainly owing to the vast increase amongst amateur exhibitors. The nurserymen are still about the same, but each year shows us new amateurs and exhibitors coming forward and taking up high positions.

The three Shows of the National were very decided successes. At the Metropolitan Show there were 441 entries made by 110 exhibitors, the largest of any Rose Show ever held; and although, as always is the case, a third of these failed to put in an entry, the number is very great. The value of the prizes offered was £230 independently of the two challenge cup trophies, £120 more; and my own opinion of it was, that although there may have been in previous years a few stands exhibited of superior excellence, yet that the general average of the Exhibition was above that of any previous year. There were no absolutely bad stands, and none, I think, of which the exhibitors need have been ashamed. The provincial Shows at Southampton and Sheffield were large, although, of course, not so large as the metropolitan; and in all other Rose shows that I have attended there was unquestionable progress. The best managed that I have attended was that at Darlington, illustrating the aphorism that of all governments a beneficent despotism is the best. My valued friend Mr. Whitwell took the matter entirely into his own hands. He had no committee to hamper him; he was treasurer, secretary, and committee all in one; he was able to command a staff of men thoroughly acquainted with business; everything was foreseen and everything provided for; the prizes were nearly all the gifts of individuals, and a most liberal schedule was arranged. The worst managed Show was—well, I will not pillory it, but societies ought to look to these matters. It is not fitting that when exhibitors come they should not know where their boxes are to be placed and that they should have to shift them half a dozen times, or that secretaries should lose their heads when the real work of arrangement takes place. At the same time exhibitors should look to it that they do not make the work heavier. They may comply with the rules in having their boxes in the place where the show is to be held; but if old and experienced exhibitors are rushing about to put their boxes in, or dawdling over them when everything ought to be cleared for the judges to commence their work, it is manifestly embarrassing, besides setting a bad example to novices, who think if the old hands do thus that surely they may do the same with more excuse.

If I had to chronicle last year the unexpected success of Mr. Whitwell, I have this year to record an equally remarkable success in that of Mr. A. Slaughter, who carried off the challenge trophy. When we remember that two years ago he obtained the prize for those who had never won a prize at the National, and yet this year carried off against such experienced growers as he had to contend with the premier prize, it shows that he must have unquestionably learned a good deal in those two years, and that as he did it with only a thousand Rose trees it is a great encouragement to those who have always been afraid of the big battalions. His has unquestionably been the most remarkable event of the year

in this line. Mr. Whitwell, who won it last year, was not able to put in even an appearance at South Kensington, the scene of his last year's triumphs.

I think the most remarkable feature in all the exhibitions has been the immense strides that the Tea Rose has made. Growers have learned that the Rose is not anything like so tender as it used to be represented. Many who only used to grow it by tens now grow it by hundreds, and I may safely affirm that there were dozens of stands this year which were not placed at all, that two or three years ago would have well taken a first prize. The wisdom of the rule excluding Hybrid Teas has been abundantly proved, and the extreme beauty of the stands has not been marred by flowers which, however beautiful in themselves, only detracted from the symmetry and refinement that ought always to be the chief characteristics of this most lovely tribe. That the favour which the Tea Rose has found is not likely to be evanescent I know, for wherever I have been there I have found that more space was being allotted to them; and that while many have said, "I shall not increase my Hybrid Perpetuals, I mean to go in for two or three hundred more Teas." I know one grower for sale who in one day received five orders for 1100 plants.

Of new Roses there is not much to be said. Etoile de Lyon has not been so extensively shown as I had hoped it would have been. Merveille de Lyon, of which so much has been said, has been shown several times, but it is not strictly speaking a new Rose, but a sport from Baronne de Rothschild, like Madame Moreau and White Baroness, but at present better than either of these. Of Roses which have not yet been in commerce Her Majesty, one of Mr. Bennett's seedlings, undoubtedly made the sensation of the year. It obtained the gold medal of the National Rose Society, and was greatly admired. It was described as a Hybrid Tea, but it was extremely difficult to trace any Tea blood in it. Whether Mr. Bennett is wise in holding it back is a matter of question. Already he has lost some of it, as his advertisement proves, and it would seem to me that it would be better for himself and for the Rose world in general if he had put it into commerce this year; but that is his business, and not mine. Another new English Rose is Lord Frederick Cavendish, raised by Mr. Frettingham of Beeston near Nottingham, to which the gold medal of the National Rose Society was awarded at the Wirral Rose Show. It is a very vigorous-growing Rose of the same type as Duke of Edinburgh and Duke of Teck, brilliant in colour but somewhat different in build: it is likely to prove a useful Rose to exhibitors. Lady Mary Fitzwilliam, a Hybrid Tea Rose of Mr. Bennett's, has been well shown, and is likely to be a popular Rose. Mr. House of Peterborough showed a promising Rose at Sheffield, but as he had not complied with the rules of the Society it could not be adjudicated upon. It is likely, however, that we may see more of it next season; but in truth the dearth of new Roses of value is very great, and although we still continue to have a number from France they fall into the background very quickly.

No event of the year was more welcome to the Rose-loving world than to see once more Mr. R. N. G. Baker of Exeter entering the lists; and although he did not exhibit in his usual form, yet the confident hope was expressed that he would another season resume his old place.

I have hitherto written of the Rose season from an exhibitor's point of view; but what a glorious season it has been for the Rose as a garden flower! All through August and September Roses have been gathered in all parts which would not have disgraced a stand in July, while the Teas have been something astonishing in their floriferous character and in the quality of the blooms. By-the-by, how very unlooked for (by me) is the position occupied this Rose season by that lovely and most variable Rose Madame Lambard. For whatever purpose required, exhibition or garden, it is ever good. The glory of Roses is, however, well nigh gone for the season, and the chief thought of the Rose-grower now is not to look out for blooms, but to be preparing for planting

for the ensuing year. This autumn has been a favourable one. Wood has well ripened in most places, and I trust that we look forward to another year with even more confidence than usual, and that old exhibitors will maintain their fame and new ones win honours in the cultivation of England's foremost flower—the Rose.—D., *Deal*.

ECONOMY IN STOKING.

ECONOMY of fuel in the heating of our horticultural buildings is a subject which may be discussed with advantage at this season, as with the present month begins the stoker's year. The introduction of and almost universal adoption of hot water, the powerful modern boilers, the general use of the one-boiler or double-boiler system, and a better class of stokeholes, has much lessened the labour and weary night-watchings of the stoker. In addition to the saving of labour there must also be a great saving of fuel where one fire is now doing the work of half a dozen. It is not my intention, however, to say anything on the actual saving effected by our modern appliances, but it would be interesting to have the subject discussed by some of your able correspondents who have facts and figures at their disposal. My present object in writing is to give a few plain directions to those of your readers who may have a fire to attend to during the coming winter months, and I hope they may be found useful to the amateur and simple enough to be understood by the youngest of the young gardeners.

In the first place let us consider what tools are necessary for our work. These are few and simple. A good stout poker; a similar piece of iron with end turned at right angles and flattened a little, so that it may be inserted between the bars in cleaning; a soot-rake, made by fixing a stout piece of sheet iron 5 inches by 3 inches (or larger, according to size of flues) at the end of an iron rod, fixing the rod in the centre of the plate. A similar article, but circular, is necessary where a boiler is perforated with smoke tubes. Each of these should be made of sufficient length to be worked with comfort, and be turned at the end to form a handle.

Before lighting a fire see that all the flues are clear and that the furnace is thoroughly cleared out, leaving neither clinkers, ashes, nor cinders. Let the wood get well ignited before placing any coals or coke on it. A few shovelfuls of the cinders just removed from the furnace are best to start with, allowing a full draught to play through the bars till a bright fire is produced. More fuel may then be added, and the draught modified to suit circumstances. Except in cases of hard forcing, and where a boiler has a great length of pipes to heat, fires should generally be a slow-combustion speed during fine days. Suppose, then, we commence our four-and-twenty hours' routine duties on the afternoon of a fine day when the fire has been banked up for the day. After the warmer houses have been closed and damped down in the afternoon, the fire is usually stirred to keep the temperature up after the sun is losing power. First draw the damper fixed in the chimney to regulate the draught out to its full length, and keep the ashpit door shut, so that any sulphur fumes may be drawn up the chimney and as little dust as possible escape from the ashpit. If the fire is burned low clear the bars of ashes and remove any clinkers, pull the fire together, and add a little fuel, leaving more or less draught according to the amount of heat likely to be required.

After a bright day we often have frost at night. If there are signs of frost it will be more economical to make a brisk fire at once than have to fire hard during the evening to raise the temperature when it is found to be getting too low. A kettleful of water may take some time to boil, but when it does boil it does not take a large fire to keep it boiling. So it is with a hothouse or a heating apparatus. Once heated it may be maintained for a considerable time with but little waste of heat. If there is no appearance of frost leave the damper out about an inch and the ashpit door open. This will keep the necessary heat in the pipes, and will be in a fit state for making up for the night any time from five to seven o'clock, as may be thought desirable. By a fit state for making up for the night I mean it should be bright but not burned too low. Draw the hot cinders together towards the front of the furnace, but do not stir them so as to knock the ashes out of the bars. Place what fuel may be thought necessary on the fire, but do not cram the furnace as is so often done. Let the greater part of the fuel be placed near the furnace door. Next draw some water from the sludge tap and pour it on the ashes below the bars, and place two or three shovelfuls of the wet ashes over the front of the fire, close both furnace and ashpit doors, and leave the damper out just so far as to let the smoke away and no more. Thus made up the fire will last for twelve or fourteen hours and retain a fair amount of heat.

As to the time fires are made up for the night, opinions may differ. I see no reason why 80 per cent. of our garden fires may

not be made up before six o'clock in the evening from the 1st of March till the 1st of November, except when frost or high winds prevail, when it may be necessary to keep them going to a later hour. In the morning the greater part of the fire will be found at the front enveloped in ashes. With the back of the shovel push this well back and carefully clear out any clinkers. These will sometimes be found in a cake all over the bars. Insert the clinker iron below, turn it over so that the hot ashes may be left, and lift the clinker out whole, if possible, and place it on one side to avoid the sulphur fumes arising from them. Clear the bars of ashes and bring the greater part of the fire towards the front again, place two or three shovelfuls of fuel on it, put the damper in to about 2 inches, open the ashpit door, and leave it to burn up bright. If the weather is cold and dull more fuel may be added in about half an hour and the damper pushed in a little, but leaving the ashpit door open. If the morning is a bright one, and with every appearance of a fine day, the fire may be banked up for the day, after having burned up for ten minutes or so, in the same way as we have recommended for nights, but with half the quantity of fuel.

In giving the directions it will of course be understood that they will only apply to those who have properly fitting furnace doors and a damper in the chimney. Sometimes I have seen the ashpit doors rusted and immovable on their hinges for want of use, and often missing altogether. Furnace doors are sometimes turned and twisted and anything but airtight. And, again, how often do we find boilers without anything in the shape of a damper in the flue to regulate the draught! Young gardeners are not responsible for these matters, and therefore cannot be expected to produce the greatest amount of heat from a given quantity of fuel. In the absence of both ashpit door and damper, in making up the fire use wet ashes and have the furnace door open a little way; but if there is a damper but no ashpit door the furnace door should be closed to exclude any cold air reaching the boiler surface. Leaving the furnace door open at night is a very common mistake. If the doors are so well fitted as to prevent the necessary air from reaching the fire, a little should be admitted by the small ventilator generally fitted into the ashpit door.

In conclusion allow me to urge upon your readers the great importance of having a damper in every chimney in the garden. Some have ignored the value of it, and would make you believe that true economy is to be found in a "roaring draught." I believe no boiler will give satisfaction without a good draught, but it will be equally unsatisfactory if the draught cannot be properly controlled. Some years ago in severe weather I found the little room I occupied rather draughty when high winds prevailed, the flames of fire going up the chimney with a "roaring draught." On these occasions I used to pull the flap or register (used for shutting the chimney up when not in use) forward till only a couple of inches space was left for the smoke to escape, and I have frequently observed a thermometer hung on the outer wall of the room rise 8° or 10° in an hour and a half. This anyone can try for themselves. If this result can be attained in an ordinary sitting-room, the economy of heat in a heating apparatus must be much greater by applying the same means. To get the greatest amount of heat out of a given quantity of fuel I should use a good draught till the boiler was quite hot, so that whatever fuel is added ignites almost immediately, and till that is nearly consumed allow only a limited draught up the chimney, but give unlimited air by the ashpit by keeping the bars free from ashes and clinkers, repeating the same process at intervals.—R. INGLIS.

SHARPE'S VICTOR POTATO.

HAVING grown the above new Potato this year a few notes in reference thereto may not be unacceptable to some of the numerous readers of the *Journal of Horticulture*, and more particularly to those who have not given it a trial. It is said to be a seedling, the result of a cross between the Alma Kidney and the old Early Short-top Round Potato. We purchased 1 lb. of seed, and to make the most of these when planting they were cut into single eyes. They received precisely the same treatment as our other Potatoes. The produce from the 1 lb. being as near as we could tell without measuring, nearly 4 pecks of good sound tubers. We took the trouble to have one of the largest tubers weighed; it weighed 21½ ozs. In shape and appearance it favours Magnum Bonum. It has very shallow eyes, which is a great recommendation in an economical point of view, and when cooked the flavour is excellent. Taking into consideration its prolific character, handsome appearance, fine flavour, and disease-resisting properties, I cannot speak too highly of it, and shall predict a very extensive cultivation when it becomes more known. Indeed, it is the best new early kidney Potato that has come under my notice for some time, and would recommend all who have not given it a trial to do so, as it is well worthy of one.—J. RICHARDSON, *Calverton Hall, Notts.*

SHALLOTS AND UNDERGROUND ONIONS DECAYING.—I grow a quantity of Shallots underground and other Onions, and I have them very large, as I thoroughly manure the beds. I generally plant my Shallots

and underground Onions during the first week in February, and when they commence growing I take care that they receive no check until they are taken up the first week in July. They are supplied liberally with liquid manure during hot weather, and I cease watering them the second week in June. For the last three years they have been subject to what is called the mould or gangrene, so much so this year that I have lost half of my Shallots, and rather more than half the underground Onions. I found in taking up these that the gangrene was growing inside in the very centre. I thoroughly dried them and kept them in a dry airy place, but it was of no use, as some decayed and others shrivelled. Can any of your able correspondents tell me the cause and state a remedy? The matter is a serious item to me, as I have to supply a house of seventy people.—R. R. S. H.

SCYPHANTHUS VOLUBILIS.

GRAMMATOCARPUS VOLUBILIS, better known under the name of *Scyphanthus elegans*, represented in the woodcut (fig. 69), is a native of Chili, from whence it was introduced to this country about the year 1824, but from inattention to the collecting of seeds was lost to cultivation, appearing again among more recent introductions. It is a hardy annual, having a very slender twining stem, which is



Fig 69.

hard and wiry, covered with small stiff hairs bent downwards, making it rough to the touch, but entirely devoid of the stinging properties of its near ally the *Loasa*. The leaves, which are opposite, are pinnatifid, with fringed margins.

The flowers are large, cup-shaped, and of a beautiful lively yellow tint, being sessile and terminal when the buds first appear, but the young shoots are generally produced on each side, so that when full expanded it is between two branches or forks. Planted against a south wall with a few twigs to cling to, it has a very pleasing effect, growing from 8 to 10 feet high, and is well adapted for covering old or unsightly walls.

It is also well adapted for covering trelliswork in the flower or pleasure garden, and is unequalled in the form of a screen, having also the advantage of giving variety to those generally grown.

Although perfectly hardy as an annual, I would advise its being raised in pots in a cold frame in spring, and planted where desired about the end of May.—D. D.

SIX MONTHS IN A VINERY.

JAN. 27TH.—The day following that on which my last note was made brought a welcome change in the weather. The temperature was lower, the sky clear at intervals, and the air a little fresh—a sort of model day for the middle of March. Owing to this we have now no doubt that the air of our vinery will be sufficiently changed through the laps of the glass, and that opening the ventilators may be deferred for a little time longer.

The 23rd was a most beautiful day, bright and cold, and we used it to the greatest possible extent by keeping our house close and by moving the fire rather earlier in the afternoon, so as to maintain as long as daylight lasts some of the extra heat which the sun has given us. The thermometer rose to nearly 80°, and kept as high as 70° till sunset. The maxim as regards forcing should always be “the more light, the more heat,” even though the latter may of necessity be principally artificial.

So far we have kept to a rather low maximum and minimum by fire heat, now after the hardening and consolidating action of the sun we decide on a little rise. Instead of 53° to 55° at night, we aim at 55° for the lowest. Still we do not insist on this, and one or two more mornings during the week when a little frost has come on with the daylight the mercury has for a short time been down nearly as low as 50°. The written directions now are—“About 55° at night, 60° day by fire heat, no air to be given.” The shoots have made considerable progress during the past week, a few of the forwardest having now unfolded a tiny leaf at the base. The growth appears stronger than it promised to be a week ago, and we are now able to make a partial selection. Where there are two or three shoots together, those which are certain not to be wanted are rubbed off with the finger, but we do not for the present disbud in doubtful cases.

There has been rather more damping this week owing to a greater amount of fire heat having been necessary, and the outside air being drier it also had its influence on the evaporation, although the house was kept as closely shut up as possible. But the damping was only applied to the floor and walls, none is applied directly to the Vine stems or foliage.

Feb. 10th.—During the past fortnight great progress has been made. The shoots are now from 3 to 7 inches long, with two to four fully expanded leaves, the largest of which measure 4½ or 5 inches across. Here and there in a few of the older ones are patches of dark colour, a sort of bluish green, only visible at present to the practised eye which is watching for its appearance. Yesterday it was only discernible on two or three leaves, now it shows slightly on a score or more, and indicates that the roots have commenced action, and that the leaves are no longer dependant on the stored-up food which was prepared last autumn and preserved in the stems for early use. The colour will spread rapidly now over the whole plant, and as we have taken care that there is no lack of food in the border, we may expect the progress to be still more marked than it has hitherto been. We commenced watering for the first time on the 2nd inst., the crust of the border having been previously broken an inch deep with a steel fork.

The lights are about 3 feet wide, and the border is 10 feet across. To this 30 square feet we allow 90 gallons for one watering; but as we do not want to have the water gone for a week or two, we endeavour to manage it so that the border may retain as much of it as possible in suspension. Bearing this in view it is not all given at once, but the border is gone over several times, giving a certain number of potfuls to each light according as it is found to soak in. Only the man who attends to the house is working at the watering, and he gives a part of the quantity now, and makes up half the total on the following day. Sunday now intervenes, and it is the 5th before watering is again proceeded with. A pound of Standen's manure is now spread over the border as far as the roots extend, which is about 30 square yards, and the watering is finished on the 6th. It will be understood that the attendant has had his multifarious duties to attend to as usual, and that the watering was done between times, and as it was the first watering and the border had become rather dry we preferred the operation to be spread over two or three days. The water was used at a temperature of about 60°. The 6th was a bright hot day, and but for the door being open to the adjoining compartment whence water had to be fetched we should have opened the ventilators for the first time; as it was the temperature did not rise above 85°, but as the sun had now become powerful I decided to give a little air on the next

bright day merely to prevent the temperature rising to a dangerous height. 95° from sun heat would not be dangerous, but at present I should not like to risk a temperature much above that.

The 7th was a dull day, so there was no question about giving air. The 8th was a warm morning, 50° in the shade outside. The sun rose brightly and the air was quite soft. A beautiful morning this to commence ventilating, and we did commence it by sliding three lights down a couple of inches at 8.45. They were closed again a little before 12; the sun still shining brightly, the temperature of the house rose to about 90°, and remained high all the afternoon.—W. M. TAYLOR.

(To be continued.)

THE OLD CRIMSON CLOVE CARNATION IN POTS.

YOUR correspondent's remarks (page 331) about this useful Carnation are by no means overdrawn, for it would be difficult to praise it too highly as a border plant. It may not be generally known that it is as useful as it is beautiful where grown in pots for the supply of its large fragrant blooms during the spring and early summer; in fact a supply of blooms can readily be kept from early in April until they commence flowering outside. To accomplish this young plants that have been layered and are now well rooted should be potted in 4 or 5-inch pots according to their size and strength. Moderately rich soil should be used for potting them in, and after the operation has been completed they should be placed in a cold frame and kept close until their roots reach the sides of the pots. The plants should then have a position where the temperature will range at night from 45° to 50° for a time, and then 5° more may be given for those intended to flower first, and the result will be fine blooms early in the month of April.

Although they will stand moderate forcing they must not be pushed on too rapidly or in too close an atmosphere, or they will draw up weakly and their flowers will be poor. Those for later flowering should be established in 3-inch pots, to be afterwards transferred into 6-inch pots, and if brought on gradually under cool treatment they will grow nearly as strongly as those planted in the outside borders, and prove very acceptable for cutting and conservatory decoration. We have established three good plants in 6-inch pots for late flowering for the conservatory, and they prove as useful as any plant that can be grown for flowering in such a position after the majority of spring-flowering bulbs are getting over. It is also an admirable plan to lift a few dwarf compact plants just before they are ready for layering, and pot them deeply in 8-inch pots for early forcing. After lifting if kept close for about fourteen days in a frame they become established, and can afterwards be placed outside until the approach of sharp weather, and then be housed either in a frame for a time or the greenhouse; but abundance of air must be given when favourable.

Those anxious to try a few good-sized specimens may still carry out with safety and success the lifting of a number of plants. At this season of the year it is best to select those that have been layered and have four or five strong young plants round the parent, all of which are well rooted. These should be lifted with a fair-sized ball, and then kept close in a frame the same as advised for the single plants in smaller pots. Those who attempt their cultivation in pots will, with ordinary care and attention, meet success that will amply repay for all labour.—W. B.

MEALY BUG IN VINERIES.

IN spite of knowing what a terrible pest mealy bug is when on Vines, there are a good many people who run much danger of getting it on their Vines through putting plants liable to bug in their vineries. Lately the writer was in two places where the Vines were badly infested with bug. Anything more disgusting than a bunch of Grapes infested with mealy bug can hardly be imagined, and great care should be taken by all who dread it to prevent its introduction to their vineries by means of plants temporarily placed in the houses devoted to Vine culture. When thoroughly established bug is by no means very easily eradicated. Many receipts are given, but most of them are very troublesome and even dangerous when applied. The bug may be destroyed at the expense of the Vine, which has several times been the case. Much better in this case is prevention than cure, and no one who places the least value on his Grapes should put plants liable to attacks of mealy bug in his houses. Rather grow fewer plants and have room for them elsewhere than run the risk of getting it on the Vines. Amateurs run particular risks in this matter, as they often have a few plants that they have not room for at particular seasons, and therefore put them in the vinery; in due course bug is reported on the Vines, and troubles begin.

A most rigid examination should be made of all plants that are going to stand in vineries, and should there be even one mealy bug seen rather consign them to the rubbish heap than place them in the vinery.—S.

ROSE SOUVENIR D'ELISE.—In ordering this Rose from one of our largest growers and most successful exhibitors I was told that it cannot be supplied from worked plants grown in the open air, and that it is not so grown in this country. I have had two dwarf plants in the open air since last November which have grown and flowered fairly well. Is the Rose so delicate that it will not endure an ordinary winter? We had no frost of any severity

here last winter, but such an excessive rainfall that I wonder on my cold soil any Teas survived.—NORTH HERTS.

LATE PEAS.

DOUBTLESS many will agree with "W. J. M.," on page 336, that now is the proper time to discuss the merits and demerits of late Peas, and not these only, but of varieties for the whole season's crop. Other enthusiasts in Pea culture must, like myself, feel gratified to notice the increased popularity of Peas amongst all classes. Returning, however, to the main subject, I readily join in the crowd of admirers in favour of Ne Plus Ultra as a late Pea; and although giving every reasonable encouragement to new comers, it is evident we must not as yet fail to make this old favourite our standard.

Having said so much for it I will endeavour as far as I am able to do other and newer kinds justice, taking first Mr. Laxton's new variety, Evolution, which, sown on May 24th, was ready August 20th, and has since October 18th yielded a plentiful supply of noble-sized pods of good colour and flavour. The seed was inserted 4 inches apart in deep well-prepared compost of loam, manure, charcoal, and half-inch bones. The height this Pea attained was about 5 feet, and the sticks were well covered with strong haulm. Telephone, like that grand second early variety Criterion, sown the first week in June came in very much all at once, bearing a heavy crop of good quality. Stratagem though a useful Pea is not specially valued here, and the pods did not fill well late in the season. G. F. Wilson sown May 25th is still (October 26th) giving us a few pods, and the variety is much appreciated. Omega bears well and the peas are of good flavour, but the haulm stops growing about the first week in September and the produce is soon over. Lastly, I regard Giant Marrow a valuable general crop and late Pea. Sown May 25th for the last crop, it is still bearing well, and the produce is of the best quality, but the pods filling rather slowly. I hope others have or will contribute their mite on the subject.—E. B., *Westmoreland*.

PLANTING ROSES WORKED ON THE CULTIVATED BRIAR.

IN view of the rapidly approaching season for Rose-planting it will be an assistance to many beginners in Rose culture if some authoritative expression of opinion can be given on the expediency of planting dwarfs worked on the seedling Briar and Briar cutting, with the junction of the stock and scion upon or below the surface of the ground.

It is, so far at least as can be gathered from published materials, an altogether undecided question. Canon Hole, in the 1877 edition of his book, appears to be in favour of burying the junction, but the largest growers now speak doubtfully on the point—*e.g.*, Mr. G. Paul "thinks that the union of the stock and the plant should be just on the surface;" while Mr. Prince (who should speak with authority upon the seedling Briar) says that "great care should be taken not to plant the Rose too deeply, but at the same depth at which it has been previously grown." This, in effect, coincides with Mr. Paul's opinion, as the bud appears generally to be worked near the surface of the ground, though the theory is that sufficient earth should be scraped away to allow the bud to be inserted on the root of the Briar, and thus when the plant is moved the junction can be buried without planting deeper than before, and the Rose given a chance of establishing itself.

Other nurserymen whose catalogues I have seen either ignore the subject or confine their remarks to the Manetti stock, and both Mr. Fisher in his "Art of Growing Roses," and the "Hints on Culture," by the National Rose Society, do the same. On the other hand, one who may be called our greatest amateur exhibitor (though he was unable this year to come out in his true form until the Wirral Show) treats both stocks in the same manner, and consequently buries the junction.

Such practice as his is worth any amount of precept, but it is at the same time a little surprising to find that Mr. Paul expresses a contrary view, unless, indeed, the question is so much affected by soil or other influences that each grower must form an opinion upon it for himself.

But if it should be established that, as a general rule, Manetti and Briar stocks should be differently treated, are there any distinguishing marks by which the different stocks can be recognised among a mixed lot of plants? If not, the name of the stock or some distinguishing mark should be added to the label accompanying each variety when plants are sent from a nursery. Worked cuttings might be identified, but if nothing but root is left of the stock it must require a very practised eye to distinguish the difference. The question may possibly not be of much importance, but as the cultivated Briar appears to be the favourite stock at present it seems desirable that definite directions should be laid down for its proper treatment.—NORTH HERTS.

CHRYSANTHEMUM SHOWS.

THE prospects of the Chrysanthemum season are very good, the plants generally are vigorous, the buds large and abundant, and that clean fresh appearance which adds so much to the beauty and success of Chrysanthemums is very notable in most cases. As usual the first fortnight of November will be a busy one with exhibitors, for a large number of shows are fixed for the same date, the early part of the second week seeming to be the favourite period, for from the 12th to the 14th no less than ten shows are announced. The competition for the second champion challenge vase at Kingston will be one of the chief events of the season. It will be

remembered that Mr. Molyneux, gardener to W. H. Myers, Esq., Bishop's Waltham, was successful in winning it last year, and should he be fortunate enough to again be allotted to him this season the competition will be terminated, but it is very likely that there will be a severe struggle for the honour.

At Liverpool the chief class is for eighteen incurved, and the same number of Japanese blooms, the leading prize being a ten-guinea silver vase given by a firm of artificial manure manufacturers, the competition to be "confined to the users of their fertiliser." The Birmingham Society offer good prizes throughout the principal classes, the highest being £10 for the best forty-eight blooms, twenty-four incurved and twenty-four Japanese; three other prizes are also offered in the same class of £7, £4, and £2, so that good competition may be expected. In the specimen Chrysanthemum classes a silver cup value £5, or the money to that amount, is offered for the best nine plants, other prizes in this section ranging £2 10s. to 5s.

The Stoke Newington Show, as one of the oldest in the kingdom, invariably attracts much notice from Chrysanthemum growers. The prizes are, as usual, very liberal, two silver cups, value respectively five and four guineas, being offered for a group of ten plants and for the best twenty-four incurved blooms in the Exhibition.

The Borough of Hackney Society's Exhibition at the Royal Aquarium, Westminster, prizes of good value are offered in a number of classes, both for Chrysanthemum plants and blooms, fruit, and vegetables. A £5 silver cup is offered for the best ten plants. For forty-eight blooms, twenty-four incurved and twenty-four Japanese, the prizes are £10, £3, and £1. Messrs. Dixon & Co. offer a silver cup for the best twelve Japanese blooms, and a silver cup value £5 is offered by the Royal Aquarium Company for the most effective group of Chrysanthemums; special prizes also by the Company, of £10, £3, and £1 10s., are offered for a collection of Grapes not less than twelve bunches. Special prizes for vegetables are contributed by Messrs. Webb & Sons, Stourbridge, and Hooper & Co., Covent Garden.

At Bristol the most important prize is a silver cup value £5 for six Chrysanthemum plants, large-flowered. Most of the other prizes are small, but a large number of specials are contributed by local supporters of the Society for plants, fruits, and flowers. Liberal prizes are also offered in a large number of classes at the Southampton, Winchester, Northampton, Croydon, and Tunbridge Wells Shows.

Of new Chrysanthemum Shows may be noticed Lincoln and Reading, at both of which fairly good encouragement is given to intending exhibitors, the schedules evidently having been carefully considered. A Show will also be held at Shrewsbury for the first time on the 22nd inst., the prizes being numerous but of moderate amount.

The following is a list of the principal shows with the dates on which they will be held:—

NOVEMBER.

7th.—Eastbourne (2 days).	15th.—Kingston (2 days); Staines.
8th.—Brixton (2 days).	19th.—Winchester (2 days).
12th.—Stoke Newington (2 days); Lambeth (3 days).	20th.—Hampstead (2 days); Lincoln; Chesterfield (2 days); Manchester; Twickenham (2 days).
13th.—Putney; Southampton (2 days); Brighton (2 days); Teddington (2 days).	21st.—Birmingham (2 days); Bristol (2 days); Northampton (2 days).
14th.—Bath (2 days); Royal Aquarium, Westminster (2 days); Bromley; Croydon (2 days); Tooting; Dartford.	22nd.—Reading; Aylesbury; Tunbridge Wells (2 days); Shrewsbury.
	27th.—Liverpool (2 days); Norton; Malton.

IMPORTED ORCHIDS.

SOME Orchids, at least imported plants, are evidently soon to be as cheap as bedding plants. Established plants are always likely to bring fairly remunerative prices. There is reason to complain of the endless varieties that are dignified with distinctive names, to the confusion of the buyer. There are so many Orchids that differ so little that it is absurd to honour them with a distinctive name—it only makes "confusion worse confounded," and often leads to much disappointment.

The rage for "something new" has no doubt been partly the cause of so many mere varieties, with little to distinguish them, being elevated into positions that in reality they have no just claim to. There are plenty of distinct Orchids being continually introduced to the country by collectors who are ranging every quarter of the globe. Why should mere varieties be heralded as something so different and vastly superior to anything as yet in commerce?

Though so many imported Orchids are disposed of for merely nominal prices, there are some that still fetch high figures, and these are undoubtedly rare and distinct. Semi-established and established Orchids yield more encouraging prices than the bulk of imported plants bring, and much trouble and anxiety on the part of the Orchid importer is often but poorly rewarded.

That splendid introduction Vanda Sanderiana is something to be proud of, and it is to be hoped its importers will be well repaid for their trouble. It is one of the Orchids that stand "head and shoulders" above the general crowd, and it has a grandeur which is peculiarly its own. Difficult to import and not easily established, it will most likely never be abundant, but all who can obtain a piece of it should do so.

Cypripedium Spicerianum is an Orchid that has gained for itself

a well-deserved popularity, and should it ever become very plentiful and cheap large quantities of it should be grown for cutting. It is most effective when interspersed with Maidenhair Fern.

Collectors would confer a boon on the public, and would only be doing what is right, if they would state when sending home the fruits of their labours that they cannot guarantee all their lots to be what they call them. Unless they see them in flower they cannot be sure that all they are gathering are the same. People would then not feel such disappointment as when they buy something minutely described as so-and-so, when time reveals the fact that it is something entirely different. The day when Orchids will "go to the wall" and other things take their place in the popular fancy is no doubt far distant, but the taste for them will be weakened rather than encouraged if high-sounding and seemingly accurate descriptions are given of plants that are really "dark horses," and may prove either very ordinary or extremely fine varieties.

In the race to be first in the Orchids it should not be forgotten that time, which slowly but surely reveals the truth, will disclose the merits or demerits of plants that have been much discussed, it may be overpraised, or too harshly condemned. "Take them and try them" should be the motto of Orchid salesmen. If you gain a grand prize happy are you; if not, try again. It is different with plants that have become established and have flowered, then accurate descriptions can be given and their value duly appraised. Many keen business men are taking up the growing-on of imported Orchids as a "spec." No doubt some will make it pay, and others will not. Those who grow for the love of them it must be confessed are more likely to appreciate their beauties than those who grow them as they would anything else that promised pecuniary reward, but one and all are interested in having only clearly defined varieties dignified with different names.—ORCHIDOPHILE.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

IN common with other readers of your Journal who have been anxiously looking for some public information from the Secretary of the Gardeners' Royal Benevolent Institution (who I am sure has not benefited the Institution by his reticence), I tender my thanks to Mr. Heale for his letter (page 339), so full of useful information, calling our attention to the Society above mentioned, but I think it hardly fair to say we are lukewarm in not supporting it. In my opinion the Society is to blame in not calling attention to the benefits offered, and placing the same before the gardening community oftener. I have never seen an advertisement or announcement about the Society before, although I have been a reader of the Journal for several years, much to my benefit. I believe there are numbers of gardeners who have never heard anything about the Society until this week. I have written for a copy of the rules, and if they are satisfactory I shall join it and endeavour to induce others to do the same.

It would be a good thing if country branches could be established, but the meetings not to be held at public houses, where I am sorry to see so many of the clubs are established at the present day. I should like to hear, Mr. Editor, your opinion on this question, as it is one of great importance to gardeners, which must be my apology for troubling you.—A SUSSEX GARDENER.

[In our opinion it is undesirable to have meetings of benefit societies in public houses whenever other suitable premises can be had for the transaction of business.]

PANSIES AND VIOLAS.

I FEEL sure that your correspondent, Mr. Wm. Plant, who asks me to define the difference between Pansies and Violas, could give the answer better than I can. Evidently it has occupied his mind, and as he comes fresh to the subject from the discussions of such thorough botanists and flower lovers as the Lancashire people are known to be, it stands to reason that he could, if he would, tell us much about the matter. It is rather amusing to read the rough-and-ready conclusion that some of the botanical societies have come to on the subject, that "all good flowers are Pansies and all poor ones Violas." This scarcely satisfies those who like a common-sense reason for all they talk about, and so we will go a little closer; though if we do go closer I must not be expected to be able to clear up everything.

The confusion and bewilderment with reference to the difference of Pansies and Violas comes very largely from the using of a generic name for a specific flower. Strictly speaking, they are all Violas, as Pansies are the offspring of *Viola tricolor* and its innumerable hybrids, and those commonly called Violas are more especially the offspring of *V. cornuta* and *V. lutea*. Gardeners understand them better by their eyes than by anything else, as any gardener would tell at a glance which was a Pansy or which was what is called a Viola. There is a great difference between the characters of the two flowers, and a practised eye would tell which was which at once with as much certainty as it would tell which was a *Pelargonium* as such, and a *Geranium*. The gardener who would detect at a glance the difference between the two flowers and say

positively which was a Pansy and which was commonly called a Viola, would no doubt be greatly perplexed to be compelled to define the difference between the two. No doubt it would be better to speak and write about these flowers according to strict rule, and so speak and write of Pansies as hybrid varieties of *Viola tricolor*, and of Violas so-called of *Viola cornuta*, *lutea*, and other hybrids; but if we did people would say we were pedantic. Our professional literature has a few curious things in it which confuse those in the outer circle of the garden, but which are as plain as the light to those who are to the manner born. May I suggest to Mr. William Plant that he and the botanical societies that he associates with should try to find a clear and easily understandable rule or law whereby the simple and unlearned may know the difference between Pansies and Violas, and also between *Pelargoniums* and *Geraniums*, as well as a few other families of plants that may be mentioned? This would help us much.—H., *Notts.*

To call all small Pansies Violas would certainly be leading the readers of the Journal to a wrong conclusion. We have the true *Viola cornuta* and also the largest Pansy. True, they are both of one family, but as widely different, particularly in size, as a cathedral to a hut side by side. What species our show Pansies were bred from would perhaps be difficult to say, as their improvement by selection and hybridising has been gradually going on for many years. I have often been told by my great grandfather that he had been growing them all his life, which must now be nearly a hundred years ago. *Viola cornuta* of course is nearly as old as the hills, but for garden decoration little or nothing was known of it until about twenty years ago, when Messrs. Wills and Bennett used it exclusively for bedding, and it was in great demand and cultivated extensively for edging. Soon afterwards *cornuta perfecta* was introduced, and in foliage, growth, and flower was as nearly half way between the ordinary Pansy and the *Viola cornuta* as it could well be. Since that time numerous crosses have been made and varieties sent out until we have got nearly back to the Pansy, and almost without a single exception they are inferior for a continuous blaze of colour for summer bedding. For instance, Blue Bell—this comes nearest to the Viola of all the present hybrids, and is a general favourite everywhere, and has driven Purple King Verbena nearly out of cultivation, although it stood upwards of twenty years and defied all previous purple-flowering bedding plants, and whereas if we had had no *Viola cornuta* we should have been obliged to use it now, even with its great fault, so subject to mildew, &c. The same with Yellow Boy, Viola, and Ardwell Gem. These with a few others of that colour have nearly vanquished the uncertain Yellow Calceolaria, and in a white variety Mrs. Gray even more clearly demonstrates the fact that the nearer we keep to the Viola the more value they are for summer bedding. This variety in foliage and growth is nearly identical with the Viola in its wiry habit, and it is by far the best white bedding plant in cultivation. Again, look at the horned Viola and a large show or fancy Pansy. The difference is very great, and those that have no pride for a continuous display of bloom in beds it would be easy enough to say the Viola is rubbish and not worth growing, and so far as an individual flower is concerned the meaning is quite correct; but plant a bed of Blue Bell and one of Thos. Grainger and many others side by side, and the difference between the cathedral and the hut would be more than manifest; and if Mr. Plant cannot decipher this, why not let the two classes be distinguished as they are now understood by all?—H. CANNELL, JUNR.

LILIUM AURATUM.

IN March last I bought 100 *Lilium auratum* bulbs. They were firm bulbs, about 3 or 4 inches in diameter. My desire was to grow them as well as possible and to extend their period of blooming, and so I decided to make the most of the bulbs in various situations and under different modes of culture. In following this resolution I potted a number of them. Some were placed singly into 6-inch pots, others were placed in threes and fours in 10-inch pots; some were planted in the bed of a conservatory, and a few were placed into the open borders. Although all the bulbs appeared alike their growths were not so. The little groups planted in the conservatory beds consisted mostly of fine bulbs. Certain bulbs in some of these made stems 5 feet high, while others did not grow more than 18 inches high. Some produced eight and ten fine blooms, and others only one and two. Some were rich yellow in colour, and others were nearly white. All were no doubt *L. auratum*, but the diversity was surprising. In the pots the same variation of growth was observable, but on the whole they did well and were very satisfactory.

The first blooms began to open in June, and the last were not over until the second week in October. Altogether the 100 bulbs kept up a constant succession of blooms for eighteen weeks or thereabouts. And what flowers! The plants in pots were the first to bloom, and those in the conservatory bed were not far behind them, while some of those in the open were out in July; but the wet spoiled the blooms so much in this position that I think it is a mistake to put them outside. They can be potted and be allowed to remain outdoors until the blooms are about to open, when they should be taken under cover, and they will soon expand. As to which of the bulbs will winter best, and grow and bloom most freely next year, I cannot yet say. It would, however, pay to buy in 100 or more bulbs annually, for such flowers are cheap at almost any price.—J. MUIR.

DESTROYING MICE.—I have had all my late Peas destroyed by field mice, and I have caught a lot of them in traps, but was unable to cope

with them they are so numerous here, the gardens being almost surrounded by woods. Could your readers inform me of any method of destroying them, or any way in which I could poison them in which there would be no danger to dogs? I have had one-third of my Strawberries destroyed by the same pest, cutting them off before they were ripe, and gathering them in heaps under the leaves. It will be a great boon to learn any plan by which I can destroy the worst of all garden pests.—B. S.



THE APPLE SHOW AT MANCHESTER which commences to-morrow (Friday), and will continue to the 9th inst., will doubtless be very interesting, as it will give growers in the north of England an opportunity of comparing the varieties chiefly cultivated there. We understand that the entries are fairly numerous.

— WE are informed that Mr. J. G. Baker of the Kew Herbarium, is preparing a FLORA OF THE ENGLISH LAKE DISTRICT for publication this winter. Mr. Baker is President of the Yorkshire Naturalists' Union, and has previously issued Floras of North Yorkshire, Durham, and Northumberland.

— MR. J. C. STEVENS announces that an importation of a NEW VANDA will be sold at his rooms, King Street, Covent Garden, to-day, and it will probably bring a good number of orchidists together. The plant is one of Mr. F. Stevens' introductions, and is from the island of Bali, one of the Javanese group, and is thus described:—"This splendid Vanda produces as many as twenty-four flowers on the spike, and is extraordinarily free-flowering. In habit it resembles *V. cœrulea*, but the flowers are near *V. insignis*. The colouring is chaste and striking, sepals and petals being carmine, spotted and striped on a white ground, and the lip violet." If the plant corresponds to the description it will be a most valuable acquisition, and will form a rival to the superb *V. Sanderiana*, which has attracted so much attention.

— RELATIVE to the late well-merited PRESENTATION TO MR. BARRON, a correspondent, Mr. Colville Browne, writes—"From this week's Journal I gather that a watch and chain have been presented to the prime mover of the Apple Congress. I for one feel rather aggrieved that, as far as I am aware, no opportunity was presented to us who have taxed the Committee so much to add our names to the list of subscribers. We are not all ungrateful." We are quite sure that our correspondent and many others fully appreciate what has been done at this Congress, and can quite understand their generous feelings, but anything like a public appeal for funds would not have been agreeable to a man of Mr. Barron's retiring disposition, and it was necessary to surprise him with the gift. Any spontaneous offerings that may be sent to us will be added to the presentation fund, if it is not yet closed.

— "How very lovely are the different species of *Pancreatium*, with their broad flat umbels of white, delicately cobwebbed and sweetly fragrant flowers. Of all these *Pancreatiums*, or *Hymenocallis*, as they are now called, we give the palm to *HYMENOCALLIS MACROSTEPHANA*. The great size of the corona or cup justifies the specific, and gives a character to the plant when in flower that is unmistakeable. The flowers are deliciously fragrant, and no collection of those plants should be without it, or, indeed, the other species of the genus. It may not be generally known that a flower in the embryo stage, and not thicker than a quill, if removed with a sharp knife, will expand in water, and, at least under a glass shade, will keep for ten days or so.—(*Irish Farmers' Gazette*.)

— MESSRS. COLLINS BROTHERS AND GABRIEL, 39, Waterloo Road, London, have submitted for our examination the finest HOME-GROWN BULBS of *LILIUM AURATUM* we have ever seen. One of them weighed 1 lbs. 6 ozs., and measured 1 foot 4 inches in circumference, and the others closely approached the same size and weight. We know that the largest of the imported bulbs of this plant do not as a rule answer so well as moderate-sized examples; but so solid and fresh are the fine specimens above referred to that it is difficult to imagine that they will not,

in good soil, produce wonderful plants. It is quite clear that the best of bulbs of this beautiful Lily can under favourable circumstances be raised "at home" just the same as Snowdrops can, and fine crowns of Lily of the Valley for forcing. Why not grow them well and more largely?

— WE have pleasure in directing the attention of our readers to a series of ten lectures on the DISEASES OF FIELD AND GARDEN CROPS that will be delivered by Mr. Worthington G. Smith, F.L.S., before the Institute of Agriculture at the British Museum, South Kensington, during the week November 12th to 17th. These lectures are sure to be most interesting and instructive, and embrace—1, Clover Sickness, Clover Mildew, *Peronospora trifoliorum*, *D.* 2, New Disease of Potatoes—*Peziza postuma*, *B. & Wils.*; and *Fusisporium Solani*, *Mart.* 3, New Disease of Onions—*Puccinia mixta*, *Uehl.*; *Peronospora Scheideniana*, *Ung.*; and *Mucor subtilissimus*, *B.* 4, New Disease of Grass—*Isaria fuciformis*, *B.*; Straw Blight. 5, Diseases of Turnips—*Oidium Balsami*, *Mont.*; *Peronospora parasitica*, *Pers.*; and Finger-and-Toe, *Plasmodiophora brassicæ*, *W.* 6, Ear-cockle, *Tylenchus tritici*, *Bart.*; and Dodder, *Cuscuta Trifolii*, *Bab.* 7, Grass Blight, *Erysiphe graminis*, *D.C.*; Corn Mildew, *Puccinia graminis*, *Pers.*; *Æcidium berberidis*, *Pers.* 8, New Diseases of Wheat, Barley, and Ryegrass—*Fusisporium* sp.; Ergot, *Claviceps purpurea*, *Tul.* 9, Potato Disease, *Peronospora infestans*, *Mont.*—its active state. 10, Do., do.—its passive state. The lectures will be illustrated with actual examples, and new drawings of all the diseases from Nature enlarged uniformly to 1000 and 5000 diameters. Tickets for the course are 10s. 6d., to be obtained at the Institute of Agriculture, South Kensington.

— AT the meeting of the LINNEAN SOCIETY to be held to-night (Thursday) at 8 P.M. the following papers will be read:—"Changes in the Fauna and Flora of New Zealand," by Dr. S. M. Curl; "On a Fossil Fruit from the London Clay," by J. Starkie Gardner; and "Origin of the Placentas in *Alsineæ*," by G. Lister.

— WE are reminded by a further sample of GISHURSTINE of the approach of winter, and we know by past experience how effectual it will be in keeping the leather of boots soft, and the feet encased in them dry during the period of slush that is sure to come, and when copse, farm, and garden have to be traversed. To all who are engaged in outdoor operations during the winter this excellent dubbing is highly commended.

— GARDENING APPOINTMENTS.—Mr. Denning, lately of the Royal Botanic Gardens, Regent's Park, succeeds Mr. Robert Abbey as gardener to the Earl of Chesterfield, Holme Lacy, Hereford. Mr. W. A. Walter, late gardener to Roger Eykyn, Esq., Gayton House, near Northampton, has been appointed gardener to Alfred B. Loder, Esq., Lillingstone Dayrell, near Buckingham. We are informed the following appointments have been made through Messrs. John Laing & Co., Forest Hill, S.E.—Mr. J. Slater, late foreman at Lord Foley's, Ruxley Lodge, Surrey, as gardener to Mrs. Hulse, Ewell House, Surrey; and Mr. Geo. Yoell, lately gardener to Mrs. Standring, Crystal Palace Park, S.E., as gardener to J. Lainson-Nash, Esq., Colley Lodge, Reigate.

— ON the 17th inst., in accordance with annual usage, the Master Wardens, and Court of THE FRUITERS' COMPANY waited by appointment on the Lord Mayor at the Mansion House, and presented to him their customary tribute of the finest and choicest fruits of the season. Formerly the present consisted of twelve bushels of Apples of various kinds, and of the best description which could be procured, and it was brought in white baskets, covered with napkins, by gaily-decked porters, who marched with it through the streets from Farringdon Market to the Mansion House, preceded by the Company's beadle. Then the Apples were presented, and according to the old ceremonial, the Lady Mayoress used to place a bottle of wine in the empty baskets for the use of the carriers. "The men were next regaled with a dinner (so the book of ceremonies stated), and, having satisfied themselves, retired, taking with them the fragments for their evening supper." Of late years the old usage has been varied, and instead of Apples only, the present of the company to the Lord Mayor has included all the choice fruit in season.

— "R. B., *Essex*," writes as follows on SPELLING PLANT NAMES:—"There appears to be plenty of room for improvement in the knowledge of plant-nomenclature amongst gardeners, as I recently saw in a public establishment some examples of misspelling of an extraordinary nature and a few of them will indicate how erroneous names are multiplied. *Silene aucaulis*, *Ramonda pyrendica* *Polygalachemæbuxa*, *Cortusa*

mathola, Calcolarie hysofolia, Asplenium reptonale (Asplenium septentrionale), Saxifraga neeros (S. nervosa), Erigeron elegontata (E. elongata), Liliun caladense (L. canadense), Androsace Lanugerosa (A. lanuginosa)."

— THE Hampton Court and other celebrated Grape Vines are, according to American accounts, completely distanced by a Vine in Pike County, Georgia, which, though only eighteen years old, is said to be "a quarter of a mile long, and to produce five waggonloads of Grapes annually." It must be grown on the "extension" system.

— THE "SCIENCE MONTHLY" (David Bogue, St. Martin's Place), is the title of a new illustrated monthly periodical devoted to popular science, and, judging by the first number now before us, it is likely to be a welcome addition to that class of literature. It contains several good special articles on various subjects, among them being two on "Insect Depredators" by Mr. J. H. Westwood Oliver, and on "Forestry at Home and Abroad," by Dr. J. C. Brown. Departments are devoted to The Library, Topics of the Time, The Observatory, The Laboratory, and The Museum; while a most interesting feature will be the articles on "Leaders of Science," which will be accompanied by portraits. With the present number a sketch of the life of Sir G. B. Airy, with an excellent portrait, is given. The work is well printed upon toned paper in double columns, contains thirty-two pages of closely printed matter, and is issued at 6d. per month.

— AN American paper states that a new industry has been started in Georgia. Two gardeners near Savannah have taken to raising ROSES. This year they sold 20,000 bushes to persons in the North, and had orders for 50,000 which they could not fill. They get from 10 dollars to 20 dollars per 100 for them. Over 500,000 Rose bushes are annually imported from Europe, but it is said that Georgia has a better climate for their production than even the South of France.

— "ACCOUNTS come to us from Italy," says Mr. H. M. Chichester in the "Journal of Forestry," "of a curious process for the 'METALLISATION' OF WOOD, the invention of Signor Giovanni Rubennick. The wood is first treated with caustic alkaline liquor (soda-lime), wherein it is left for the space of three to four days, the time depending on the degree of porosity of the wood, at a temperature of 75° to 90° Cent. (168° to 194° Fahr.). Thence the wood passes into a bath of calcic sulphohydrate, to which, at the end of twenty-four to thirty-six hours, is added a concentrated solution of sulphur in caustic soda. The duration of this bath is about forty-eight hours, and the temperature 30° to 50° Cent. (95° to 122° Fahr.). Lastly, for the space of thirty to fifty hours the wood is immersed in a solution of acetate of lead at the last named temperature. The process, it will be seen, is tedious; but the results are described as altogether surprising. Wood thus treated, when burnished with a piece of hardwood after a moderate amount of drying at a suitable temperature, takes a brilliant metallic polish. Particularly is this the case if the prepared wood is first rubbed with sheet zinc, lead, or tin, and then polished with a glass or porcelain disc. It then presents, we are told, all the characteristics of a very highly polished metallic speculum, combining therewith great strength and durability."

— A MADRAS visitor to COLOMBO, CEYLON, writes to the *Ceylon Observer* as follows:—"One of the earliest impressions of Madras visitors is the general tidiness which prevails both in and outside the town, and the superiority of the roads. In Madras the streets and roads are always either in bad order or under repair. In Colombo they equal the drives in an English park, and the trim rich greensward is very refreshing to the eye. The drives about Colombo are numerous and pleasant, but owing to the luxuriance of the vegetation the prospect is everywhere rather limited, except on the beach. A large proportion of the roads runs in various directions through the Cinnamon Gardens. These consist of plantations of the Cinnamon plant, which cover a large area of level sandy ground that stretches inland and to the south of the town. The soil in which the Cinnamon grows consists chiefly of fine white sand, and the plants are coppiced so as to make them send up a thicket of shoots. The Cinnamon Gardens are studded with villas, each standing in its own grounds, and often almost buried in rank vegetation. The wanderer from Madras is astonished to see here in great profusion the pretty purple-flowered *Melastoma malabathrica*, and the rampant Fern *Gleichenia dichotoma*, which are rarely seen much below the level of Coonoor with us on the east coast. Species of *Lygodium* also form a dense network of

vegetation in the hedges, and a Pitcher-plant grows in various places amongst the Cinnamon."

GARDEN CHEMISTRY.

LOAMS.

THE geology of soils we have but glanced at, for geology will not greatly help us. The best test of a soil is, not the rock on which it rests, but the vegetation which it carries. An accomplished gardener in choosing a soil will not turn his steps in the direction of stunted trees, poor crops of corn, and hedges filled with paling spars. If the turf should be ever so fibry he will not take it, if he has a choice, if its flora is largely composed of Juncuses, Carexes, and the species of Grass called "wire grass" by gardeners who well know how sharp a scythe must be to cut them, and how rapidly they take off the edge when they are largely present. We would much rather go where the grass is of that stout yet soft character which "cuts like cheese," and which is composed of Grasses and Clovers which feed cattle well, instead of half starving them, and perhaps a thick undersward here and there of Buttercups. The land that will not support good cattle without undue exercise on their part to find breakfast and dinner, though it may with help raise good crops, is inferior in many respects to that which supports heavy cattle in goodly numbers without other feeding.

Botany, then, will help us more in choosing a soil than will geology. But the botany of soils may be altered. In many parks the most luxuriant grass grows, which is the outcome, not so much perhaps of a fine soil, as of the cake and other foods supplied to the animals. The luxuriance is only artificial, and may be misleading.

Not long ago I knew a gardener who went many miles for turf to form Vine borders from off a gravel, simply because of the luxuriance presented by the grass and because of the very fibry nature of the turf. Such, men grown grey in the work of gardens, and who have observed closely, will tell us, as men such as Mr. Thomson of Drumlanrig have told us again and again, will produce only a mere "flash in the pan" while the organic matter lasts, and then failure will come. If the gardener in question has the teachings of chemistry to fall back on, failure, even with such a soil, may be indefinitely postponed; but the possession of that may be doubted, for if he had had such a knowledge he could have chosen a better within half a mile of his vineries, without much fibre, it is true, and with very little appearance of luxuriant verdure, because the fields had been badly done by. He was led astray by the will-o'-the-wisp of a fictitious fertility, because he could not properly value a much better soil just at hand because of an equally misleading poverty.

Another that I know with good loam, fibreless and turfless, but good loam still, within a hundred yards of his vineries, went over ten miles for turf from off the purest yellow clay, and not because of the permanent virtues of the soil, but of the age of the turf. No yellow clay, only soil and fibre and grass were apparent in the upper 3 inches of the soil. But ten years hence that fibre will be gone, and a putty-like mass in which Vine roots never thrive will be the result.

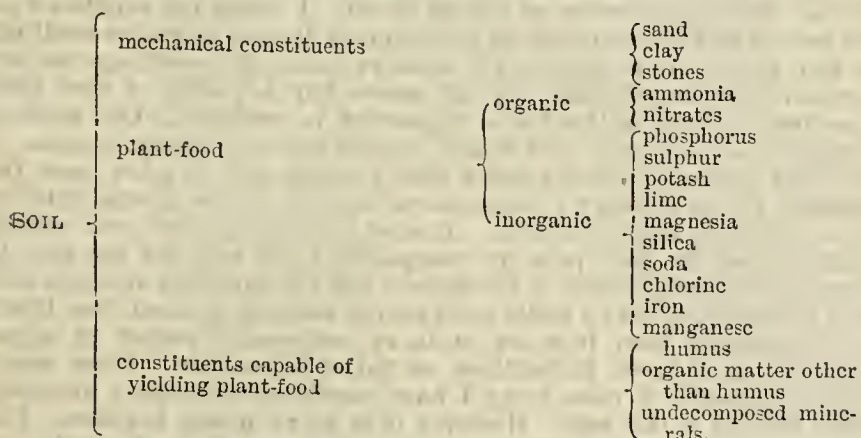
In choosing soil, then, it is not enough that plenty of fibre be present, not enough that the verdure be luxuriant. If the subsoil be gravel or sand such "loam" will soon become of itself the poorest of sand; if the subsoil be clay or even heavy loam it will become mere mud, and be fit for nothing in either case. Soils fit for making fruit borders may be of the very best quality and contain no fibre. If clay enough be present to form what gardeners call body, and if stones and sand be present in quantity sufficient to keep it open, and if it is known to produce good agricultural crops, it is far to be preferred before the most fibry turf that will soon become a blowing sand or an adhesive clay.

Experience has taught our most reliable authorities that for all fruits and most flowers and vegetables that a loam is the most proper. Farmers know that such is also best for them. But the word "loam" is with many a very indefinite term, generally applied to turf the vegetable fibre of which is decayed somewhat. When we use the word it must not be understood that we do so in the gardening, but in the agricultural sense, which is definite in its meaning and reliable. The young gardener who wishes to start with a correct notion of what constitutes the different varieties of soils cannot do better than make the following very simple mechanical analysis. Take 100 parts of soil, dry it thoroughly at a temperature of fully boiling point, and weigh it, and then thoroughly diffuse it in a tub of water. Allow it two or three minutes to settle, and then pour off the muddy liquid into another tub. After the

mud has settled in the second tub, run it off with an improvised syphon made out of gas pipe or other suitable tube. Then dry both deposits separately in an oven hot enough to dissipate all moisture, but not to bake the soil. What settles at once is sand, what does not settle for some time is agricultural clay. If no more of this clay be present than 10 per cent. the soil would be called sandy soil; if from 20 to 40 it would be sandy loam; if from 40 to 60 it would be loam; if from 60 to 80 clayey or heavy loam, and over 80 clay.

But soils are not wholly composed of sand and clay. Some contain much stony matter, and are called gravel; some contain hardly any mineral matter and are called peat. Besides, these soils contain a lesser amount of other matters, such as lime, potash, phosphates, ammonia, humus, &c. To illustrate this, perhaps a couple of tables will show my meaning better than any verbal description. Clay and sand are merely mechanical matters, lime and ammonia are plant-foods. Thus, though sand, clay, or peat may form over 90 per cent. of the whole, yet the mineral matters named as entering into the composition of plants are, relatively, of much more importance.

The substances usually found in fertile soils are—



This table shows that soils are composed of, first, mechanical constituents, and also plant-food prepared and in preparation.

I will now give an analysis of a fertile soil from the Carse of Gowrie by the late Professor Anderson of Glasgow, to show that even in a very fertile soil plant-food forms a small proportion of the whole.

	SOIL.	SUBSOIL.
Silica	61.1954	61.6358
Peroxide of iron	4.8700	6.2503
Alumina	14.0400	14.2470
Lime	0.8300	1.2756
Magnesia	1.0200	1.3938
Potash	2.8001	2.1761
Sulphuric acid	0.0911	0.0396
Phosphoric acid	0.2400	0.2680
Chlorine	0.0098	0.0200
Organic matter	8.5508	6.8270
Water	2.7000	4.5750
	96.5472	98.6882

The part played by the plant-food is elsewhere noticed, but this is the proper place to say something of the properties of the different mechanical constituents in soil.

In gardening language clay gives "body" to soil, and when it is absent soils are generally barren. In chemical language clay is an aluminic silicate, and, as we have seen, has its origin in the eruptive rocks, such as granite and whinstone. It is rarely that pure clay occurs, and in fertile soils it very generally contains potash, often in large quantities, as well as other mineral foods for plants.

If we take liquid manure, in which soluble phosphates, ammonia salts, &c., are dissolved, and filter the solution through a potful of loam, it will be found that the water leaves the phosphates, ammonia, potash, &c., behind. The clay in the loam has taken them out of the water, and will keep them in its grasp till used by the plants, at least in the case of the mineral matters; for, as we have seen, the ammonia becomes changed to nitrates, which clay cannot keep. Pure sand cannot do this. If such solutions be run through pure sand it will be found that very little of the manure is left behind. Besides fixing manurial matter, clay absorbs and retains water. Sand, from which what we call superfluous water is allowed to drip, will often contain no more than 5 per cent. of water. Clay, on the other hand, will hold as much as 50, and yet be apparently dry. Then clay, by reason of its superior attraction for water, will remain moist

because of the water which it attracts from the subsoil in dry weather when sands are parching dry. Again, of the moisture which sand really does retain when rain falls, most of it evaporates very readily. Clay soils do not thus lose theirs so readily. Then sand, of all soil ingredients, least possesses the power of absorbing moisture from the air. Clay has a great attraction for air-moisture. While sand will, if pure, hardly take in any of the moisture which condenses as dew on cool nights, which so often succeed hot drying days, clay will absorb a very sensible amount.

Sand, however, is not useless. Pure clay is so adhesive and retains so much water, especially in wet seasons, as to be unworkable. Sand opens them and allows the water to percolate. In very heavy soils, which become pasty mud in wet weather and compact masses in dry, roots cannot travel either to fix the plants or to find food. When sand is present, on the other hand, roots run easily, and find the food the clay holds. Because of their wetness clay soils are cold. When sand is present this wetness can be cured by draining, and so the soil is made warmer. While, then, sand on the one hand, and clay on the other, form neither of them desirable soils, a mixture of them—loam—without the objections of either, combines the virtues of both. But in choosing a loam for potting or border-making purposes, some care is necessary in order to avoid being deceived. It not uncommonly happens that in river bottoms, and even in hollows by the side of mountain streams, particularly when in flood, the flats are inundated, that what is apparently a medium loam, and is called by that name, is no loam, contains no clay, but is medium in texture because composed of very fine, what old experienced gardeners term "dead," sand. This is about the most objectionable soil that could be chosen, as it too frequently is. Poor and incapable of being enriched, it is also solid, impenetrable, and no sand, no grit can open it. The particles clog up everything, barring the way of either roots or air.

Sand when seen through the microscope is composed of round polished stone, mostly pure quartz. Gravel, as we wish to be understood in our use of the term, is only larger sand, and, though capable of trituration, resists weathering and chemical action with some obstinacy. But in addition to rounded quartz stones (small as sand, large as gravel), much gritty matter exists as sandy stony matter, not only capable of being easily disintegrated, but of yielding considerable quantities of plant-food. In the case of soils derived from such rocks as trap this is often very considerable. The acids generated by decaying vegetation, the salts, such as common salts so generally present in rain near the sea, and often applied in manure as sulphate of ammonia, nitrate of soda, &c., coupled with the digestive power of roots, have a wonderful effect in preparing for plant-food those potassic silicates, calcic carbonates, &c., which the disintegrating action of frosts and cultivation expose to their action. Not only, therefore, are stones mechanical agents in soils, retaining moisture as they do and keeping the soil open, but as we have named them in conjunction with vegetable remains, not plant-food, but capable of yielding it. Stones represent so much money value, even though not larger than what constitutes fine sand. They are partially disintegrated but not decomposed minerals.

Though iron must be regarded as plant-food, and its presence, therefore, a necessity in all soils, it frequently happens that as the red oxide it is too plentifully present. No better way of finding out whether this is the case or not exists than just examining the water. In clear water it imparts the well-known taste that the palate can detect. But such water will not run in a stream far, nor stand long exposed to the air without showing a red deposit. But springs of no great depth may show iron while the upper soil is healthily free from it. Sand that has long lain dry, even though the subsoil may be red or black with iron, is often first-class every way. It is when, in wet weather, the water stands on the surface where the land is low and undrained, or when apt to be flooded with iron-impregnated water, that too much iron is to be feared. But even such iron-impregnated soils might be of use for mixing with others singularly deficient in it. It is said that iron helps the colour of many flowers, Roses included. Possibly a little iron loam might be of use for such. In many cases iron causes the formation of impenetrable pans in the subsoil. How to deal with them will be noticed under another heading.—SINGLE-HANDED.

FORCING LILY OF THE VALLEY.

THE Lily of the Valley is one of the most generally esteemed flowers in cultivation, and on this account the supply of its beautiful and sweetly scented sprays of flowers cannot be obtained too soon, nor seldom in quantity sufficient to meet

the increasing demand. The best results are obtained from imported clumps, and these should be potted as soon as they can be had from the nursery in an admixture of light loam, leaf soil, and sand, in 6-inch and 7-inch pots, according to the size of the clumps. The pots should then be placed on coal ashes in a cold pit under glass, and covered with 4 inches thick of sifted leaf soil to exclude light and air. About the end of November a few pots should be removed to the Mushroom house and plunged as before. These, the soil being kept moderately moist, will produce their flower spikes by Christmas, when they should be gradually inured to light and air by placing an inverted flower pot over them at first, and finally arranging the pots on a shelf near the glass in an intermediate house to prevent the flower-spikes making a weakly growth. To those not in possession of a Mushroom house I would recommend the pots being plunged in deep boxes and placed under a stage in a stove, greenhouse, vinery, cellar, or any similar place, and when the flower-spikes have attained a height of 2 or 3 inches they should be treated as recommended above.

A fresh batch of plants—in quantity according to the number grown—should be taken from the cold pit to one of the structures already referred to, at intervals of a week or two, and covered with 3 or 4 inches depth of leaf soil, so as to maintain a good succession of flowers, and which, by retarding the flowering period of a small percentage of the crowns, may be kept up until they come into flower out of doors. However, as the season advances it will not be necessary to introduce the plants into heat at such short intervals, as they will, consequent upon their having had a longer period of rest, respond more readily to the influence of heat, and as spring approaches the crowns will produce their spikes of flower freely enough in the cold pit. The leaf soil should then be removed carefully from the surface of the pots, the latter washed and removed to a house. Home-grown crowns, selected and packed closely together in boxes of sandy loam and leaf soil, then watered to settle the soil about the roots, and treated in other respects the same as recommended for imported roots, would yield good supplies of flower for cutting, thereby leaving those in pots for embellishing the conservatory, &c. My experience of imported crowns of Lily of the Valley during the last few years is that in consequence of the wet autumns they have been inferior to those of previous years for early forcing, being small and immature, and crowns carefully prepared at home will equal if not excel them.—H. W. WARD.

PLEIONES.

THESE charming little Orchids are now at their best, and when they are well grown are invaluable where cut flowers are required. Considering they are so easy to grow it is surprising we do not see more of them. Anyone possessing a warm greenhouse or stove need not be afraid of disappointment. The pseudo-bulbs after flowering should be allowed to rest a short time, but never be quite dry. When the young growths are about 1½ inch long the pseudo-bulbs should be taken out of the pot and separated, carefully removing all the old compost from them, cutting the old roots to within about an inch of the pseudo-bulb; the portion left serves to keep them firm in the pot. They must be carefully washed to clear away any traces of scale, to which pest they are very subject, and which is very troublesome if allowed to run on the young leaves. The compost I employ, and better results cannot be desired, is good fibrous peat and chopped sphagnum with a liberal proportion of nodules of dried cowdung and charcoal, and a good sprinkling of sharp sand mixed well together. Six-inch pots half filled with potsherds are employed. The pseudo-bulbs, five or six according to the number of young growths, are potted firmly, raised above the rim of the pot. Afterwards keep them in a temperature of about 50°, and keep them damp but not wet until the new roots have reached the sides of the pot, then an increase of heat will be advantageous. We are always careful not to wet the leaves, or they will soon become spotted and will decay prematurely. As growth advances the pots are occasionally plunged in weak liquid manure up to the pseudo-bulbs. Continue this about twice a week until they have swelled; they will then require less water and may be placed in a cooler part of the house. In due course the leaves will ripen and fall, and the flower buds appear.

Pleione lagenaria, P. Wallichiana, and P. maculata have done well under the above treatment, the first-named hardly ever having less than four flowers on a pseudo-bulb, and in some cases five. P. Riechenbachiana I am growing for the first time, and am well satisfied with it. P. humilis does not do well with us. Will any of your correspondents who have been successful with it state their mode of treatment? The flowers should be pulled and not cut, as a much longer stalk is obtained by the former method.—WM. PLANT.

HEATING A SMALL GREENHOUSE.—Will you allow me to ask your readers what they have found the best method of heating a small greenhouse (mine is 18 feet by 8 feet) to keep out frost? I must not put up a chimney and make a smoke. I cannot use gas. I have used

so-called economic petroleum stove, but that is not economic, and the work in cleaning it is very unpleasant. I do not mind trouble, nor a little expense if it answers its purpose; but I shall be obliged for some experience and advice as to coke, charcoal, or anything else.—BRISTOL.

PROPAGATION OF TUBEROUS BEGONIAS.

IT is probable that Tuberous Begonias will be much more extensively grown next year than at any time hitherto, and in addition my experience justifies the assumption that they will become established favourites for outdoor flower garden bedding decoration, as Zonals are at present; Good varieties are still very scarce, and as people become acquainted with magnificent fleshy upright flowers 5 and 6 inches across they will not be satisfied with puny papery dwarfs only fit for the rubbish heap. Good varieties and their propagation, then, become a matter of importance, not only from a decorative but from a monetary standpoint. No better time than the present and onward can be found to think of this. A far-seeing gardener or amateur will be at once turning over in his mind how his beds are to be filled next year, and what combinations he shall have, the general details afterwards to vary with circumstances. I was looking over the invoice of a gardening friend yesterday, who had ordered a selection of Begonias with the view of growing them on during the winter and propagating the following spring as far as possible. None of the doubles were less than 5s. each, and they varied to 15s. The singles were as low as 3s. 6d. I admit the varieties were the newest and the best, and to be preferred to poor worthless seedlings at any price. As to seedlings I must explain. All seedlings are not necessarily to be rejected. By all means buy a packet of seed from some respectable firm that has a reputation to maintain. One word on fertilisation. The male and female organs are on different blooms. I have had Begonias with the latter wholly absent, and in a few cases the former. Under ordinary circumstances bees do not, as a rule, light on them; there is no fertilisation. It must be done by hand, and several firms enclose the thin pods in transparent oiled bags for the seed to ripen. As in every flower in the florist's list, the worthless varieties seed most profusely, so that a really good chance seedling is much less likely to be obtained than from an ordinary seedsman's packet of edged Auriculas, gold-laced Polyanthus, or flaked Carnation. From many years' experience I cannot say I have succeeded in getting anything worth naming in this way. However, it is by no means hopeless. For instance, Mr. Lonergan, gardener to George Gough, Esq., Birdhill, near this town, has raised some very fine doubles by hybridisation of semi-double seedlings raised in his garden. The process has an interest and zest that will always have an attraction; but the principle I contend for still remains—that really good varieties are "named," and must be obtained from those who make Begonia culture and propagation, including showing and growing, a speciality. I noticed a house 150 feet long of selected kinds with Mr. D. Saunders recently at Cork, not one of which was raised on the premises. Having some good varieties, then, which is the best method of increasing them? Increase by seedlings I have disposed of, except to say that, when tried, January is to be preferred to start them in a temperature as near as can be obtained to 65°, falling lower as they commence to grow, to prevent long-drawn plants. I have had some hundreds, and a neighbour thousands; all were consigned to the rubbish heap, except half a dozen of the more promising.

The most rapid system of propagation is by cuttings taken off below a joint, placed to dry for a few hours if succulent, inserted in thumb pots in cocoa-nut fibre in the stove or on a good hotbed. This process has the disadvantage that in many cases the tuber formed from the cutting does not start into growth the following spring, which an expert with whom I discussed the point attributed to having no eye or eyes, though otherwise sound. Probably others have noticed this.

The process I prefer as the most certain is division, just as you would a Potato, with this difference—you can see the eye in the latter but not the former; division, then, cannot take place until active growth has somewhat advanced. I prefer having the shoots an inch or two long. I have often then sliced a large tuber into six or eight pieces, and after allowing it to dry on a shelf for a few hours, or rubbing the cut with silver sand or charcoal, at once started it on its career, and in no instance, even in an ordinary frame, have they even flagged. There are other systems of propagation, such as by the leaves, as you would Gloxinias, but I cannot see any advantage they present over those named. One other point is material—the time to start them into growth. In an ordinary greenhouse (unheated, except to keep out frost), they will not start into growth before the end of March—that is, naturally. If put out they will not bloom until June or later. I beg to recommend starting in a hotbed in February, hardening off then until the time comes for bedding-out, when they commence to bloom right off, giving a clear gain of a month or more to the blooming period before housing for the winter—a matter of some consideration.—W. J. MURPHY, *Clonmel*.

FRUIT TREES IN POTS.

IN the Journal of September 27th and October 4th I find Souvenir du Congrès Pear very highly praised. I can do nothing with it outdoors in this locality, where few Pears succeed, but grown in pots in a cold house it does well, being a good cropper and producing very fine fruit. It is not unusual here to have fruits of the weight mentioned in the Journal—1 lb. to 1½ lb. Brockworth Park is also excellent for pot culture; I have

not noticed it mentioned before for this purpose, and would like to hear if anyone has tried it. We have many other varieties here that could not be left out of a good collection. I have gathered nearly eight dozen of Doyenné du Comice from one tree in a 15-inch pot. I send you a spray with five fruits on, and if you think it worthy I should like to see it illustrated. Some of the single Pears on the tree are very much finer than those.

The Gladstone Peach I have grown for two years, and it is excellent. Peaches and Nectarines were heavy crops in pots this year, averaging six

them? I had occasion the other day to visit a friend of mine, and knowing him to be a practical gardener was surprised to hear him so strongly condemn pot trees, saying "fruit grown on them was not fit for table." I am in hopes my friend will visit me, that our fruit may speak for itself. —GEO. HAWKINS, *Evenny Priory Gardens, Bridgend, South Wales.*

[The fruit referred to *has* spoken to our satisfaction. We have not tasted any more delicious than those gathered from the spray figured. The Pears shown are necessarily much reduced; each of them measured 9 inches in circumference. Eight dozen Pears of similar character



FIG. 70.—PEAR DOYENNÉ DU COMICE, FROM A POT TREE.

dozen per tree. One Nectarine had ninety-two good fruits, and well coloured.

I consider much more fruit may be gathered from trees in pots than grown in any other way on the same space of ground under glass. I admit the work is heavy, and the trees require much more attention than those do that are planted out. We have during very hot weather used 300 gallons of water per day. Is it not surprising, therefore, to hear gardeners say they do not like pot trees, knowing the labour attached to

gathered from a tree in a 15-inch pot represent one of the best examples of culture that has ever come to our notice, and we congratulate Mr. Hawkins on his success.]

AUTUMN PROPAGATION OF ROSES.

AT this season "W. J. M." again notices the chances of striking cuttings. I have not the slightest doubt that in favourable winters the plan he advocates will succeed, but the only autumn that I tried a large

quantity outside the frame every cutting died during the winter except two, and these both departed later. It is true we had a fearful winter, but a large proportion of the plants in the frame close to the exposed cuttings did very well, but then ours is a truly bleak country.

Our friend Mr. W. Taylor used to tell me that he inserted cuttings of Roses amongst the Cabbage plants and let them take their chance, and that most of them struck well; but then Longleaf is down in the valley. Not improbably the Cabbages or Broccoli are a great protection to the cuttings, and save them. Acting on this, I think I shall try again amongst the Broccoli, for the crowding in the frame is a serious disadvantage later on when removal is the order of the day; for the close quarters will make the roots intertwine and numbers will be broken off, for the union between the cutting and the root is singularly like a joint the first year, and a very slight twist brings about a separation.

When Mr. Taylor some years ago gave us his directions (the most certain I know) for striking Rose cuttings in small frames covered with sheets of glass, he laid special stress on making the hole for the cutting with a largish stick, the end being cut squarely off, so that each cutting (cut similarly square) might reach with certainty the soil on which it has to rest, and that the soil, well mixed with road grit, should be firmly pressed. I have adopted with much success making a small furrow, filling the bottom of it with the gritty soil, and then, making a shallow hole, place the cuttings side by side and fill up the furrow, pressing all firmly down.

Several years ago I ventured the idea that the smooth-wooded sorts struck more easily. This I see "W. J. M." also finds, but we may add to his list Charles Lefebvre, Alfred Colomb, Jules Finger, Madame Sophie Fropot, Madame J. Perrière, and Crown Prince. All of these I have proved as rooting easily, the latter especially. Madame Rothschild, Mabel Morrison, and Madame Gabriel Luizet I have also succeeded with, amongst the more thorny Marie Baumann, Baron de Bonstetten, Ferdinand de Lesseps have repaid the experiment, while amongst the Teas Marie Van Houtte, and Madame Lambert do very well in the frame; but would they succeed in the open? I fear not. My cuttings of last autumn have given me some beautiful blooms this season—quite repaying one for the trouble. One caution more. Prepare the ground, then prepare and plant the cutting without delay, the quicker the greater success.—Y. B. A. Z.

A FEW GOOD THINGS AT SWANLEY.

THERE are many "good things" in the establishment of Messrs. Cannell, as nearly all the world knows, for it is certain there are few civilised countries that have not had their floral collections enriched from this "home of flowers" in the pretty Kentish valley that has undergone such a remarkable transformation during the past few years. So great, indeed, is the variety of plants, notwithstanding the periodical weedings with the object of making the collection still more choice, that they almost bewilder by their numbers; and that such an assemblage is necessary proves the extraordinary diversity of taste that exists in cultivators of flowers. There appear to be not only local but national fancies. In one district a mania sets in for Pelargoniums, another for Fuchsias, another for Begonias, and so on; while in the continental, American, and Australian markets there are "runs" on plants that are not at the same time in such great demand at home. This, then, accounts for the multitudinous nature of the stock, for the clients of the establishment are scattered all round the globe.

Having had some small business connection with Mr. Cannell since his commencement as a trade florist in a small way at Woolwich, and each year had plants from his nursery, it is interesting to pay a visit now and then to head-quarters and to note the progress that is continually being made. I always take down a few names on these occasions of the plants that appear to me the most striking; and as such a list, however patchy it may be, may possibly be of some service to others I send it for what it is worth. When on a mission of the kind indicated I take no notice of the mere date of introduction of a plant; whether it is old and common, or new or rare, matters not. The chief question with me is, Is it meritorious? Passing the Dahlias, of which so much has been said lately, and that have been so grand and numerous represented in the several types, I pause, as everybody must pause, at the

PELARGONIUMS, commencing with a section that I fear is not sufficiently appreciated. I note as particularly attractive the following Ivy-leaved varieties:—Comte Horace de Choiseul, a free grower with deep salmon-coloured double flowers; very distinct. Eurydice, also a strong grower, with fine trusses of rosette-like purplish rose flowers. Gloire d'Orleans, compact, free, floriferous, with magenta-coloured flowers, and worthy of a place in every greenhouse and conservatory. Jeanne d'Arc, a free grower and bloomer, producing very large, double, nearly white flowers; an acquisition. Madame Crousse, also free and very fine, with pale rose-coloured flowers with dark-veined upper petals. To complete the half-dozen choice falls on M. Dubus, a dark and beautiful variety with fine flowers and trusses freely produced. There may be finer doubles than the above, but I have never seen them, and those named will give satisfaction to most persons who grow them well, while their cultivation might with advantage be greatly extended. These double varieties surpass the singles in my opinion, but those who think differently may try Beauté de Lyon, which is undoubtedly one of the finest, having large trusses and flowers of a bright magenta colour. Madeleine Reitterhart, very large and fine, glowing pink. Mrs. H. Cannell, purplish mauve, with striking trusses of well-formed flowers; and Masterpiece, a magenta variety of great merit, and a distinct acquisition. This is the best

quartette I can name, and with the doubles above mentioned we have a very choice collection of these charming plants.

Double Zonals.—As I only wanted a few, a few only were marked, these, so far as could be selected, being the best in their colours. F. V. Raspail, deep scarlet, with fine pips and truss, dwarf in habit and floriferous. Paul Charbonniere, orange-scarlet, with large trusses and fine flowers. Clara Pfitzer, rich glowing pink; free, sturdy, and fine. Madame François Dubois, purplish pink; compact, and floriferous. M. Gelein Lowagie, orange-scarlet, very bright, with noble trusses freely produced. Grand Chan. Faideherbe, deep crimson flowers of fine form and very striking. Charles Darwin, deep rosy purple; distinct and fine. Aglaia, very free, lighter purplish flowers, and highly attractive. General Farre, deep salmon, with flowers and trusses of the first quality. Lord Mayor, purplish pink; dwarf, and remarkably floriferous. And now we come to the whites, and not being able to determine the best, the two following had better be ordered:—Heroine and Madame Léon Dallay, the latter blush-tinted, but very charming. This is a very select dozen, exclusive of the liliputians Comtesse de Jannberg, Princess Stephanie, and Archduke Rudolph, which only grow a few inches high and cover themselves with flowers. The first is salmon shaded with purple, the second pinkish lilac, and the third rich magenta. They are distinct from all others in habit, foliage, and blooms.

Single Zonals.—To choose a dozen from 200 is not an easy task, and perhaps another examiner would select some others, yet he would scarcely exclude all that will be named. Mrs. Gordon, a splendid bright crimson flower with white eye; truss large, and habit good. Right Ahead, deeper than the preceding, having dark crimson flowers of the finest form, borne on large trusses. La France, this is of the Dr. Denny type, but finer in every way; upper petals purple with orange-crimson base. Dupont de l'Eure, a grand variety of the same type, with even deeper top petals, and a fiery orange base. Miss Hamilton, blush white with a dark eye, a charming Phlox-like flower that should be grown by everybody. Czarina, white with a pink centre, also one of the best in its class. Mrs. J. Gibson, bright clear salmon, with large pips and fine symmetrical truss; very effective. Eurydice, deep purplish pink, upper petals tinted with white, dwarf, free, and a fine trusser; very telling. Mrs. Strutt, paler in colour than the preceding, but scarcely less attractive, and altogether good. Constance, pure rose colour, very free and fine; the best of its colour. Paul Bauer, deep glowing pink, base of the top petals white, large pips and truss; distinct and attractive. Snowball, the best white variety; pure and fine. All the above have large round flowers. Two extra may be added of the semi-nosegay type, remarkable for their huge trusses and dazzling colour—namely, Bacchus, magenta-crimson, rich and glowing, and T. Schuler, brilliant scarlet, dwarf and free. This selection was made some time ago—that is to say, long enough since for the merits of the varieties to be proved, and is not the less reliable on that account. If there are any better, especially amongst the newer ones, as there probably is, perhaps some persons who have proved them will make their merits known.

Amongst the Show Decorative varieties two of the most effective were Edward Perkins, orange-scarlet with maroon blotch, and Madame Thibaut, round white flowers, veined and marbled with rose. These are very free and useful for the home stage and market purposes, and may safely be added to those collections that do not include them.

BEGONIAS.—Equal to the Pelargoniums in variety of colour and general effectiveness these commanded attention, double and single varieties being represented in great numbers. The finest half-dozen Tuberous varieties noted were Madame de Dumast, blush white, with flowers much larger and fuller than Gardenias, and very striking. Davisii hybrida flore-pleno, dwarf, floriferous, rich, and telling. Eugénie Lequin, orange-scarlet, very bright and full. Lucie Lemoine, one of the best whites, and admired by all. Edouard Morren, crimson-scarlet, full and fine; and Calypso, rosy pink, large and symmetrical. The double varieties, as a rule, are not so free as the singles, nor can they be so rapidly propagated, and hence it is difficult to maintain the supply, as they appear to be very popular, and the demand for them is consequently great.

Twelve superior single varieties, which admirers of these beautiful flowers cannot well do without, are François de Craen, crimson-scarlet, handsome and floriferous. Massange de Louvrex, bright orange-scarlet and dark foliage; very effective. Countess of Kingston, reddish crimson, flowers of great size and substance; extremely fine. Graham Bell, rich crimson, large, habit dwarf, and plants floriferous. General Roberts, deep velvety crimson; one of the richest and finest. Madame Valette, rosy carmine, round and smooth; plant dwarf and free. Annie Laing, soft rosy pink, large, well-formed, and free; the best of its colour. L'Abbé Froment, deep golden yellow, erect and fine; one of the best of its colour. Mrs. Highgate, rosy salmon, good form, free and pleasing. Lady Hume Campbell, white suffused with pink; large, free, and good.

John Laing, clear light scarlet, of the first quality, very attractive; and Madame Saladin, French white, free, with large flowers of great substance, and a general favourite.

Fine-foliage Begonias.—Varieties of the Rex type have been for a time under a cloud, but are again increasing in public favour. For growing in shady places, such as under the foliage of Vines, they have, when tastefully grouped with Ferns, a beautiful effect; while for planting on rockeries under glass few plants are more suitable. They are also admirably adapted for corridors, halls, staircases, and windows, as they thrive well in semi-dark positions, and colour better than in the full sun. From a very large collection the following twelve are chosen as distinct and good. To describe them is impossible, so beautifully are

they marbled and spotted:—Adrian Robine, Berthe Proutière, Charles Hovey, Duchess, Distinction, Fire King, Julia Serot, La Perle de Paris, Louise Chrétien, Mdle. Emma, Narga, and Van der Meulin. These plants are of the easiest culture, and most of those named are a great advance on the old varieties that are generally seen in cultivation.

Miscellaneous.—Having noted what I particularly went to see, houses full of Verbenas, Petunias, Fuchsias, Gloxinias, and other flowers were passed with an admiring glance, as also were some acres of Roses and Violas, with great squares of Delphiniums, Phloxes, Pyrethrums—in fact, apparent all kinds of flowers; but an edging of Lobelia Swanley Blue compelled a pause, so dwarf and dense was the growth and bright blue the flowers. It is a variety that will spread widely, and a good companion for it is Queen of the Whites, Scarlet Gem, Cloth of Gold, and King of the Roses Abutilons form a grand trio. The dwarf golden button-like Chrysanthemum coronarium Aurora was flowering freely, and is becoming popular; whilst amongst the stock of the florist's Chrysanthemums the great gun is Lord Wolseley, that every fancier will, sooner or later, have to add to his collection.

After seeing all that was to be seen, and much more than I can remember, I left Swanley with a feeling of astonishment at the widespread love for plants that now exists, and which must be growing yearly, or how else could such establishments as this have sprung up so quickly and be maintained so well? It is truly wonderful, and the more so since most, if not all, appear to be flourishing and extending. This is a healthy hopeful sign, as it is directly indicative of the public taste—a taste, no doubt, that has been, in a great measure, created by the enterprise of florists of the present generation, who have secured the best varieties that have been raised at home and abroad, and let the world know they possess them. This is the secret of success.—AN ANNUAL VISITOR.

CHRYSANTHEMUMS AT FINSBURY PARK.

THE popularity of the Chrysanthemum Show at this Park seems to be increasing annually, for in no previous season has it been visited by so many persons as this year, the structure devoted to them being almost constantly crowded, and particularly so on Sundays. The Superintendent, Mr. Cochrane, has earned a well-deserved success in instituting the Exhibition, and he has been ably assisted by his foreman, Mr. Mardlin, who has paid careful attention to the culture of the plants with good results. A substantial structure 100 feet long, with wooden sides about 6 feet high, and glass roof with abundant means of ventilation, was erected about a year ago, and is admirably adapted for the purpose. It has a flow and return pipe on each side, heated by two small independent coil boilers placed outside the house, and these are very useful in assisting to prevent damping, as all superfluous moisture can be quickly dissipated; by that means keeping the flowers fresh much longer, and the colours cleaner and brighter.

About 1300 plants are grown, comprising over 300 varieties, and they are arranged on each side of a central path, forming two sloping banks, which have a beautiful effect on entering the house, as the blooms can be readily seen, the numerous colours being carefully grouped to form a harmonious combination of tints. Several new varieties are represented, amongst them being George Gordon, a Japanese with very large deep rich red blooms, the florets broad. This is particularly deep in colour when young, and becomes lighter as it advances, some of the blooms exceeding Elaine in size. Some of Messrs. Veitch's novelties raised by Mr. Salter are notable, though few possess sufficient distinctness or merit to supplant other and older favourites. Tisiphone, the Goddess of Snakes, is a Japanese, with long ragged dark red florets, rather loose. Lucifer is another of the ragged Japanese type, yellow and red; Duchess of Albany, with broad white or creamy florets, is also a Japanese variety of Salter's raising, the blooms large and early. A new so-called Pompon is Ringleader, also one of Veitch's varieties. It is somewhat in the way of Lady Talfourd, nearly as large, but lighter in colour, and with the florets quilled nearly to the points.

Of the older varieties the following are especially remarkable for the size of their blooms:—Comte de Germany, extremely large; Elaine, White Globe, Abbé Passaglia, Cry Kang, Baronne de Prailly, Golden Beverley, Peter the Great, Refulgence, Tarantella, Triomphe du Nord, and many others. The banks are bordered with Pompons planted out, a number of varieties being represented; but Golden Circle, an early bright yellow variety, and Sœur Melanie, white and similarly early, are two excellent varieties, free, compact, and handsome.

Although the Show was opened early there are great numbers of buds to open yet, which will prolong the display for some weeks yet, and judging by the size and substance of the buds the later flowers will be fully equal, if not superior, to the earlier ones.

HISTORICAL JOTTINGS ON VEGETABLES.—No. 9.

THE CUCUMBER.

IN a household, so it is said, which happened to have amongst its inmates a number of word-critics, Cucumbers were not unfrequently placed upon the table. Some chance observation provoked a discussion, which led to the division of the assembled eaters into three parties respectively advocating Coweumber, Cucumber, and Cucumber. So warm became the disputes concerning the pronunciation of the oft-vexed word that the head of the family for the sake of peace

enacted that those who asked to be helped should henceforth simply call it "cumber." The English "Cucumber," the French "Concombre," and the Latin "Cucumis," indicate their nearness to each other. The root of the original appellation is thought to have been "curvus," from the tendency of the fruit to take a curve or twist. We, however, although the fruit is the part eaten, commonly place this on our list of vegetables, as it is not a fruit to be relished at dessert, as are some of its relatives.

Cucumis sativus, from which our many garden varieties of the Cucumber have been developed, is considered to be a native of northern Asia, but no wild examples belonging to this species have been discovered by travellers of modern times. In the order Cucurbitaceæ, where this is placed, the majority of the species are either bitter or purgative, and partial to warm climates; this bitterness resides in the rind of the cultivated Cucumber, for which reason it is attractive to some insects, perhaps, such as the detested cockroach or "black beetle," which eats, and is said to be poisoned by Cucumber. If so, it would be a fact worth knowing, since this insect occasionally proves troublesome in our houses, but I am assured by a gardener who has laid slices of Cucumber along the haunts of the cockroach that no diminution of numbers ensued. There have been, no doubt, from sundry accounts in old authors, instances of persons being poisoned by eating the fruit of other species of Cucumis, mistaking them for the edible kind, and possibly by that of the true Cucumber if grown under unfavourable circumstances.

Africa was evidently the early home of the cultivated Cucumber, and from those northern districts where large specimens were produced for the table thousands of years ago the cultivation of the plant spread to parts of Europe and Asia. It is one of the species over which the Israelites mournfully soliloquised during their desert wanderings, as they contrasted past luxuries with present limitations in food (Numb. xi. 5). And the Cucumber has long flourished, is still flourishing, in the rich soil lying near the Nile, we may safely date it at least 2000 years before the Christian era as a plant well known to the Egyptian races. Retaining their liking for Cucumbers, the Jews afterwards grew the plant freely in Palestine, hence that comparison would be forcible to them which is used by Isaiah, who likens Jerusalem to "a lodge in a garden of Cucumbers." It was exposed to as much risk as one of the temporary structures that were commonly thrown up in the Cucumber grounds to shelter a man employed to watch the ripe fruit. After such a shed had served its purpose, it would be neglected and allowed to fall into ruin until a farther need for it arose. The Greeks had the Cucumber from Egypt or Asia Minor, for it seems they had a high opinion of the plants that were produced about Antioch, and took the trouble to import them. One of the older Greek authors describes a peculiar plan followed by some of the Egyptian gardeners; they set Bramble bushes of tolerable size in a sheltered spot, and during the spring having cut these down almost to the earth, they inserted a seed of the Cucumber in the pith. A good quantity of manure was then placed round the Bramble stocks. This was done with the object of hastening the development of the plant, but he suggests as an improvement sowing the seeds indoors, rich earth being placed in baskets, which, at a proper time, could be moved to the garden and sunk. Pliny, writing in the reign of the Emperor Tiberius, describes forcing as he had seen it practised in Italy. Cucumbers were grown in boxes furnished with wheels, and these were shifted about according to the weather, the growth of the plants being encouraged even in the winter by exposing them to the light within buildings covered with a transparent material, now unknown, which would admit the sun's rays, but exclude cold.

It is most probable that the Romans, during their occupation of Britain, grew Cucumbers amongst the many vegetables which died out in the period of degeneracy that followed, with frequent conflicts between Briton, Saxon, and Dane. Nor does there exist any evidence that the plant was speedily reintroduced after the Norman Conquest, and not until the days of the Tudors do we get references to it as a plant grown in the gardens of the nobles. Gerard knew it well, and he doubtless had Cucumbers on the slopes of the garden near High Holborn, where he reared so many rarities, having a favourable situation and land well watered by the little brooks that flowed from the higher ground into the river Fleet. Parkinson may have gathered them from his garden in Long Acre, which appears to have been very flourishing in the reign of James I. Forcing was a novelty then, but Gerard mentions that as he had seen Cucumbers grown under frames, thin matting being stretched over hoops; also, he says, some gardeners in order to obtain Cucumbers of considerable length enclosed the young fruit in hollow canes or wooden cases, while they supplied the plant with abundance of manure. Then, he adds, the seed taken from these long and straight Cucumbers will generally on sowing yield fruits which are of superior quality, and resembling their parents in form. And, according to his wont, he discusses the medicinal value of the Cucumber, recommending it as an unfailing cure for skin

diseases. This was not, however, by its external use, lotions and salves containing Cucumber juice having obtained no fame then. Gerard recommends persons having "red pimples, coppery faces, and fiery noses," and wishing reasonably enough to improve their aspect, to eat some Cucumber every meal, mixed with oatmeal pottage. A ridiculous notion prevailed in the seventeenth century that if the seeds of the Cucumber were soaked in milk before they were sown the resulting plants would not draw up "the gross juices of the earth." Lord Chancellor Bacon, who did so much in his age as a pioneer of modern science, studied the cultivation of plants, and advised that the pits in which Cucumbers were planted should have a layer of chaff or woody fibre under the mould, because that would check any

and the fruit is now cheapened considerably as compared with its price at the beginning of this century, but "frame Cucumbers," like similar special articles, keep up their value. We think a great reduction has taken place in the quantity grown in the immediate neighbourhood of London, partly attributable to the disappearance of much of the garden ground, partly also to the circumstance that the crops have frequently yielded unsatisfactory results, which has arisen from various causes.

The poet Cowper had amongst other occupations to wile away his melancholy that of raising Cucumbers, and in one of his poems he versifies the details of the process. In a letter to a friend he remarks that although he grew them he was afraid to eat them, and when forwarding one of them to a friend he asked him to explain how it was he had grown this specimen and yet had not reared it. His friend was perplexed, and Cowper solved the riddle thus—"I raised the seed that produced the fruit that produced the seed that produced the fruit I sent you. The latter seed I gave to the gardener of Terningham, who brought me the Cucumber. So I virtually raised it by having raised its progenitor, and yet I did not raise it because the identical seed was sown at a distance." There is no small minority of our population afraid, like Cowper, to venture upon Cucumber, and medical authorities are very divided about its wholesomeness.—J. R. S. C.



Fig. 71.—GREEN ROSE.

tendency to a large absorption of moisture, which he regarded as undesirable for the fruit.

The very imperfect accounts we have of the oldest market gardens of London leave us in doubt where and when Cucumbers were first raised for sale in the metropolis. I suspect in the reign of William III., about Lambeth, Vauxhall, or Battersea being likely localities. Subsequently Cucumbers were extensively grown in the open suburbs of London on the Middlesex side of the river, hundreds of thousands being cut yearly for immediate eating or for pickling. An early forer of the plant was one Thomas Fowler of Stoke Newington, who was allowed to present a couple of Cucumbers to George I. on the 1st of January, 1721. Hertfordshire and Bedfordshire are two of the home counties that have produced quantities of Cucumbers in the open air,

THE GREEN ROSE.

"S. J. W." asks for particulars and a description of the green-flowered Rose, and desires to know whether it is worth growing as a novelty. The particulars at our disposal are the following, and they may possibly be of interest to others besides our correspondent:—

Mr. William Paul of Waltham Cross recorded in our columns in 1878 that this Green Rose (*Rosa viridiflora*) "was first seen in France in the possession of M. Verdier of Paris in 1855, who received it from an American nurseryman of Augustus, Georgia. I received it from M. Mieliez of Lille as a new Rose in 1857." Later in the same year Mr. Scargill wrote—"Respecting the origin of the Green Rose, the old man who collects the seed in the herbaceous ground at Kew tells me that the specimen there was brought by Sir H. Barkley from the West Indies (Demerara he thinks). He, however, added that it was taken to the West Indies by the French, and the specimen at Kew is labelled *Rose Verte*, which seems to indicate its French origin." The appearance of the Rose is represented in the annexed figure of a specimen that was sent to us by Mr. Smith of Romford. As to whether it is "worth growing as a novelty or not," that is a question of individual taste. We have grown it for years, and have often cut flowers twice the size of that shown in the figure. They are not beautiful, but are certainly novel.

NOTES FROM A SCOTCH GARDEN.

THERE are at this season few more useful flowers for filling vases than the Michaelmas Daisies. They may either be employed alone or for lightening heavier flowers. For the latter purpose *Aster simplex*, a pure white Daisy-like flower, is very lovely, and is only approached by the little *Vittadenia triloba*, a graceful plant with starry flowers which change from white to pink. *Aster Amellus*, purple; *A. versicolor*, white; *Erigeron grandiflorum*, light blue; and *Stenactis speciosa*, of a darker shade of blue, are all of great value just now. Other good Asters not yet open are *A. turbinellus*, *A. multiflorus*, *A. ericoides*, *A. novæ-angliæ*, and *A. novæ-belgiæ*.

One of our best out-of-door flowers at this season is *Alstroemeria peruviana*. It begins to flower in summer, and continues throwing up fresh flowering stems until stopped by the cold of approaching winter. I do not remember having seen this species specially noticed before. It is certainly one of the best hardy flowers we have. Another lovely flower

at present at its best is *Agapanthus umbellatus*. I do not know that it is hardy everywhere. Here it blooms well on a warm dry border.

Phygellus capensis is also one of our best border plants at this season. It likewise is said to be tender in some quarters. Here it succeeds perfectly. Cuttings strike if inserted now, and this is the best way to obtain a stock of plants. Those who are fond of single flowers should add the light blue *Scabiosa caucasica connata* to their collection. It keeps producing flowers for months, and is much appreciated by ladies. It is quite hardy. Judging by questions as to name, which are continually being asked, the soft rosy *Sedum spectabile* does not appear to be so well known as its merits entitle it to. We grow it by the hundred in border and bed, and can recommend it as one of the most taking of hardy flowers. A stock can be rapidly raised, as every little point strikes root freely in spring. Afterwards the rootstocks may be divided when replanting if more plants should be wanted.

What a fine Orchid is *Odontoglossum grande* when grown strongly! We have had several plants in bloom and more to follow, some of them with six blooms to a spike, and the individual flowers over 7 inches across. I find they do best grown close to the glass under a dense shade while growing. Our best variety is just showing its spikes; this I have known with seven flowers on a spike, and considered it very good. Of a different stamp is *Oncidium ornithorhynchum*, a quiet graceful beauty; it is quite the gardener's Orchid and worth growing by the dozen. Some varieties are hardly worth house room, so much do they vary.

Another Orchid of the greatest value at this season is *Phalænopsis amabilis*. It does in an ordinary stove, and, like *Odontoglossum grande*, should be kept pretty close to the glass and densely shaded. It is not difficult to manage, but I have found it necessary to change the sphagnum twice in a season in order to keep the roots in perfectly fresh material, an important point to be observed with *Phalænopsids*. It may be added that this species should be kept shorter of water during the winter than it would be safe to venture with *P. Schilleriana*, which, if allowed to get dry, will lose its flower buds.

While on the subject of watering it may be pointed out that it is not the best plan to dry up *Calanthes* too quickly; they ought to be watered until the foliage gives way. *Cœlogyne cristata* is another plant which at present should not be insufficiently supplied with water. Fresh roots are now formed, and the plants are all the better for being kept moist. The same remark applies to *Lycaste Skinneri*, which is now throwing up blooms and forming roots at the same time. I will only mention another species which every gardener should have, and which is now opening its first flowers, and that is *Cymbidium Mastersii*. This is certainly the most useful of the *Cymbidiums*. We have had spikes with a dozen and fourteen flowers, very lovely. Varieties differ considerably, however, in respect of length of spike.

I have considerable sympathy with "H." in the matter of new Potatoes. They are generally very disappointing. I think, however, as a rule gardeners continue to depend on old kinds for supply of ordinary wants. I do so, and so do others whom I am acquainted with. For instance, we have had Myatt's Ashleaf Kidney in use from June up to the end of August, and I do not know that it could be surpassed as a cropper, certainly not in the matter of flavour, by newer introductions. Of course White Elephants at 1½ lb. each may be brought as proof that I am wrong, but such examples are unrepresentable in any dish—with the exception of that of the family pig, and even in his case the smaller and more delicately flavoured Myatt's might be more profitable.

I am waiting for the first sharp frost to denude the Seakale crowns of the leaves which are now in the way in order to get the first batch lifted and placed in the forcing house. While so waiting I may be allowed to call the attention of others who may also be waiting, to this fact in the matter of forcing Seakale—that is, that you cannot give the roots too rich a rooting medium when planting them in their forcing quarters. Any poor worn-out rubbish is generally conceded to Seakale. But if you want it to grow quickly, to grow strong, and to grow brittle, employ instead of rubbish some dry horse droppings, and you will have a glad-some surprise. Rhubarb should be planted in the same material.

I have just one other note, and that is about a shrub—*Spiræa Van Houttei*. It is useful for forcing, but what I specially want to recommend it for is as a shrubby flowering plant. It ought to be grown extensively. It flowers early, wreathing its drooping shoots with little cymes of pure white.—X.

GREAT APPLE AND PEAR EXHIBITION—HEREFORD.

THIS annual Exhibition, kept in abeyance last year on account of the unproductive fruit season, was held in the Shire Hall on the 24th and 25th ult. To report with what amount of success, I need but state that some 2500 plates were staged, while for lack of room the cider and perry fruit had to be grouped in admired disorder throughout their respective classes. However, as the Judges did not seem to object to this perfunctory arrangement, the public certainly were gainers in the picturesque effect gained by the general effect. Not in extent only was the Exhibition pronounced to be the finest ever held in the provinces, but in the rare quality of the fruit; and, in a notable degree, in the marvellous dash of colour which pervaded the entire hall, an eloquent tribute was paid to our Herefordshire soil, which I feel sure our Kentish friends, so justly priding themselves on their superior climate and the consequent smoothness and symmetry of their fruits, will be the last to grudge us, roughly handicapped as we of the West Midlands are well nigh every year—even if we escape the spring frosts—before the early growths get a fair start. The size attained by the largest Apple among the collections of that noted exhibitor, Mr. Haycock, gardener to Mr. Roger Leigh, M.P., Barham Gardens, Maidstone, 1 lb. 4 ozs., was 2 ozs. in excess of the largest specimen in the Middlesex collection

at Chiswick, but not equal by several ounces to previous records attained at these exhibitions. The same exhibitor carried off the prize for the heaviest dessert Pear, Pitmaston Duchess, 1 lb. 8½ ozs. Indeed, it may be said that the clean and level as well as grand exhibits of this talented fruit-grower was the theme of general admiration, as I hear it also was at Chiswick.

I would venture here to guess at one great secret in Mr. Haycock's staging, conducing so signally to his success in gaining the Judges' fiat and popular favour. It is simply this, that, given the grand material he has to make the most of (of course, as Mrs. Glass says, you must first catch your hare), he always aims at levelling up throughout his entire collection, and thus never dwarfs a single specimen, or lets in a single weak corner, by introducing a disproportionate large plate or two. May it not be possible Mr. Haycock carries this principle too far in his magnificent collection of dessert Apples, for which he won first prize in an excellent class? Several noted fruit-growers, as Mr. Bunyard, pronounced it the finest ever staged. Still I venture humbly to suggest, first-rate as every plate was, that size throughout was too large for orthodox dessert Apples, where such all-round varieties as Queen Caroline and Blenheim Orange never (as here) should find a place. Perhaps the most interesting varieties were Melon Apple, Ross Nonpareil, perfect in colour; Mother Apple, Washington, superb specimen (from under glass I learn); Pine Golden Pippin, perfect; Margil, wonderful colour; and King of the Pippins, true type.

Mr. Thomas Griffiths, Tillington Nurseries, won the second prize with fine collection, including the refined Pomeroy, the fragrant Summer Queening, and juicy Astrachan, not to omit mentioning the local Phibury Pippin (called after one of Andrew Knight's many nurseries near Ludlow), a perfect model for a dessert Apple from its handsome neat looks, golden colour, and lasting properties. Third prize, Mr. John Watkins, Pomona Farm, Withington. Fourth, Mr. John Barnes, Hucclecote Gardens, Gloucester.

In culinary Apples, twenty-four varieties, Mr. Haycock was first with wonderfully bright and level specimens, specially including Royal Russet, Northern Spy, grand in colour and size; Bedfordshire Foundling, fine; Belle Duhois, immense; Lord Derby, splendid everywhere; Cox's Pomona, finest colour in the Hall; Lady Henniker, great acquisition; Annie Elizabeth, great size and density. Second prize, Mr. Ward, gardener to Lady Emily Foley. Third prize, Mr. J. Watkins.

The single plates, for which many private as well as committee prizes were offered, were very interesting and keenly contested, especially the Blenheim Pippin, Ribston Pippin, and Seek-no-Further, which appear to find a natural home in the orchards of Herefordshire from the number and excellence of the plates exhibited. Mr. H. Higgins, Thinghill, Hereford, took first prize for Blenheim Pippin and Seek-no-Further, and Mr. Haycock first prize for Ribston Pippin. The first Apple, I may mention in passing, is not being planted in such number as formerly, owing to the tree not coming into profitable bearing for many years. Mr. Haycock also took first prize for a high-coloured and fine Cox's Orange Pippin; and Mr. Haywood, Blakemere, first prize for the somewhat sensational culinary Apple of the district, Tom Putt, an everlasting bearer but no keeper.

Single plates of dessert Apples for present flavour were shown by Mr. Haycock, who was first with American Mother Apple, exquisite in flavour but too soft in flesh for most palates. Mr. C. Ross, gardener to Mr. C. Eyre, Welford Park, was second with Cox's Orange Pippin, of fine delicate flavour and crispness of flesh. Third, Mr. Walter, gardener to the Earl of Chesterfield, with the same variety; and fourth, Mr. H. J. Smith Brothers, Ledbury, with the Old Pomeroy. A grand class, twenty-eight plates.

Culinary Apples, for size, weight, and quality, any variety.—First prize, Mr. C. Haycock, 5 (plate of), with Belle Duhois, 6 lbs. 3 ozs. Second prize, Mr. Higgins, Thinghill, with Peasgood's Nonesuch, 6 lbs. 1 oz. This decision was not endorsed by the general public, the latter being of far greater diameter and more taking appearance, but the greater weight and density, and consequent longer keeping properties of the less popular variety perhaps rightly decided the Judges.

Dessert Pears for present flavour, any variety.—First prize, Mr. G. H. Piper, Ledbury, with small but exquisitely ripened specimens of Thomson's. Second prize, Mr. Wm. Woodhall, with small standard-grown Marie Louise, very sweet. Mr. Ross, Welford Park, Berks, unusually fine Seckle; and fourth, Mr. Haycock's Beurré Superfin.

Culinary Pears, for size, weight, and variety went as usual; first prize to Uvedale's St. Germain, Mr. C. Ross, 6 lbs. 4 ozs. Second prize, Mr. Trembling's Grosse Calabasse (under glass) 5 lbs. 7 ozs. Third prize, Rev. H. Tweed's Catillac.

In the class for any new variety of Apple or Pear there was no variety to call for special mention. Messrs. Saltmarsh sent a plate of their fine new Apple The Queen, lately certificated by the Royal Horticultural Society. Mr. George Bunyard brought also a plate of the promising new Apple Grenadier of large size and density. This well-known orchard nurseryman also brought a collection of twenty plates of the leading varieties of the day, not for competition, staged and named as one would expect from so high an authority. Messrs. Wheeler & Son of Gloucester also sent a collection of twenty varieties of Apples, not for competition, hardly up to the high reputation of this old-established firm. Messrs. Cranston & Co., King's Acre Nurseries, added considerably to the interest and success of the Exhibition, as well as to their increasing renown in fruit culture, by a really admirable collection of 150 varieties of most of the leading Apples in cultivation of a local and general character. The most noticeable perhaps were Chiffey Seedling, fine; Herefordshire Beefing, splendid colour, good bearer and keeper; Peasgood's Nonesuch, good everywhere; Stirling Castle useful; Sops-in-wine, curious, typically shown; Keswick Codlin (well kept), best early in Herefordshire as orchard tree; Lady Henniker, soon comes into bearing; Wiuter Queening, exquisite; Loddington, not its year.

Collection of dessert Pears, fifteen varieties.—First prize, Mr. Haycock. This exhibit was perhaps the greatest feature in the hall; certainly the finest I have ever seen staged as grown in England. They included—all nearly of same grand and level type—Triomphe de Jodoigne, General Todleben, Easter Beurré (enormous), Marie Benoist (grand), Conseiller de Cour, Pitmaston Duchess (almost as large as the Premier Pear), Doyenné du Comice, Beurré Diel, Doyenné Boussoch, Beurré Hardy (handsome), Passe Crassane, Duchesse d'Angoulême (immense), Durondeau (fine), Beurré Superfin, Nouveau Poiteau

Mr. Walters, gardener to the Earl of Chesterfield, was second with a smaller but clean bright collection, hardly up to the renown of the Holme Lacey cordon wall. Specially noticeable were Gen. Todtleben, Flemish Beauty (a real beauty), Marie Benoist, and Beurré Hardy (handsome). Third, Rev. E. Stacey, Wessington Court, Ledbury.

Suffice it to add that the cider and perry fruit classes were well filled, and as a useful result of these exhibitions, better filled than previously, with recognised varieties from which really good saleable cider and perry will be made. Sir Rupert Kettle sent a branch of the long willow-leaved Pear, and another full of fine fruit was also sent by Mr. Goodwin of Hampton Bishop. It is an interesting curiosity. Its botanical name is *Pyrus salicifolia pendula*, and it is being planted sparingly in the Herefordshire perry orchards to supply the tannin and acid which is apt to be deficient in perry Pears.

The gentlemen who kindly acted as Judges were Mr. Smith Carington, Worcester; Mr. George Bunyard, Maidstone; and Mr. Lewis Killick, Maidstone; the Rev. C. H. Bulmer, Credenhill Rectory, Hereford, and Mr. G. H. Piper, Ledbury, only taking the cider and perry fruit division.—THE HEREFORDSHIRE INCUMBENT.

BORDER CARNATIONS.

CARNATIONS are grown in nearly every garden, and I do not intend filling your space by making any remarks upon their popularity, usefulness, fragrance, or beauty, all of which are well known. These plants are perfectly hardy, and will, as far as I know, pass safely through our most severe winters. When this is the case why need we lift them at this season of the year or a little later, and establish them in pots and give them protection in cold frames until planting-out time in spring? Where two or three thousand plants are grown this practice necessitates considerable labour, besides occupying frame-room until they are planted out, and then, if the weather proves dry, good soakings of water until they are established. This potting system I have largely practised, and can say it has its advantages as well as its disadvantages. The latter, however, outweigh the former, and under these circumstances I do not see the utility of treating plants that are perfectly hardy as half-hardy.

If the plants were layered early they will now be thoroughly rooted, and can be lifted and placed at once in the positions they are to occupy for flowering next year. If they are well rooted and transplanted at once they will get fairly hold of the soil before winter, and do equally as well or better than if they had been potted, protected, and planted out in spring. When work of this description can be done in autumn it should be done, for in the spring so much needs attention. Perhaps the greatest disadvantage of autumn planting is the trouble slugs give, for they appear rather to appreciate the tender centres of these plants. These pests are very numerous in some gardens, but they can be destroyed. Before planting give a good dusting of fresh lime and soot to the beds and borders, and allow it to remain on for two or three days before digging. If this fails to remove the slugs and they attack the plants afterwards, select a dull moist morning, when the slugs will be out, and apply paraffin and water through a syringe to the whole bed on the same principle that has been recommended for miscellaneous plants in these pages. It is rare that autumn-planted Carnations do not start strongly and vigorously in the spring, and do even better than those that have been kept in pots and planted out in spring.

Carnations like a little fresh soil added annually to the beds in which they are planted, and for this purpose we use the soil which our Cucumbers and Melons have been grown, and in addition in this a little old Mushroom-bed refuse, but the former is preferable, and the plants thrive better in the beds to which the soil is applied than they do if only the manure is used. If fresh loam is used be careful that it does not contain wireworms, for they are the worst enemy the Carnation has to contend against. Whether wireworms like Vine roots or not, they are remarkably fond of making their way up the stems of Carnations, which, although they retain a fresh hue during the winter, turn yellow in spring and eventually die.—LANCASTRIAN.



KITCHEN GARDEN.

Asparagus.—The stems of this are now yellow and mostly withered, and as they serve no useful purpose afterwards they may be cut away a few inches above the soil, the ground being hoed, cleaned, and then given a good top-dressing. Where the roots are growing in beds and rather close together the whole of the surface of the soil may be dressed with manure, but when the plants are growing 3 feet asunder a little mound of manure need only be placed over each root. Roots which are intended to be lifted shortly for forcing need not be so treated. In lifting roots for forcing we do not take them all before us, but simply thin them by taking every alternate root, and as they are all young and annually developing, this practice suits them admirably. Before cutting down any of the stems we go over the whole of the quarters and put a short piece of stake in against each of the roots which it would be an advantage to lift for forcing, and by-and-by when nothing can be seen above ground these are good guides to lead to

taking the right ones. The roots should be lifted from the most crowded parts, and those which are strong and well developed will give the most satisfaction.

Storing Roots.—All roots of any value should now be under protection. Beetroot, if not already in, should be lifted and stored as directed some weeks ago. Carrots, which are a most important crop, as they must be kept sound and be plentiful for daily use until new Carrots are grown again in spring, should have every attention given them at this time. They are very hardy and will bear without injury a few degrees of frost, but they are better without this, and the best way of managing them is to take them all up now and store them in a cool shed or pit. In any case they must be kept in the dark quite dry. If allowed to lie exposed in a shed many of them will soon shrivel and become flavourless and colourless, but when packed in moderately dry soil, sand, or decayed leaf soil, or stored in a pit like Potatoes, they will keep excellently.

Stored Roots.—Potatoes and Onions which have been stored for some time should be examined now with the object of removing any that are decayed or wasting. Picking out one in time now may save nine in a case like this, and those which are quite sound will be likely to remain so for a long time to come, as any which are inclined to decay generally do so immediately after storing. Work of this kind should always be done on wet days.

Globe Artichokes.—In cold districts early frosts may injure these if not protected, and in all cases will now be benefited by being protected. They do not require very much, as it is sufficient to pack a quantity of decayed manure round the collar of each, and then put a little long litter or fresh-gathered leaves over this to protect the young leaves and crowns. The severe winters have sometimes injured them, but they always succeed best afterwards if a few of the leaves can be preserved throughout the winter.

Manure.—Wherever high-class vegetables are desired manure must always be the chief agent used in their production, and there are no kinds of artificial mixtures which can take the place of animal droppings. Cowshed manure is undoubtedly the best of all for the majority of gardens, and then comes that from stables and piggeries. Stable manure is not of much worth except for lightening heavy soils in a vegetable garden, especially when, as in our case, all the droppings are taken out for Mushroom-growing, the remainder being little better than straw. In all cases where at all available let a large quantity of cow manure be stored from now on during the winter, as it will be required from time to time onwards. We do not approve of having manure for growing vegetables stored for twelve months or more before using, as when only laid up for two or three months it may be used with the greatest advantage.

Vegetable Refuse.—In all gardens there is now plenty of various kinds of refuse, such as fallen leaves and tops, stems, and decayed leaves from many kinds of vegetables; every particle of this should be collected in a large heap, adding any old potting-shed soil and slops from the house as well as loose straw from the stable, and in fact everything capable of making manure, and as soon as a quantity has been gathered mix it well together by turning. In the spring this will be excellent for digging into Potato land or any portion of the kitchen garden.

Mushrooms.—Through the aid of Mr. J. Wright's excellent book the culture of these is rapidly extending, and many are induced to try Mushroom-growing now who considered themselves and their appliances quite incapable before. Let us ask those who do not succeed so well as they could wish with them in the open air to try a few small beds in any cool shed. We have a heated Mushroom house, but have ceased using it, and make up the whole of our beds in sheds. Any corner will do. They come freely in the potting shed, in the barrow shed, and in the tool shed, and being grown quite on the "cool system" they become fine in size and splendid in flavour. Sometimes we make a bed with one cartload of manure, and others have two or three in them. They are always spawned and covered before the heat becomes too low, and the surface is constantly protected with a thin coating of dry hay. When the bed has been soiled in the ordinary way it is a great benefit to the Mushrooms when they do appear to shake a little sand all over the bed and beat it gently in. This is one of the best means which can be employed to prevent the young Mushrooms from decaying prematurely. Beds made up now should be in full bearing by Christmas.

FRUIT-FORCING.

FIGS.—*Early Trees in Pots*.—Those from which the fruit is to be ripe by the close of April or early in May will need immediate attention in order to have everything ready for a start by the middle of this month. Potting or top-dressing having been performed in September, the house should be thoroughly cleansed, well washing the woodwork with soap and water, the walls being scalded with boiling water and afterwards limewashed, employing three parts quicklime to one of sulphur, and the house in other respects put into thorough going order. The Fig being much subject to attack from red spider and scale during the ripening process, the trees should be thoroughly cleansed, being careful not to injure the buds on the points of the shoots and spurs in first dressing them with a strong solution of softsoap (8 ozs. to a gallon of water) and afterwards with an insecticide. In washing, a hard brush may be used for the old wood, but the wood of the current year will need to be more carefully treated.

Succession Houses.—Houses in which the trees are planted out should be kept dry and cool for some time to come, but if these have been infested with red spider or other insects, pruning and dressing should

be followed up without loss of time. Root-pruning, lifting, and re-arranging the trees should be completed with as little delay as possible. In performing those operations it is well to bear in mind that Figs, when the roots are confined to a limited space, are most manageable and productive under restricted root space, hence it is better to err on the side of severe rather than light root-pruning. The fan is the best system of training, and branch-pruning is more a principle of thinning out the shoots that have reached the limit of the trellis than shortening back to make room for the young successional growths, which should be evenly disposed, with sufficient room for extension, over every part of the trellis.

Strawberries in Pots.—The plants intended for early forcing having been moved to quarters where they can be sheltered from heavy rains only, should have full exposure on all favourable occasions, and on no account must they be allowed to become dry at the roots. Standing the pots on Peach borders, where they must be exposed to piercing currents of dry air, is not suitable for Strawberries; indeed, the pots should be plunged in cocoa-nut fibre refuse or similar material, so as to insure uniform moisture at the roots, and when the drainage is perfect the roots will continue active until the plants are required for forcing. A slight covering of dry fern or litter in severe weather is all the protection required, removing it whenever the weather is mild. Although very little water will now be required the plants should be looked over, and any that require it should be given a thorough supply.

Early Fruiterers.—A batch of an early kind should be prepared for starting with the early vinery or early Peach house, and to which fire will not be applied until the early part of next month. See that the drainage is in thorough order, or make it so, and loosen the surface soil, removing a portion, but not injuring the roots, and add some fresh horse droppings rubbed through a fine sieve. Black Prince is still one of the best for very early forcing; Vicomtesse Hericart de Thury and La Grosse Suerée are good.

PLANT HOUSES.

Ericas.—The early-flowering varieties, such as *E. gracilis*, *E. caffra*, *E. melanthera*, and others, will now be coming into flower, and must have every care while in bloom if it is intended to retain them for flowering again next year. When used for conservatory decoration they are often crowded amongst other flowering plants, and in consequence much injured at the base. They should stand so that light and air can play freely about them, and should never while in such structures be allowed to suffer from an insufficient supply of water, or they will be useless for retaining for another year. Those in a more backward state that have only just formed their flower buds must have very careful attention, for if allowed to become very dry their flowers often will not come forward, but turn yellow; thus the work of a whole season is wasted. Light, air, and careful watering are the secrets of success at this season of the year. Keep a sharp look-out for mildew, which often attacks these plants during moist sunless weather.

Cyclamens.—Where these have been growing in cold frames they should now be housed without delay in a cool light airy structure. Frames are too moist for these plants at this season of the year, and if not removed where a somewhat drier atmosphere can be maintained their flowers and foliage are liable to damp. The earliest plants should now be strong in 4 and 6-inch pots, and some of them will have a good mass of flowers already above their foliage. These will be found most acceptable for the decoration of the conservatory and for room-decoration at the present time. Place a batch of the most forward plants on a shelf near to the glass in a temperature of 50° at night, which can be raised 5° more in a week or ten days. Admit air to these plants daily, so that their flowers and foliage will not draw up weakly. Give a little artificial manure on the surface of the pots, or water the plants every time they need it with clear soot water.

Primulas.—These should be removed from cold frames to shelves in vineries or Peach houses if better positions cannot be accorded them. These plants soon damp if kept in an atmosphere that is in any way confined; they should have abundance of air and light, and be placed near to the glass. Our earliest batch are now in flower, and have been removed to the conservatory. Remove flowers from all succession batches as they appear until they are wanted in bloom. The two latest batches will require potting, which should be done without delay. Those in 3-inch pots should be transferred to others 2 inches larger, except a few of the smallest plants, which will be found most valuable for many purposes of decoration in the size in which they are now in, and if liberally supplied with stimulants they will yield a large quantity of bloom when required. Where a very late batch is grown they will now be thoroughly established in 2-inch pots, these should have 4-inch. All that are repotted must be very carefully watered. The double forms we find do better if kept in a night temperature of about 50° where the air can be kept moderately dry. In this position they will continue to supply abundance of useful flowers in succession.

Cinerarias and Calceolarias.—These should still occupy cold frames, but must be in those with the most southern aspect. Attention is needed from the present time in ventilation. The ventilators must still be left open on the frames at night when the weather is mild. Watering must be done during the early part of the day, and no more water should be thrown about than is really necessary. Potting must still be continued as these plants require it, and the latest batch of both that are still in pans should be placed in 3-inch pots without delay if not already done. Give stimulants to the former when the pots are full of roots. Nothing

is better than clear soot water. Fumigate at the first appearance of aphides, but the foliage should be dry when doing so.

Carnations.—Tree and other varieties that have been grown for producing flowers during the winter and spring should occupy a light airy position in the greenhouse or other suitable structure where liberal ventilation can be given. Do not allow the plants to suffer by the want of water, and feed them moderately if the pots are full of roots. Do not attempt to force them, for a temperature of 50° at night, with ventilation daily, is ample, and in which the plants will for some time continue to unfold their valuable flowers.

Hybrid Roses in Pots.—Where these are required to be forced into flower early they should be placed under cover without further delay. The batch that has been prepared for this purpose can now be pruned. They should for early forcing be well cut back to one or two eyes, which is preferable to leaving them longer, for when forced early they do not break back so well as is the case later in the season. Where the stock of these has to be increased the plants should be lifted or obtained without delay and potted in 6 or 7-inch pots. If potted while the foliage is upon them they make a good quantity of roots and a better growth in consequence the following season. After potting, plunge them outside, entirely covering their pots with ashes or other material. Use for a compost good fibry loam, a seventh of manure, a little small bones, and sand according to the nature of the loam. If heavy, a good per-centage may be used.

Begonia Fraelii.—Another useful Begonia, with bright scarlet flowers, which are most freely produced during the autumn and winter, if purposely prepared for flowering at that season of the year. It is dwarf, and beautiful plants can be grown in 5 and 6-inch pots. This plant must be raised from seed, and useful specimens can be produced from seed sown now for next autumn. They can be better managed to flower at that season by using tubers that have been raised the year previous. Keep the young plants growing the first year as long as possible, so that they will rest until May, and then start them and grow them gradually, and by so doing they will be in the best condition for flowering at that season of the year for which they have been prepared.

THE FLOWER GARDEN AND PLEASURE GROUND.

Beds well planted with hardy flower and fine-foliaged plants are not unfrequently more gay, in April and May especially, than at any time when filled with summer bedding plants. Much depends upon the state of the plants at the present time. If strong and well rooted they transplant readily, are better able to stand the winter, and bloom more abundantly in the spring. Choose dry weather for preparing and replanting the beds, as it cannot well be done properly during showery weather. Where an early display is desired bulbs must be largely employed, and these may be either mixed in thinly with the flowering plants or be planted in masses, the surface of the beds being either carpeted with fine-foliaged plants such as *Festuca glauca*, *Dactylis glomerata*, *Cerastiums*, *Sedums*, *Pyrethrums*, or with sprays of Ivy, *Aucuba*, *Laurels*, and other evergreens dibbled in thickly. Mixtures are best avoided. The centre of the bed should be filled with one colour of Hyacinths or Tulips, another shade in a single row surrounding it, while either Snowdrops, white, yellow, or blue Crocuses, and *Scillas præcox*, *siberica*, and *amœna* can be used for an edging. The *Narcissus* being tall and very distinct, may well be banded with red or blue Hyacinths. Anemones, notably *A. coronaria*, form extremely pretty beds. Any of the above-mentioned carpeting plants divide freely, and may be dibbled in rapidly and neatly.

Plants suitable for edging the beds are blue Pansies, red Daisies, *Nemophila insignis*, *Aubrietias*, coloured Primroses, dwarf *Silenes*, with which may be mixed white and yellow Crocuses and Snowdrops, and yellow Pansies, common Primroses, *Cerastiums*, *Dactylis*, white Daisies, *Sedum glaucum*, with which may be mixed blue Crocuses and *Scillas*. Plants available for filling the centres of beds are blue, white, and yellow Pansies, *Alyssum saxatile*, *Myosotis* white and blue, and *Limnanthes Douglassii*, amongst which may be dotted any shade of red Hyacinths, and Tulips, and *Silenes*, *Saponaria* pink and white, white *Myosotis*, with which may be mixed blue Hyacinths. The dwarf Wall-flowers in masses are particularly effective, and with the dark-coloured sorts and *Saponaria calabrica* the *Narcissuses* may be associated.

Selections of Bedding Hyacinths and Tulips.—Hyacinths: *Alba maxima*, *Grand Vainqueur*, and *Baroness Van Tuyl*, whites; *Charles Dickens*, *Regulus*, *Marie*, and *De Candolle*, blues; *Robert Steiger*, *Von Schiller*, *Amy*, and *Fabiola*, reds; *William I.*, violet-black; *Victor Hugo* and *Anna Carolina*, yellows. Single Tulips: *Due Van Thol*, red and yellow; *Vermillon Brillant*, *Purple Crown*, rich crimson; *Cottage Maid*, white and rose; *Artist*, crimson; *Eleonore*, violet-purple; and *Canary*, yellow. Double Tulips: *Due Van Thol*, red and yellow; *La Candeur*, white; *Yellow Tournesol*; *Tournesol*, red and yellow; *Rex rubrorum*, red; *Etoile Cramoisie*, violet-crimson; and *Murillo*, blush rose.

Evergreen Shrubs and Coniferae for Bedding Purposes.—There are many kinds of these available for furnishing the beds during the winter months, and which can be transplanted from the reserve garden and back again at almost any time of the year. These, again, are not so effective when in mixture as when grouped in masses or to fill spaces in a design. Dwarf and neat they should be, and in this state can be purchased cheaply in large quantities, and the frequent removals check any strong growth. The list includes *Andromeda floribunda*, *Aucubas* in variety, *Buxus japonicus aurea* and *B. sempervirens aurea*, *Cotoneaster microphylla*, *Cupressus Lawsoniana* and its varieties, *Cryptomeria*

elegans, Erica herbacea carnea and vulgaris aurea, Euonymus japonicus and its silver and golden-variegated varieties, E. radicans variegatus, golden and silver-variegated Ivies, Juniperus tamariscifolia, Laurustinus, Japanese Privet, Mahonia aquifolia, Osmanthus in variety, Pernettya well berried and in variety, Retinosporas ericoides, obtusa, aurea nana, plumosa, argentea, aurea, and squarrosa, these being among the best of plants for the purpose; Skimmia japonica, Taxus baccata elegantissima, Veronicas decussata and Traversii, Vinca elegantissima, and Yucca recurva, this being well adapted for a central position both with spring and summer bedding plants.

Hardy Carpet Beds.—Those who employed hardy plants either for lining out or forming the groundwork of the designs may with but little trouble preserve a good appearance during the winter. The Alternantheras can be replaced by Ajuga reptans rubra, Iresines by the smallest Beetroot procurable from the kitchen garden; while the creamy variegated Arabis, golden-variegated Daisies, Golden Thyme, Stellaria graminea aurea, Golden Pyrethrum, Stachys lanata, Festuca glauca, and Dactylis glomerata can all be worked in. Large pieces had in most cases be better divided, and any long straggling leaves trimmed off. A well-established piece of Iris foetidissima variegata may be easily divided, and small pieces be used as dot plants. So also may be employed small plants of Yucca recurva and the variegated Retinosporas.

Dahlias.—There are thousands of seedling single Dahlias that are not worth preserving, and those, therefore, who have raised a lot should look them over at once and mark the best. The labels or other distinctive marks attached to the named doubles and singles should also be renewed in order to avoid confusion in the spring.

THE BEE-KEEPER.

ROBBING AND ITS REMEDY.

THE following letter has been forwarded, to which we append the reply of an experienced apiarian, the subject being of general interest.

"I have been feeding my bees from the middle of August to near the end of September, when, seeing that honey was stored near the windows, I wrapped up the hives for winter. About two weeks ago I noticed robbing going on, so closed alternately the hives of robbers and robbed, opening them on alternate days. Last week on a sunny day, not seeing any bees from the hive that had been robbed, I lifted it to examine and found it empty, only very few dead bees on floorboard. The combs are very dark, and mostly filled with what I take to be bee bread, and not room for much honey, of which there was none. The hive has been in use since 1880. It threw off two swarms in the spring, and I had only one glass super containing about 3 lbs. of honey. Can you give me any advice for future guidance, and the bees having once robbed will they be always robbers? I find I did very wrong in allowing them to clear some honey from a plate outside the hives. Wasps have been very troublesome. Could they have had anything to do with loss of bees?—E. S. W."

"E. S. W." acted wisely in feeding the bees during the latter part of August and through September, also in making the hives snug when October came and bees settle down into winter quarters. We do not gather how many hives of bees are kept by "E. S. W.," but whether only two or more, one hive was attacked and the stores carried off by the robbers. When examined, the pillaged stock was found to be without honey or bees; and since no mention is made of brood, we conclude that that was also entirely absent. The combs were dark—they naturally would be so after three seasons' use, and contained quantities of pollen. This hive had sent forth two swarms during the current season and had given a small glass super of honey. This super was doubtless filled during the time between the departure of the first and second swarms.

It will be remembered that, although the early spring was most promising, the weather became very wet and stormy towards midsummer. The usual consequence of such inclement weather in the height of summer is that many hives become either queenless, or young queens fail in bringing their matrimonial advances to a successful issue, and so remain drone-layers only. In either case the chances are that the hive dies out or becomes the prey of its stronger neighbours. Should the young queen be lost on her honeymoon excursion the bees may be able to raise another queen after the issue of the first swarm; but this is impossible should she be lost after the cast or second swarm goes forth, for by that time all the eggs left by the old mother queen, who led off the prime swarm, will either have hatched out or become grubs in a state too far advanced to be fed so as to develop the perfect queen.

We have entered fully on this explanation in order to support our opinion that the robbed hive was previously queenless and had been so for a long time, and this is most likely the correct

cause why it so easily succumbed to its enemies. We do not think that wasps destroyed it. We have often heard of wasps destroying stocks of bees, but have never yet met with any positive proof that such was the case. Certainly if a hive escape the searching inquiries made by robber bees it might so dwindle and dwindle that at length the few remaining bees might be destroyed by wasps. But our own experience is that weak hives invariably yield to the superior force of strong ones, and after making a poor and ineffectual resistance, generally join with the robbers in removing the spoil, and so survive with the fittest. "E. S. W." is quite right in supposing that the robbery may have been begun through honey having been set in a plate to be taken by the bee. We have had gallons of liquid honey standing in the open garden during a honey glut, and the bees have left it unnoticed, while we have continued extracting close to the hives. But in a bad season, and more especially towards the close of the season, the bees are thoroughly demoralised if once they get the scent of honey in proximity to their hives; and although robbing is so easily started, it is not so readily put an end to. We, however, still hold to our opinion that the attacked colony was queenless. A hive, even when weak, with a queen at its head, and with perhaps brood as well as stores to protect, will fight much more fiercely than the one in question seems to have done, since "very few dead bees" were to be seen on the floorboard.

We found on one occasion that carbolic acid was an excellent weapon to use against robber bees. Many years ago, when we kept a number of straw skeps, very large ones, we had an accident while overhauling a stock. It slipped from our hands, and the blow against the floorboard brought down several slabs of newly stored comb. There was a complete smash, and a thick stream of honey was soon running down the posts which supported the stand. It was late in the season, and before we could collect and clean up the honey a cloud of bees from some twenty hives was about us. We could only remove the stock to a distance and confine the bees left in it. Ultimately the colony was saved and did well another year; but we shall never forget the battle we had to fight with the other stocks, and but for the aid of the carbolic acid there would have been a civil war of extermination. The tumult was quieted thus. First we very much sprinkled the position first attacked with the dilute acid. It was applied pretty strong, however, for we found that out by the appearance of the skin on our hands wherever the solution had touched it. After several attempts the bees began to fight shy of the bedewed spot, and then we soon found that the neighbouring hives were being systematically attacked. With a feather a magic circle was drawn before the entrance of every hive that seemed weak, and, so far as we can now recall the event, nearly every hive had to be protected one after the other in the same manner. Entrances were reduced, and by the vigorous application of "the mixture" the enemy was repelled, while the inmates of the several hives ran the gauntlet as shades of evening fell, and at last all was quieted by the darkness. We renewed the application early next day, but the attack was feeble and the danger had passed. When any bee-keeper has a bad attack of the robbing mania among his bees let him try a solution of carbolic acid.

Because "E. S. W.'s" bees have once robbed there is no reason to suppose that they will always do so. We do not see how the theory of evolution will so act as to cause the next summer's occupants of a robbing hive to become more determined marauders. Neither the queen nor drones assist in the assault, and the bees which rob in late summer will have little chance of remaining long on the scene next season. The first hard work of the new year will soon remove them, and young bees will take their places which will know nothing of robbery, unless ill-gotten gains stored by their forerunners develop the piratical instinct in them as they consume them.—P. H. P.

BEE FARMING.—The publication of an interesting letter on this subject in answer to a series of questions on page 365 is unavoidably postponed.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Select Fruit Trees.*

William Meadmore, Romford, Essex.—*Catalogue of Roses.*

Waite, Nash, Huggins, & Co., 79, Southwark St., London, S.E.—*List of Flower and Vegetable Seeds.*

J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Trees, Shrubs, and Fruit Trees.*



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

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

Garden Chemistry (S.).—We are obliged by your letter, and the subject which you bring before us shall have full consideration.

Selection of Fruit (W. R.).—In answer to your inquiry this week, last week on page 367 Sturmer Pippin was accidentally printed Summer Pippin.

Primulas (M. H.).—The flowers as regards size and form are of average merit. There are many larger and much richer in colour of which seed is sold by florists, nurserymen, and seedsmen who devote special attention to these plants.

Fungus (W. J. J.).—The fungus resembles a very small example of *Agaricus arvensis*, an edible species, but we should not advise you to eat it, as the specimen sent is very imperfect.

Burnt Clay for Vine Borders (G. T.).—The material you name, and which is known as ballast, is well adapted for mixing with soil for Vine borders for insuring porosity, and partially burnt clay is valuable for mixing with light soil for the growth of Vines. You may add lime rubbish as well if you can obtain it, and if the soil does not contain lime this also should be supplied. The ballast itself has little or no manurial value, but may be mechanically very useful in the border.

Insects (W. D. C.).—Insects so small usually arrive in such a shrivelled state as to render their identification impossible. This was the case with those you sent. We do not think they would attack Cyclamens either above ground or below if the plants were healthy, but they may possibly be found on decayed corms, in which case they are not the cause, but a result of the disease that may affect them.

Vine Roots (J. N., Swansea).—The roots we received a fortnight ago were examined at the time for signs of the attack of the phylloxera, concluding in the absence of any letter referring to them that they had been sent for that purpose. There were no symptoms of the presence of the pest either on the roots or leaves. Both are shrivelled now. You say nothing about the age of the Vines, but simply state they are in "bad condition." In all probability they will be improved by the fresh soil you propose supplying, and otherwise good treatment.

Isabella Sprunt and Madame Falcot Roses (S. J. W.).—As to "which is the best Rose for affording pretty buds for cutting, Isabella Sprunt or Madame Falcot?" that is a question of taste, and as we cannot recommend one without in effect condemning the other, we advise you to grow them both. This is the more desirable, too, as they do not succeed equally well in all places and under all circumstances.

Late Peaches and Nectarines (T. A., Wharfedale).—To your Peaches you may add Belle Bauce, Barrington, and Walburton Admirable; and to your Nectarines Pine Apple and Victoria. The sprays you have sent are of *Crataegus tanacetifolia*, a very distinct and ornamental species.

Bonemeal for Roses (North Herts).—You cannot have anything better than this for mixing with the soil for Roses. The quantity to use depends entirely on the fertility of the soil. If it is poor you may use a quarter of a peck to a bushel; if moderately fertile half that quantity will suffice. Roses like plenty of half-decayed manure incorporated with the soil, and a good layer of this spread on the surface over the roots.

Excluding Frost from a Conservatory (Amateur).—We scarcely understand your question. Do you not intend to have a boiler and hot-water pipes? For supporting it we should certainly prefer iron pillars, and a thick layer of prepared felt under the floor would be advantageous. As for the sides, "so far as the wood goes," they will exclude cold far better than the glass will. That is when the cold will chiefly enter, and you cannot keep the house pleasant for either yourself or the plants without artificial heat. You have left spaces for figures in your letter, as if you intended to fill in the blanks and forgot to do so.

Pears in Pots (H. S.).—You ought to have no difficulty in growing and ripening autumn and early winter Pears under glass in your cold locality; but you say your trees in pots do not bloom, and then ask us the reason. We cannot tell you the reason until you describe the condition of the trees. They are either underfed or overfed—that is, make too little growth or too much; if too much, the wood does not ripen. If you will state the age, size, and condition of the trees, with your method of growing, we will endeavour to aid you. We have not tasted better Pears this year than Doyenné du Comice that were gathered from a tree in a pot, and of which a reduced cluster is figured in our present issue. This variety, Williams' Bon Chrétien, Beurré de l'Assomption, Souvenir du Congrès, Louise Bonne

of Jersey, Marie Louise d'Uccle, Fondante d'Automne, Comte de Lamy, and other autumn Pears will ripen in your locality if well grown in pots and a suitable structure is provided for the trees.

Mignonette Failing (Idem).—It requires calcareous matter, and seldom fails to grow where plenty of lime rubbish is mixed with the soil. Try some in pots in which one-sixth part of the soil consists of lime rubbish, and the whole made firm. The plants will grow in this if they are properly watered and have abundance of light and air. Your question on Vines will be answered next week.

Apples not Bearing (Lundy Lane).—A general question of this kind cannot be answered satisfactorily, as it would involve our writing an essay on fruit. If from time to time you require information and will describe the condition of the trees that may not be satisfactory we will readily assist you if we can; and we think we shall be able to do so if you state your case plainly and clearly. The most profitable Strawberries grown for market in Kent are Vicomtesse Hericart de Thury and Sir Joseph Paxton, the latter being the larger, the former perhaps the most productive and hardy, both travelling fairly well when properly packed. We are not able to say whether they will succeed equally well in Canada. If you try them we shall be glad to hear from you on the subject.

Cotoneaster Simonsii (R. B.).—This is the name of the shrub of which you have sent us a spray, and it is very ornamental trained against walls. We have not seen a hedge of it, but hedges of *C. microphylla* are very handsome. The plants are propagated by layers and from seed. Half-ripened shoots pegged into the ground now, and the soil kept moist in summer, emit roots abundantly. The seed may either be sown now in drills in the open garden or be stored in moist sand and sown in the spring. In either case have the drills a foot apart, and cover the seed 2 inches deep with fine soil. It is long in germinating, and all the plants will not appear till the following spring. They grow rapidly, however, in good soil, and soon attain useful dimensions. The position of the drills should be marked with sticks at each end, and by stretching a string from one to the other over each drill the ground between can be kept free from weeds by running the hoe through it frequently.

Passion-flowers (H. S. P.).—Some Passion-flowers are hardy in favourable districts, others succeed in greenhouses, while several require hothouse treatment. If you will send us particulars of your plants and where they are growing we will endeavour to aid you; at present you do not enable us to give you a reply that will be of service. Are your plants unhealthy? If you will examine page 345 of our issue of October 18th, you will find a reply on *Calceolarias* in frames. We fear you do not read attentively.

Zonal Pelargoniums in Vinery (S. E.).—Fire heat with ventilation will be beneficial to your Vines now rather than otherwise, while a rather dry atmosphere will not be injurious to the plants. You had better not prune the Vines at present, but as the leaves turn decidedly yellow they may be safely removed instead of waiting for them to shrivel and fall. If your gardener has carried out your instructions and nipped off the growths immediately above the flower truss, and your plants do not flower continuously, do not blame him. That is a good method to adopt in summer for producing large trusses, but is the worst that can be indulged in now with plants that are desired to produce an unbroken succession of flowers throughout the winter.

Hybrid Perpetual Roses for Forcing (M. Taylor).—We find the six that force the most readily into flower early in the season are La France, Anna Alexieff, Abel Grand, Jules Margottin, Alfred Colomb, and Général Jacqueminot. For forcing, and to form a good succession later in the season, we consider the following twelve amongst the best:—Victor Verdier, Charles Verdier, Magna Charta, Marie Baumann, Fisher Holmes, Louis Van Houtte, Duke of Edinburgh, Madame Lacharme, Sénateur Vaisse, Coquette des Blanches, John Hopper, and François Michelin. In addition to these there are many varieties that are admirably adapted for cultivation in pots, and will flower well and give the greatest satisfaction if brought forward gradually under cooler treatment.

Determining Poisonous Fungi (Bodface).—Many rules have been given for determining poisonous fungi, but there are generally so many exceptions to them that they are unreliable and useless. They sometimes exclude a number of edible kinds, and at others include a few rare forms possessing injurious or doubtful properties. The only safe way is to study the species, and acquire a familiarity with their characters, when, as most of them are very distinct, they can be readily recognised. Several popular works are now published which would enable you to ascertain the names of the principal useful and obnoxious species, Dr. M. C. Cooke's "Handbook of the British Fungi," published by Mr. D. Bogue, St. Martin's Place, Trafalgar Square, price 6s., being one of the best. Carefully avoid all fungi that are in any degree doubtful; the majority that are highly coloured or which possess strong and offensive odours are poisonous, and some apparently very innocent species are similarly dangerous, but with a little application you will soon be able to recognise at a glance the most common kinds in each group. It must be also borne in mind that it is unwise to eat large quantities even of the most harmless, and careful cooking is most important, with a liberal use of condiments, such as pepper and salt. If you like to collect a few good examples of the principal fungi in your neighbourhood, numbering them, and keeping duplicates for yourself, we will endeavour to name them if you forward them carefully packed and carriage paid to this office.

Discharge of Gardeners (D. F.).—Your letter is far too inexplicit. It is necessary to know the allegation of the employer, whether it be ill or well founded. We can only say that if a gardener is paid weekly a week's notice to leave on either side is sufficient in the absence of any agreement to the contrary, and it is customary to give such notice at the end of a week (or before work is commenced on the following Monday), not in the middle, though circumstances may arise rendering this latter course legal. It is extremely doubtful if you would gain anything by taking legal proceedings, as even if you were to do so and win you would probably find your success costly, while to lose might be little short of ruinous. If an employer give a week's wages in lieu of notice, and the gardener has cottage, coals, vegetables, and milk as part of his wages, he must also be compensated for the loss of these during the week, according to the value at

which they are estimated. An employer is not compelled to give a character to a servant, but if he writes anything that is untrue about him, and thereby injures him by preventing him obtaining another situation, such employer renders himself actionable, and may be compelled to afford adequate compensation to the person whom he is proved to have injured unjustly.

Chamærops Out of doors (Sussex).—The well-known *Chamærops humilis* is the hardiest of Palms in cultivation, and is the only one found in Europe. This in the south of England succeeds well out of doors, and needs no protection; but in exposed cold or damp situations, even around London, it is frequently injured during winter if not protected. The same remarks apply to *C. Fortunei*, which is, however, generally less hardy than the other, though in some gardens it requires no protection. Two of the finest specimens we have seen are at Heckfield, Winchfield, Hants, the seat of Viscount Eversley. These were planted in 1869, and now have massive trunks and large heads. The plants or trees have had no protection afforded them since the first winter after they were planted, but they are supported with fresh soil annually, the turf being removed for that purpose and laid down again. It is to this care that must be attributed the large, handsome, glossy leaves. They are well matched in every respect, as they are not only of the same size but of different genders, and are the parents of many plants that have been raised from them since they were established in their positions. No doubt they would succeed equally well in your district if the soil is not too heavy. The *Cordyline* we do know under the name mentioned, but it is probable that it would have survived if it had been efficiently protected.

Liliums in Pots—Pipes for Heating (F. J.).—Some of the finest examples of *Lilium auratum* in pots are so grown by the cultivators year after year—that is to say, fresh bulbs are not obtained annually. There is no better time for potting than, as soon as the stems die down, shaking most of the old soil from the roots and removing the dead fibres, but retaining the strong fleshy roots that are usually attached to the bulbs. A compost of half loam and half turfy peat, with sand or gritty matter added liberally, is suitable, the bulbs to be covered an inch deep, but the pots not filled with soil, as it is desirable to leave space for subsequent top-dressings when stem roots are produced. The pots may be buried in ashes in a frame the same as Hyacinths, and there remain until growth appears from the crowns. If when the bulbs are examined they are small or decayed through any mistake in the management of the plants, they cannot of course be expected to give satisfaction another year. By all means use the ordinary metal pipes for heating your greenhouse. Although, as you suggest, thinner pipes "heat more quickly," they also cool more quickly, and this is certainly not an advantage when the fire gets low or goes out when you may be warm in bed on a cold frosty morning.

Cucumbers in Winter (Subscriber, Ireland).—We have not tried the two varieties you name, but should certainly do so if we had plants now in a forward state in pots. We have found the Cardiff Castle and Telegraph varieties answer our purpose well. But you will not find it easy to raise strong healthy plants so late in the season from seed; and if you have not had experience in growing Cucumbers in winter you must not be surprised if you find your first attempt disappointing. You are at least two months too late in starting, as plants for bearing well in winter require to be strong now and more than half covered the trellis. You will require a temperature of 70° without overheating the pipes, and a bed composed of fermenting materials will be useful, though Cucumbers can be well grown without it when sufficient bottom heat is in other ways provided. Instructions for raising plants for winter were given at the proper time in our "Work for the Week;" it is a pity you had not seen them and acted on the advice there published.

Nec Plus Meuris Pear (I. M.).—There is indeed a Pear of this name and a very good one it is when well ripened. It is described as follows in the "Fruit Manual":—"Fruit medium sized, 2½ inches wide and the same high; roundish turbinate, very uneven and bossed on its surface. Skin rough, dull yellow, very much covered with dark brown russet. Eye half open, generally prominent. Stalk very short, not at all depressed, frequently appearing as a mere knob on the apex of the fruit. Flesh yellowish white, buttery, and melting, with a rich, sugary, and vinous flavour. A first-rate Pear; ripe from January till March. It succeeds well as a pyramid, but is best from a wall. This is a seedling of Van Mons, raised in his Garden la Fidélité at Brussels, and named as a compliment to Pierre Meuris, his gardener, of whom Van Mons said, 'Meuris est né avec la genie de la Pomonomie.'" Thus the origin of the Pear accounts for its curious and fanciful name, out of which we are not surprised you could extract "no meaning." A tree ought to bear long before it is of the age of yours. If your tree grows luxuriantly and produces little or no blossom it needs root-pruning. Digging up and replanting it, making the soil firm about the roots, would no doubt induce it to blossom freely. If the growth is very strong try this plan, and the sooner the work is done the better, only let it be done carefully, reserving all the fibrous roots and keeping them moist, only cutting off at 4 feet distance from the stem the roots that are strong and fibreless. If the growth is only moderately strong, the tree may be dug half up this year by cutting the roots on one side and any that penetrate downwards, completing the operation another season.

Propagating Conifers (E. P. C. B.).—The following extract from the writings of Mr. Bardney on this subject, which are founded on practice, will answer your inquiry:—"At no period of the year is the propagation both of hardy flowering shrubs and Conifers carried on in nurseries with greater rapidity than from the present time onwards. The majority of Conifers are propagated by means of cuttings and grafting, many Pines excepted, and a few common varieties of Cupressus, which are readily raised from seed. The system adopted where the work is carried out on a large scale entails much labour. Narrow beds are formed about 2 feet wide, with a row of bricks placed edgewise on each side of the bed, leaving the tops of the bricks just above the soil. Handlights or small glazed boxes about the same width, and about 3 feet 6 inches in length, are in readiness before the cuttings are inserted. A heap of coarse river or red sand is placed at hand, and a good proportion is mixed in the soil, the surface being covered about half an inch in depth, after which it is ready for the cuttings. These, when the wood is fairly ripened, are frequently taken from the plants intended for

sale, and others from stock plants kept in borders for the purpose. Some care is necessary in taking them so that the plants be not disfigured. The portions intended for cuttings should be so taken that when dressed each will have a heel. It is necessary that the cut be cleanly done with a sharp knife. The cuttings should be made clean for about an inch of the stem near the base, and should be from 2 to 4 inches in length, but the length matters little provided a good heel is left and the wood is in a proper state of ripeness. This mode of making the cuttings applies with equal force to all the Cupressus, Thuias, Retinosporas, and many others, but such kinds as *Cryptomeria elegans*, *Retinospora ericoides*, and others equally free strike readily without a heel. The cuttings are inserted as thickly as possible under the handlights on the prepared border, making the soil firm around them. A good watering is then given and the handlights placed over them. These miniature frames are generally arranged in rows, leaving about 2 inches between each bed to allow room for the frames to be removed as occasion may require. Little trouble is necessary afterwards, only giving shade if the sun proves very hot for a time after the cuttings are inserted. It is scarcely necessary to again lift the lights before the early spring, as the cuttings seldom need water before then. Sufficient will soak in round the handlights during wet weather, and keep the soil moist during the winter. The cuttings should be kept as close as possible until they are well callused, which will be the case in spring, as if air is given in their early stages many of the cuttings may damp off. During winter the only attention that is needed is to cover the frames with mats or other protecting material in severe weather. It is better if they can be so covered as to exclude all frost, but this is not absolutely necessary. I have seen the soil frozen hard for a long time and little or no injury has resulted therefrom. Another course of propagation can be effected by placing the cuttings in pots in the Conifer house, which is generally kept at a temperature of 40° to 45° during the winter. This system is practised to a large extent because smaller cuttings can be employed, which is often convenient with new and choice varieties." We know of no work in which this subject is so fully treated as by the writer referred to in our issues of September 8th and 22nd, and October 6th, 1881, vol. iii., third series. If you do not possess these numbers they can be obtained from the publisher at the ordinary price of this Journal, plus the postage, in your case to France. There is no work published such as you desire to obtain.

Storing Potatoes (Idem).—The simplest method is to pile them when dry in heaps formed like the ridge of a house on a plot of hard smooth dry ground, covering them thickly with straight and dry straw, then digging a trench round the heaps and placing the soil on the straw of the desired thickness for excluding frost. The heaps may be 3 feet wide at the base and the sides made as steep as possible, as if flat the rain will not be excluded.

Naming Fruits (To Correspondents).—Despite the conditions that we are compelled to impose we have every week large boxes and hampers of fruit, also requests for replies by post, which it is absolutely impossible can be attended to; in fact, large consignments cannot even be examined. Fruit is sent in such quantities that space can scarcely be found for the packages, and the air of every room in our establishment is so saturated with the effluvia from the fruit that our employes have made serious complaints of its affecting their health. We are willing to name small quantities of fruit for a useful purpose, and do our best to do so; but we ask for some consideration under the circumstances. Miserable specimens of worthless varieties are frequently sent that are neither worthy of names nor culture. We are sorry to say that we have been imposed on by individuals who have made it their business to gather fruit from wherever they could and send it to us for names out of mere curiosity.

Names of Fruit (James Sheil).—Marie Louise. (*Chelto*).—Rambo, an American Apple. (*J. Mackenzie, M.D.*).—1, Winter Nelis (?); 2, not known; 3, Beurré Superfin. (*H. Wright*).—Hollandbury. (*R. J. L.*).—6, Dr. Harvey; 7, Cox's Orange; 8, Margil; 9, Sykehouse Russet; 10, Cockle's Pippin. (*Medicus*).—1, Winter Pearmain; 2, Hutton Square; 3, One of the fruits is Sturmer Pippin, the others are not; 4, not known. (*J. E. K.*).—1, Golden Winter Pearmain; 2, Cox's Pomona; 3, Cellini; 4, Reinette de Canada; 5, rotten; 6, Fondante d'Automne. (*T. Prothero*).—1, Cellini; 2, resembles Bramley's Seedling; 3, Minchull Crab; 4, Cox's Pomona; 5, Alfriston; 6, Ecklinville. (*Rev. W. Jenkins*).—1, Autumn Red Calville; 11, Yorkshire Greening; 2, Wyken Pippin; 5, Claygate Pearmain; 6, Longville's Kernel; 8, Norfolk Colman. (*J. E. Waiting*).—1, Marie Louise; 3, Ne plus Meuris; 4, Beurré Diel; 5, Beurré Clairgeau; 6, Napoleon. The Apples are rightly named, and the fruit is very good indeed. Your treatment was very skilful. (*G. R. A.*).—The seedling is a firm good Apple resembling Round Winter Nonesuch. No. 2 is Reinette de Canada. The small Pear is not the Warden, that being a large brown stewing Pear; the other Pear is Forelle. (*J. B.*).—Autumn Red Calville; 2, not known; 3 and 4, Golden Winter Pearmain. All the fruit has been attended to that we have received, except where it has been sent in very large quantities. Some small packages have arrived without any sender's name accompanying them, and we are quite unable to determine to which parcels the letters that have been received by post refer. One box contained Soldat d'Esperen and Dunmore Pears, which are correctly named, the other fruit in the same box being decayed.

Names of Plants (E. T. H.).—The plant is *Ampelopsis Veitchii*, which sometimes grows very large, particularly when loose from a wall, and in very rich soil. (*Pen and Ink*).—Your plant is *Vallota purpurea*, a Cape Amaryllid, and valuable for its property of flowering so freely in the autumn. It is grown in many gardens for decoration in the autumn. (*F. T., Reading*).—The Conifer is in all probability *Pinus cembra*. (*R. E.*).—1, *Anthoxanthum odoratum* var. *Puelli*; 2, *Panicum pinetorum*; 3, *Avena elatior* (*Arrhenatherum avenaceum*); 4, *Daucus Carota*. (*B. W.*).—1, *Adiantum hispidulum*; 2, *Gymnogramma calomelanos*; 3, *Asplenium viviparum*; 4, *Asplenium Belangeri*; 5, *Davallia elegans*; 6, *Davallia tenuifolia* var. *stricta*. (*Preston*).—*Maxillaria nigrescens*. (*J. J., Lancashire*).—1, The spray with four flowers is *Trichopilia albida*; 2, *Epidendrum nocturnum*; 3, *Odontoglossum Schlimii*; 4, *Odontoglossum hebraicum*. (*H. J.*).—1, *Odontoglossum grande*; 2, *Elæagnus argentea*; 4, *Abies Mertensiana*; 6, *Aspidium aculeatum*. The other specimens are insufficient for recognition without flowers or some information respecting the habit and character of the trees or shrubs. (*Aurora*).—The plant is *Tamarix gallica*, a native of European countries, and found growing near the seacoast. You will see abundance of it at nearly every watering place on the south coast of England.



IMPROVED DAIRY CATTLE.

(Continued from page 368.)

BEFORE giving our proposed mode of mating the animals to produce the type and character of stock desired, we propose to refer the best classes of cattle available for the purpose, and the stock will consist of two breeds only—viz., the Shorthorn and the Guernseys. We will first describe the style and character of the Shorthorns which appear best adapted for the objects in view—namely, the improvement of the Guernsey cattle. There are in the Shorthorn breed at least four distinct types:—the milking type; the long heavy fore-quartered type, such as graziers approve; the big up-standing, quick-growing stamp, which fills the eye at a market of store cattle; and the square lumpy bulls, which have done so much for Aberdeen and polled crosses. In making a selection for the purposes of a single cross with a Shorthorn cow and the Guernsey bull we must adopt as our type the milking type, but not pure and simple as above stated. What, then, is it we want? Why, deep milking animals or great milkers, would describe them more, exactly probably; but at the same time we require animals which yield good flesh points also to a certain extent. Then arises the question, How far can we trust an animal which is in the Herd-book of Shorthorns, or commonly called Pedigree Shorthorns? Practically it is impossible to obtain good milkers or deep milkers from full pedigree stock, but we have tribes to fall back on which give us the full advantages of a perfect beef-making animal in all points excepting one—that is, the shoulder top, which in full pedigree animal is covered with a heavy pad or roll of fat and flesh. No great milker can ever be obtained with such a characteristic in the formation of the shoulder top, and whenever it has been seen it was an exception to a rule which practical men as judges of deep milking Shorthorns assert that it is impossible to expect great milking qualities unless the udder is large and well formed, and the shoulder top is comparatively thin, also affecting the shape of the neck at its junction with the shoulder, and to some extent the chine for 6 or 8 inches behind the shoulder top point.

The next thing to be considered is, that if we cannot have the deep milking animals without making this concession to perfection of form, how much can we retain of the points remaining in an outline and conformation called perfection? The especial formation which we require to make the most valuable and perfect milking animal is a very slight loss to the butcher, because the meat upon the shoulder top and the base of the neck or portion of the spinal connection as above stated, only carries flesh of an inferior kind, and is sold by the butchers at almost as low a price as offal. In the selection of our deep milking animal we have or may have depending upon our own practical judgment in selection or breeding all the flesh points except those named; for although we have a bare narrow top to the shoulder points, yet there is no reason why the outline may not be all that can be desired, and also the length of carcass, which is frequently greater than in animals showing all the butcher's points. Again, we may have a deep wide chest and deep wide brisket, so essential to the constitutional development of cattle, and likewise all the width of frame which constitutes the general weight and character at weight for age of a perfect butcher's bullock; therefore the concession made to the milking animal of its points to assure it are small compared with the vast importance of the gain by animals of the best milking type.

It may be asked, Whence comes this bold assertion of ours and our practical brethren? We reply, From our own practical observation of the conformation of our best milking tribes, for in any breed of cattle it will be observed, and although we do not read of it much in various essays upon the breeding of cattle, yet we find it alluded to by Mr. Dixon in the Journal of the Royal Agricultural Society of England in his essay "On the Rise and Progress of Shorthorns," in 1865. He says—"Still, good milking pedigrees do not command an extra price, and in fact any allusion to them in a sale catalogue is rather regarded as an apology for doubtful or unfashionable blood. 'Something to give milk for the house,' is too often spoken of as a mere humble adjunct, and 'not worth dwelling upon' at the end of a row of high-bred cows and heifers, many of which are systematically

died off to keep them in bloom for shows or visitors, while their calves are provided with a nurse. A young heifer is selected with a view to well-covered flesh points, early maturity, and fine mellow handling: and there is none of that Ayrshire acumen at work which gives laws for the exact shape of the 'milking vessel,' which, like a peculiar feather extending from the 'vessel' up the twist and large veins from it under the belly. This test may have been carried to an extreme, and cows with badly formed 'vessels' may have sometimes turned out good milkers; but still it is this strict attention to milking-points (which among Shorthorned men generally stops short at a light neck and a big udder) which makes the Ayrshire cow such a perfect fill-pail for her size."

Here is quite enough evidence to admit the value of our version of the requisites whereby to designate a great milker as distinct from those animals bred for fattening purposes only.

As we wish to obtain the Shorthorn blood in females to mate with the Guernsey bulls, there are very strong reasons which should induce us to regard colour as of importance in taking even one cross between the Shorthorn and Guernsey breeds for the purposes before mentioned chiefly; but we must not forget how desirable it must be to preserve the prevailing colour of the Guernsey breed, which varies from a patched colour, the ground being white, varied in degree by patches of a light reddish brown to a pale lemon. It must in consequence be considered as the necessity of selecting the colour of the Shorthorns from which we obtain our heifers for crossing. In this matter our experience tells us, that notwithstanding the prevailing and fashionable colour is red or patchy deep red-and-white in some of the best herds of the kingdom, yet more value, as far as colour operates with the fancier, is set upon the red roan and the tendency to plain white. As these colours would not mix well with the prevailing Guernsey colours, we must look further and seek for the light or brownish red not unfrequently mixed with light speckled brown, and we well remember this colour prevailed throughout the valuable milking herd of Mr. Whittaker about the years 1827 to 1835. Many men valued these for their milking properties, but were rejected by others when required to form a pedigree herd, because of their light thin shoulders and splendid udders. Any animals which no doubt may be found which have descended from Mr. Whittaker's stock, will answer the best purpose as regards colour. Again, the late Mr. Riehd. Stratton had no doubt one of the finest strains of milking Shorthorns to be found in the kingdom about twenty years ago, although he raised some for milking and some for show, both at the Royal and also at the Smithfield Club meetings of full pedigree stock, both cows and bulls, but their prevailing colour, as we have often seen them at these exhibitions, were generally red-roan, sometimes nearly or quite white; but these, however suitable in some respects, would not nick in colour with the Guernseys.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still daily employed in preparing for Wheat-sowing, and upon some strong flat-lying land we find it difficult immediately after the heavy rains which occurred before the 20th of October to work the horses as we wished; for our object is to plough and sow all the wettest land with a fallow surface daily, and keep the seeding and finishing work close up to the plough, so that if storms of rain should occur almost every furrow will have been seeded in fair condition. In fact we cannot and shall not easily forget the difficulties we encountered in the Wheat-seed time of last year, and the land which suffered from loss of plant was that which was ploughed one day to be seeded the following one: but that can never be done in any season as a rule, and never should be calculated upon, for when the days shorten the sun has little power to dry the surface if it once becomes sodden with rain. We have now ploughed nearly all the Clover lea ground, and some part has been sown in fair condition. In readiness for ploughing-in men are now mowing the greens off some very fine red round Turnips, also pulling and chopping the bulbs, which, when done, makes the land look as though covered with snow at a distance, the chopped Turnips looking so white. Now these together form a large bulk of vegetable matter, will yield a heavy weight of green manure for ploughing-in, and would prove too much for a corn crop if the land had not been badly treated by the last tenant. But as it is, the bulk of the Wheat we expect will be great, for there is vegetable manure enough to plough in, to throw down any kind of Wheat and injure it by lodging, except the dwarf rough Chaff and short-strawed Essex Wheat.

Hand Labour.—The men, and women too, should now be engaged in the work of pulling and preparing the Mangold crops for pitting and storing. We do not like cutting the greens off too close to the bulb, but we leave enough of the bud on the crown of the bulb to grow out a little in the store heap, for when they can do this most of the bruised roots will be preserved, whereas if the bulbs were crowned down too close they cannot then vegetate in the heap, and they would decay there instead of healing and coming out sound when required for use in the winter or spring. We find the best covering compared with straw is seaweed, or

otherwise the border-grass from round the fields and ditches, also in the plantations on the estate, which should be cut and used unless the game-keepers require it to remain as cover and layer for pheasants and hares.

Live Stock.—All the pregnant ewes should now be subject to constant changes of a moderate quantity of food daily: this will usually insure a strong and healthy fall of lambs from whatever sort of sheep we may be breeding. But on many estates the ewes are only just now being mated with the rams. This applies to most of the long-woolled ewes, as well as Shropshires, and hill stocks of Hampshire and Wiltshire Down breeds; whereas the Down breeds reared in some of the best districts in Dorset and Somerset are many of them forward enough to lamb in December and first half of January. Again, the horned ewes of the Dorset and Somerset breeds, especially the off-going stock, which have now been nearly all sold and have reached their new home, are now lambing fast, many flocks having at this time more than half yeaned, and produced a large number of twin lambs; as these ewes produce the largest per-centage of lambs of any known breed, some of the earliest of them are now strong enough to follow their dams into the Turnip or Cabbage crops for a night fold, but running upon the best Italian Rye Grass grown on the Wheat stubbles, or the Clovers, and Sainfoin, as grown in the Lent corn stubbles. The grass is now becoming short and stale for milch cows, and the worst of it should be left for the store cattle to look over, allowing the dairy cows to have the best grass on the farm, also with Cabbage and cake at the stalls at milking time. Unless severe frosts sets in they may lie out on dry pastures situate above the fog level for some time longer. Still the falling-off of milk should be a guide to some extent, for when that occurs, or if any of them are attacked with quarter-ill, they should immediately be housed or lie in well-littered yards and sheds at night time.

on experiments; and great as the outlay is in purchasing several tons of sulphate ammonia and applying it thus liberally, it is found the most profitable course to adopt in the cultivation of the crop. Its action is quick in producing strong tops, and without these the tubers are small and the crop light. In rich heavy soil they grow strong naturally, but in this light land they do not do so, hence the apparently costly yet really profitable practice that is adopted.

The yield of Potatoes had not been ascertained, but off one portion of land seven tons per acre of York Regents have been marketed. The crop of Magnum Bonum is very much larger—in fact, splendid; and there is without doubt one of the finest breadths in England of Reading Hero, the tubers of some acres being very large, sound, and clean. Both these Potatoes far surpass the Scotch Champion in this soil, and also Schoolmaster, some roots which had special treatment, grown on mounds, each producing 14 lbs. of splendid tubers.

The work of taking up several acres of Potatoes is no light one. Digging them by manual labour is a long and tedious process, and ploughing them up is at the best a rough mode of procedure, as they can only be secured by the pickers combing them out of the soil with their fingers, and this is both rough and tedious. But these old modes are fast becoming obsolete, for the crop was being lifted expeditiously with the implement under notice, which was, moreover, doing its work as well if not better than the most careful and competent men could effect with forks.

It was drawn by two horses. The wheels pass along each side of a row, a "sock," which is something like a turfing iron, being drawn along under the row, loosening and partially raising it, and at the same time, immediately behind this, a rapidly revolving cylinder with eight forks throws out the Potatoes, thoroughly desiccating the soil, clearing out the weeds, and spreading them on the land. The rake-like shield is to prevent the tubers being driven too far, the few that miss it often being cast 6 or 7 yards. Practically they were spread in a wide row convenient for picking, twenty persons following the machine for this purpose, and they were kept well employed. Not a tuber in a thousand or ten thousand was cut, and the "Digger" was saving the owner 14s. per day. There are three tines to the forks in Mr. Fisher's implement, the diggers now made by Messrs. Warburton of Preston containing some slight improvements on that represented in the engraving. Where Potatoes are grown extensively in fields an implement of this kind would appear indispensable.

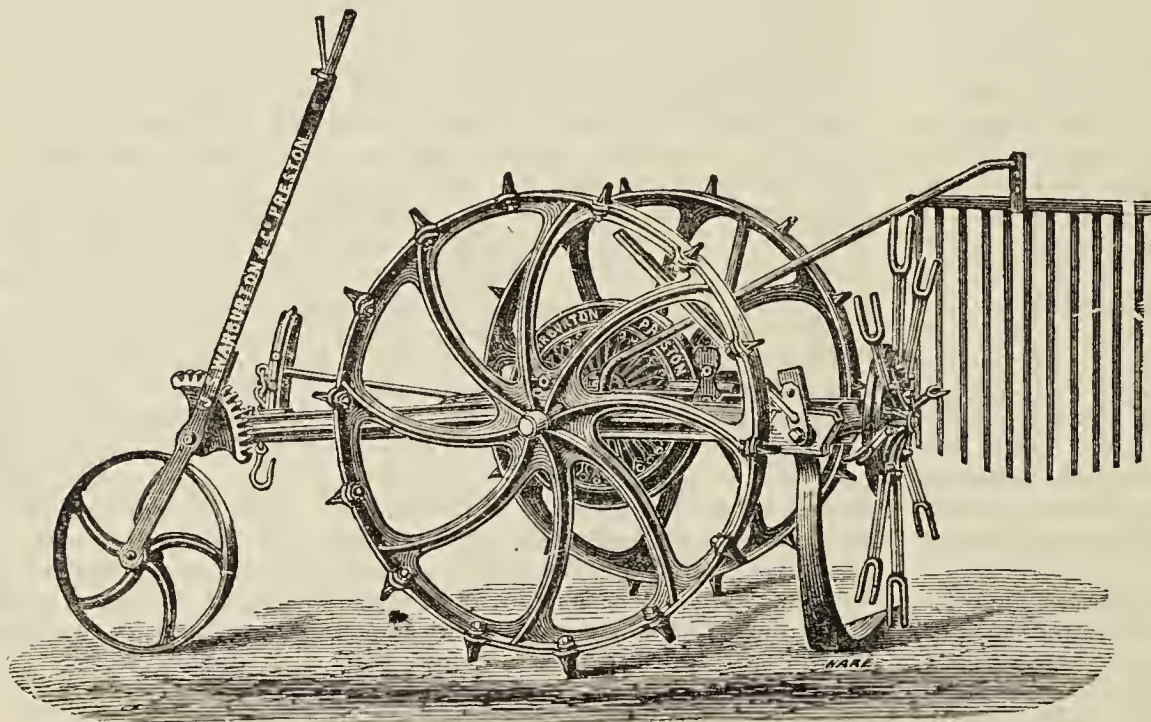


Fig. 72. —WARBURTON'S POTATO DIGGER.

POTATOES IN LINCOLNSHIRE—WARBURTON'S POTATO DIGGER.

DURING a recent visit to Lincolnshire we observed this implement working so satisfactorily on the farm of Mr. Ismay Fisher of Scawby near Brigg, that we feel justified in directing attention to it for the benefit of those of our readers who grow Potatoes extensively in fields. In some parts of Lincolnshire and Yorkshire the Potato appears to be the staple crop for miles, and hundreds of acres of land are devoted to its culture. Much of this land is very low and has been subjected to the process of warping—that is, the admission of the tidal waters from tributaries of the Humber, the sediment of which on their recedence having rendered what was once a worthless tract one of the most fertile in the kingdom. Mr. Fisher, however, does not grow Potatoes on such soil as this; he is a high-land farmer, and one of the most competent, and has several acres of Potatoes this year on yellowish loam of medium texture which produces excellent crops, the tubers being of the best colour and quality. He has also a wonderful yield on soil that a few years ago was little better than blowing sand.

The best preparation of this light land for Potatoes is to first establish a crop of "seeds"—Clover and such herbage as will grow, and graze it for a season. This turf ploughed in gives "body" to the land, but something else is given by the cultivator for producing such excellent crops, as a casual observer would consider the land incapable of yielding. This "something" is eight or ten loads of farmyard manure, and 4 cwt. of kainit spread in the trenches before planting, supplemented by a top-dressing of 4 cwt. of sulphate of ammonia just before the plants are earthed. This heavy dressing of ammoniacal manures would frighten not a few cultivators, and those who rely on theoretical principles alone for growing Potatoes would consider it excessive. Mr. Fisher, however, is a close observer, studious, and practical, one of the last men to invest money either in manure or anything else without surety that it would return him fair interest. His method of manuring Potatoes is founded

of the Hymenopterous order, the giant sawfly, *Sirex gigas*. With the conspicuous borer or ovipositor at the tail, the female (your specimen being of that sex) cuts deeply into the wood of trees, chiefly Firs, depositing an egg in each incision. The larvæ feed upon the wood, and undergo pupation there, emerging as flies towards the end of summer usually.

OUR LETTER BOX.

Fly Infesting Cattle (A. K. C).—There are two species of fly which occasion much alarm amongst herds of cattle. One of these—*Tabanus bovinus*—simply wounds them with the keen lancets attached to the head; this is commonly called the breeze or gadfly. The other—*Æstrus bvis*—the botfly of popular phrase, forms the bumps or wurbles in the skin by depositing its eggs there, piercing the skin by an instrument attached to the abdomen. The specimen you enclose is neither of these, which are two-winged insects, but a four-winged species

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet- er at 32a and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
October.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	21	29.855	43.6	41.8	W.	43.3	55.7	37.1	89.4	31.2	—
Monday	22	30.0 2	43.7	42.2	N.	47.3	50.6	35.9	86.8	28.4	0.093
Tuesday	23	29.759	50.6	49.4	W.	47.0	53.3	42.2	72.5	29.4	—
Wednesday ..	24	29.847	47.0	45.6	W.	47.8	55.4	42.0	69.9	32.7	0.030
Thursday	25	29.783	58.6	54.9	S.W.	49.3	61.4	45.0	71.2	45.3	0.010
Friday	26	3.049	57.8	55.3	S.W.	51.3	60.0	54.8	69.4	53.2	0.041
Saturday	27	30.0 7	53.1	52.2	W.	51.7	62.3	50.1	88.7	43.8	—
		29.913	50.6	48.8		49.0	57.7	43.9	78.3	37.7	0.174

REMARKS.

21st.—Fine bright day; misty evening.
 22nd.—Fair morning; fine bright afternoon.
 23rd.—Showery in early morning; fine bright afternoon.
 24th.—Fine and bright for a short time in early morning; dull drizzly day.
 25th.—Warm, dull, and drizzly all day; windy in the morning.
 26th.—Warm and fairly bright in morning, heavy shower at noon, fair afternoon.
 27th.—Fair morning, fine bright afternoon, foggy evening.
 There was a fair quantity of bright weather during the week, and not an unusual amount of fog. Temperature nearly 2° below that of the preceding week, but still about 2.5° above the average.—G. J. SYMONS.



COMING EVENTS

8	TH	Brixton Show (two days).
9	F	
10	S	
11	SUN	25TH SUNDAY AFTER TRINITY.
12	M	Stoke Newington (two days) and Lambeth (three days) Shows.
13	TU	Royal Horticultural Society, Fruit and Floral Committees at 11 A.M.
14	W	Bath, Royal Aquarium, Bromley, Croydon, Dartford, Tooting, and Walton [Shows]

ORCHIDS IN THE OPEN AIR.

WELL-ESTABLISHED notions die hard however erroneous they may be; and even now it is considered by many persons impracticable to cultivate Orchids successfully except in highly heated and specially erected structures that are more or less costly. This opinion is by no means so deep-rooted as it was—is, indeed, rapidly vanishing, and just in proportion is Orchid culture increasing. Year by year it is proved to demonstration by the best cultivators that there are numbers of Orchids that need no more than what may be termed a comfortable greenhouse temperature—that is to say, no artificial heat whatever from the end of May till October, and during the remainder of the year only sufficient to maintain, say, such plants as Cyclamens in a healthy state, and to keep Zonal Pelargoniums flowering through the winter. Yet Orchids will not grow everywhere. They do not succeed crowded among other plants on dry open stages and exposed to sharp currents of air such as Heaths will endure. Air they must have continually, but it must not be parchingly dry. It must be fresh, yet contain moisture; buoyant, yet not drifting through injudiciously opened ventilators. Mr. Williams spoke forcibly on this subject at Manchester a few years ago, and his words ought not to be forgotten—"The cool system, as it is called, has been a source of great annoyance to many, but if carried out in a proper manner it greatly enhances the value of this beautiful tribe. Many, however, have launched into extremes, and cruelly deceived young beginners especially, by assuring them that such and such species will grow in an ordinary greenhouse. These assertions being acted upon, the plants naturally enough drag out a miserable existence, and ultimately die. Now, an ordinary greenhouse is a house in which Pelargoniums, Ericas, and Fuchsias grow and flower, and I deny the possibility of any epiphytal Orchid continuing long in health under the same treatment and in the same atmosphere as these plants enjoy. That many kinds will succeed in as low a temperature I readily admit, but they require less of the blazing sun. They must also have a much moister air, and the sashes of the house must not stand open, as they do under ordinary circumstances, otherwise the leaves will soon shrivel and coil up, when, as a matter of course, death soon follows: therefore I contend it is wrong to assert that epiphytal Orchids will succeed in an ordinary greenhouse."

What are known as cool Orchids are systematically grown in what are practically cold frames in the summer, such as pits having a northerly rather than a southern aspect, and in which no fire heat is employed. This is the practice in many gardens, but it is a question if more healthy plants have ever been seen than a collection kept in an ordinary Cucumber frame which I have examined in a garden near London. In this case each plant was stood on a pot inverted in a saucer of water, and the frame lights were propped up more or less night and day for at the least three months, but always on the leeward side.

Mr. Smee of The Grange, Carshalton, near Croydon, has

gone a step in advance in Orchid culture, and it may prove an important one. This gentleman is an experimentalist, and his garden is an interesting experimental ground. It is the enclosure so vividly portrayed by his father in the handsome volume "My Garden." Of late Mr. Smee has given much attention to Orchids, having collected considerably more than 500 species and varieties, and a far greater number of plants. A great number of these are small, many recent arrivals not yet established; but there are several fine specimens which merit notice. Mr. B. S. Williams of Holloway is not a tyro in Orchid culture, and his opinion may be cited of a specimen he received from Mr. Smee, with his description of the house in which it was grown. In the beautiful "Orchid Album," March 20th, 1883, appears the following—"Lælia superbiens.—We received from A. H. Smee, Esq., The Grange, Carshalton, a fine spike of flowers of this noble Orchid, forming in itself a most beautiful bouquet. The sepals and petals were of a rosy pink; the lip dark rose colour, with the throat of a primrose-yellow veined with rosy purple, the upper part dark rose. It is altogether a charming winter-blooming species, but it is seldom seen. Mr. Smee is a great lover of Orchids, and is beginning to make a collection in which already some rare species appear. He is trying experiments in their cultivation, and we are inclined to think that many plants will succeed under his treatment. The house is a very peculiar one; we have not seen one like it before. It is a long house, and in it there are different temperatures kept up, so that the different Orchids can be grown in the same house. Many plants were in bloom when we saw the collection in January last. The place is a very interesting one, and in the summer must be very charming on account of the great variety of Ferns and other plants that are grown there, almost all kinds of plants being cultivated. The garden must be a source of great enjoyment to the owners, as both Mr. and Mrs. Smee take much interest in their Orchids and other plants."

The house referred to is a "home-made" span-roofed structure, the sides being of wood, also the roof on the sunny side is boarded, only the more shaded side being glazed. Under the boarded roof Ferns are at home, and on the opposite side Orchids flourish; and in this long house, with its temperature varying in winter from about 40° at one end to 60° at the other, experiments are constantly being made with different plants. But we will pass outside.

In the spring of the present year Mr. Smee, having several inferior varieties of Orchids that he did not wish to dispose of in a manner that has become customary—namely, sending them to the auction-rooms to be sold cheap (?) to some inexperienced purchaser, resolved to try them in the open air. If they had died the loss would have been small compared with the pleasure he would have if any of them really improved, and thus learning of what kinds he could safely entrust better varieties with advantage to similar treatment another season. Altogether 150 plants have been experimented on, and the result is very satisfactory, not one plant having died. In "my garden" are several small streams of water running from the Wandle. These are overshadowed by trees and shrubs, and dells and nooks are formed in which Ferns luxuriate. Here the Orchids were arranged, those in pots being placed on scaffold boards raised about 3 inches above the water; while plants in baskets, pans, or on blocks were suspended from the boughs of trees or on wires stretched from tree to tree, and during the summer the sight, as may be imagined, was quite a tropical one. The *Odontoglossums* have done well. *O. Alexandræ*, *O. gloriosum*, and *O. Rossi*; with its variety *majus*, have made much finer pseudo-bulbs, some producing two flower spikes from each. They are still out, and in a fortnight will be in full flower, weather permitting. *Dendrobium Wardianum* and *D. heterocarpum philippinense* were hung up in the trees on June 15th before one-third the growth was made. They were badly attacked with yellow thrips, which soon disappeared under the outdoor treatment. The plants gained strength, but made rather small growths.

They ripened early, were housed on October 5th, and are now in bloom. The remainder of this section made their growth in the houses and were put out to ripen. *Sophronitis grandiflora* made decidedly better growth outside than any of the plants did that were kept in the houses. *Phalænopses* (two only) were tried, and the ten weeks they were put out remained practically dormant; but Mr. Smee suspects that with the long period of rest they have had the plants will make more vigorous growth afterwards. It will be well, however, to give the exact dates when the different plants were placed outside, and when they were taken in, with the effect in each case as recorded by Mr. G. W. Cummins, the gardener. The plants I have examined, and can testify to the accuracy of the remarks appended.

RECORD OF EXPERIMENTS.

Date of putting out.	Names of Plants.	Date of Housing.	Remarks.
June 15	<i>Cœlogyne cristata</i>	Sept. 13	Made a quantity of small growths.
" "	<i>Cypripedium insigne</i>	Oct. 13	Fine strong growth.
" "	<i>Dendrobium Wardianum</i>	Oct. 5	Made growth and formed flower buds.
" "	<i>D. heterocarpum philippinense</i>	"	Made flower buds on old growths.
" "	<i>Odontoglossum Alexandræ</i> ...	Out still	Rich-coloured leaves, large bulbs, flowering.
" "	" <i>cirrhosum</i> ..	Sept. 20	Moderate growth.
" "	" <i>gloriosum</i> ..	Out still	Better growth than those indoors.
" "	" <i>Lindleyanum</i>	Oct. 13	Quite at home.
" 29	<i>Brassia verrucosa</i>	"	Improved; thicker bulbs.
" "	<i>Cattleya citrina</i>	"	Plenty of root, but little growth.
" "	" <i>Walkeriana</i>	"	Small, very healthy.
" "	<i>Cœlogyne ocellata</i>	Sept. 13	Made growth and flower spikes.
" "	<i>Cymbidium aloifolium</i>	"	Made some leaves.
" "	<i>Epidendrum ciliare</i>	"	Remained dormant.
" "	<i>Lycaste Deppei</i>	Still out	Equal to those in the house.
" "	" <i>Harrisonæ</i>	Sept. 21	Making healthy growth.
" "	" <i>Skinneri</i>	Out still	Imported pieces, established outdoors and flowering.
" "	<i>Masdevallia maculata</i>	Sept. 20	Flowered and made better growth.
" "	" <i>Veitchii</i>	"	Rather weak growth.
" "	<i>Odontoglossum nebulosum</i> ...	Oct. 13	Grand growth and roots.
" "	" <i>Erstedii</i>	"	Similar growth to those indoors.
" "	<i>Maxillaria grandiflora</i>	Oct. 21	Good growth; flowered outdoors.
" "	<i>Oncidium macranthum</i>	Out still	Quite at home.
" "	<i>Zygopetalum Mackayi</i>	Sept. 21	Completed growth.
July 18	<i>Cattleya Acklandiæ</i>	Oct. 13	Improved.
" "	<i>Chysis aurea</i>	Oct. 5	Made healthy growth.
" "	<i>Lælia albida</i>	Sept. 21	Made small bulb and flower spike.
" "	" <i>harpophylla</i>	Oct. 13	Made sheath.
" "	" <i>majalis</i>	Oct. 5	Finer growth than previous.
" 10	" <i>purpurata</i>	Sept. 21	Made roots; commenced growth.
" "	<i>Masdevallia coriacea</i>	Sept. 20	Strong growth.
" "	<i>Mesospidium vulcanicum</i> ..	Sept. 21	Healthy.
" 18	<i>Odontoglossum cordatum</i> ..	"	Better growth.
" 24	" <i>Rossi</i>	Out still	A number of growths.
" 10	" <i>majus</i>	"	Larger bulbs and flowering.
" 18	<i>Oncidium concolor</i>	Sept. 21	Making fine growth.
" 10	<i>Phalænopsis amabilis</i>	Sept. 15	Commenced a new leaf.
" "	" <i>Schilleriana</i> ..	"	At rest; leaves and roots healthy.
" "	<i>Pilumna fragrans</i>	Sept. 21	Good bulbs and leaves.
" "	<i>Pleione lagenaria</i>	"	Formed strong bulbs.
" "	" <i>maculata</i>	"	" "
" "	" <i>præcox</i>	"	" "
" 18	<i>Sobralia macrantha</i>	Oct. 13	Improved.
" "	<i>Sophronitis grandiflora</i>	"	Several growths; quite at home.
" "	<i>Vanda cœrulea</i>	Sept. 21	Healthy and growing.
Aug. 7	<i>Cypripedium barbatum</i>	Oct. 13	Improved in colour.
" "	" <i>venustum</i>	"	Made healthy growth.

All the following *Dendrobiums* were put out on August 10th, and were housed during the last week of September and early in October—namely, *D. Bensoniæ*, *D. chrysanthum*, *D. clavatum*, *D. crassinode*, *D. densiflorum*, *D. Farmeri*, *D. fimbriatum*, *D. Linawinianum*, *D. macrophyllum*, *D. lituiflorum*, *D. calceolus*, *D. moschatum*, *D. nobile*, *D. Parishii*, *D. Paxtoni*, *D. Pierardi*, *D. primulinum*, *D. suavissimum*, *D. Wardianum*, and *D. heterocarpum philippinense*. *Dendrobes* mostly made fair growth, went to rest early, and have every appearance of flowering early and freely. *D. nobile* is very strong and showing flowers; while *D. Wardianum* is in bloom, producing three flowers from a node.

Plants that showed signs of ill health were taken back to the houses as soon as noticed, but they were few, and some not mentioned in the record were too small to determine if

benefited or not. This trial is, we believe, unique of its kind in this country, and it has proved so interesting, satisfactory, and encouraging, that it is not improbable at the least a thousand plants will be subjected to outdoor treatment another year. It may be well here, however, to utter a word of caution. The same varieties of Orchids would not thrive equally well outdoors in all gardens, while in some they would be ruined. In the garden under notice it must be remembered the streams are canopied with foliage. There can be no dry air around the plants, and no driving winds can reach them. Given this shelter, shade, and moisture, there can be little doubt that many Orchids will succeed outdoors during the summer months; but when the air is dry and the wind blows fiercely the plants could not be expected to remain healthy. One thing, however, is clear, that the temperature outdoors in summer is quite sufficient for numbers of Orchids, and hence that of many houses is needlessly and injuriously high.

It may be observed that Mr. Smee's Orchids in the houses are in excellent condition and a credit to the owner and cultivator. With such a number of varieties the houses are never destitute of flowers, and on November 1st the following were in bloom.

IN THE LONG FERN HOUSE.

<i>Burlingtonia granadense</i>	<i>Maxillaria grandiflora</i>
<i>Cattleya Acklandiæ</i>	<i>Odontoglossum grande</i>
<i>Forbesi</i>	<i>Roezli</i>
<i>Eldorado</i>	<i>Rossi majus</i>
<i>Dendrobium Wardianum</i>	<i>Oncidium ornithorhynchum</i>
<i>bigibbum</i>	<i>Forbesi</i>
<i>Cyrtorchilum maculata</i>	<i>varicosum Rogersii</i>
<i>Cypripedium Harrisoni</i>	<i>Harrisonæ</i>
<i>insigne Maulei</i>	<i>Papilio</i>
<i>Spicerianum</i>	<i>Krameri</i>
<i>venustum</i>	<i>Phalænopsis amabilis</i>
<i>Houlletia chrysantha</i>	<i>Sanderiana</i>
<i>Lælia Dayana</i>	<i>Stanhopea insignis</i>
<i>Dormani</i>	<i>Trichocentrum albo-purpureum</i>
<i>marginata</i>	<i>Vanda cœrulea</i>
<i>præstans</i>	<i>Zygopetalum maxillare</i>
<i>Perrini</i>	
<i>Masdevallia tovarensis</i>	

IN THE COOL HOUSE.

<i>Masdevallia ignea</i>	<i>Odontoglossum membranaceum</i>
<i>maculata</i>	<i>Rossi majus</i>
<i>Normani</i>	<i>Lycaste Skinneri</i>
<i>Veitchii</i>	<i>Oncidium aurosum</i>
<i>Maxillaria grandiflora</i>	<i>incurvum</i>
<i>Odontoglossum Alexandræ</i>	<i>varicosum</i>
(good varieties)	<i>Sophronitis grandiflora</i>
<i>Odontoglossum cordatum</i>	<i>Trichosma suavis</i>
<i>maculatum</i>	

Among others showing bloom are *Cattleyas*, *Dendrobes*, *Lælia albida*, *L. anceps*, *L. autumnalis*, *L. purpurata*, and a fine specimen of *Lælia superbiens* with three very strong spikes. In one of the houses some now rare and extremely chaste *Anætochilus* are growing freely. Perhaps Mr. Cummins will oblige with a note detailing his method of culture—J. WRIGHT.

PEACHES AND NECTARINES IN COLD LOCALITIES.

THE cultivation of the Peach and Nectarine in unfavourable situations is not only attended with considerable difficulty, but the results are far more frequently unsatisfactory than otherwise; in fact, the uncertainty of the crop, the loss of time and injudicious employment of means in cultivating the Peach and Nectarine against walls is very unprofitable as well as disappointing. I am aware that good fruit has been grown for many years, and still is in favourable localities against walls, yet in some localities the crop of late years has been very tantalising, the trees have become very unhealthy, and in many cases have died. It is questionable if a remedy is to be found for this, hence I conclude that where these

fruits do not ripen satisfactory crops against walls the only safe way is to grow them under glass. Everybody knows this, but there is an assumed advantage in striving to grow Peaches and Nectarines against walls—viz., in having them much later than would be the case where they are grown under glass. Such, however, is not the fact, though we readily grant that if the cultivator wishes to hasten the ripening of the fruit it is readily effected by husbanding the sun's heat in early closing the ventilators; but by making efficient provision for ventilation (which does not always receive the attention it demands, or not until afterwards), and under proper management the fruit can be had from trees under glass quite as late, if not later, and of better quality as well as appearance as the fruit on open walls.

Where a good return is the first consideration houses of the simplest description consistent with stability and efficiency, well glazed and properly ventilated, may invariably be depended upon for giving full crops of Peaches and Nectarines of the finest quality. They are not more expensive than walls, but where those exist they can be covered with glass at a cheaper rate than erecting new ones, as the wall is certainly equivalent to one side of the cost of a span, with the disadvantage that it will only give half the fruit. I by no means wish to discourage covering walls with glass, yet I cannot forbear drawing attention to the fact that narrow houses erected to shelter trees against a wall are not the best means of doing so, as with a wider house trees almost as large can be accommodated on a crescent-shaped trellis in front, and that without any detriment to the trees against the wall. Narrow lean-to's may have their advantages, as I was reminded the other day by an enthusiast, as, besides protecting the Peach trees on the wall, a narrow house accommodated a row of Tea Roses along the front, blooming early and late, and was a capital place for Violets, where they bloomed the whole winter long. Our friend found the front of these narrow houses suitable for late Strawberries, famous for a row of Peas, to come in long before those in the open, and for wintering salads. Still I consider that walls can be of more use in gardens than as supports for glass houses. Surely Pears are valuable after summer fruits are over, and what position is more suitable for them in unfavourable localities than a south wall?

Why cannot we have the roofs of houses made to cover Peach walls so that the whole of it could be removed in a very short time, and as quickly replaced? I know there are some that answer this description, but I think it would be an advantage if they could be made to run up or down as quickly as the old-fashioned sliding lights. The advantages sought would consist in the trees being exposed to rains, cleansing the foliage and thoroughly moistening the roots, which would considerably lessen the necessity for syringing and watering.

Wide borders are not necessary, in fact are injurious, as the trees do better when the roots are restricted than when having the run of unlimited space. Requiring very copious supplies of water when in growth, good drainage is essential, 9 inches to a foot thickness of brickbats answering perfectly if there be drains below it to carry off superfluous water, the drainage being secured by a layer of turf grass side downwards, and 2 feet depth of soil is ample. Strong calcareous loam with a liberal admixture of old lime rubble put together firmly will produce clean, healthy, short-jointed growths thickly set with triple buds.

The conditions requisite to keep the trees in a healthy bearing state are few, as to insure thoroughly ripened wood biennial lifting or root-pruning should be adopted. Fan-training on a trellis 12 inches, and not more than 15 inches from the glass, answers best, as at this distance the fruit and wood get the fullest benefit of heat and light. Disbudding should be practised early, and should be somewhat severe, as it is important that the wood for future bearing should be trained in rather thinly, so that it has full exposure to light and air. Overcrowding, especially in late houses, is fatal to the ripening of the wood, hence no more wood should be allowed than can have proper exposure. The trees should be pruned as soon as the last fruits on each tree are gathered, cutting out the bearing wood of the current year, leaving those only that are required for next year's crop or extension; and after this the house should be kept dry and warm in the daytime by moderating the ventilation, but keeping it cool at night by admitting air more or less, continuing this until the foliage is ripe, when the ventilators may be thrown open for the winter, and if the trees could be exposed for a time by removing the lights it would be an advantage.

As spring approaches the flowering should be retarded as much as possible to keep them safe from spring frosts, and when ready artificial impregnation should be resorted to, to insure a good set; but where there are bees it will not be necessary, and the house should be freely ventilated. To insure fine fruit mulch the border with short manure, and water copiously when the fruit is swelling, and insects must be kept down by forcible syringings. Overcropping

is a great evil, a fruit to every square foot of trellis covered by the trees being ample.

As to the selection of varieties, much will depend upon the means. In large gardens where there are several houses, and there succeed them, such varieties as *Grosse Mignonne, Belle Baucé, *Royal George, Noblesse, Bellegarde, Barrington, *Stirling Castle, Violette Hâtive, Late Admirable, and *Walburton Admirable. To these may be added Sea Eagle, Lord Palmerston, Princess of Wales, Desse Tardive, Golden Eagle, and Osprey, all of which are large, good-looking, and for late varieties not bad in flavour. In gardens that rely on a supply of fruit from the middle of July from walls or an unheated house, such varieties as *Alexander, *Hale's Early, Early Alfred, *Dr. Hogg, Dagmar, Rivers' Early York, Early Grosse Mignonne, Dymond, A Bec, Condor, and Goshawk may be added to those named, which all but the two last-named will precede. If only a few are wanted those marked with an asterisk will give a supply in ordinary seasons from the middle of July to a similar time in October, or for three months.

Perhaps there is nothing so undesirable in small establishments as large trees. They give a glut, and there is no succession. Trees of moderate size are most serviceable and more easily managed than large trees in the matter of root-pruning and lifting; in fact, a tree of each of those named could be grown in a small house as single or double oblique cordons, and which is so characteristically exemplified in the Royal Horticultural Society's garden at Chiswick.—G. ABBEY.

STOKING—FUEL—GAS AND OIL STOVES.

I AM pleased to see Mr. Inglis's letter on the economy of stoking, as some of the points referred to are more important than many think or will admit. An instance in point has just occurred with a boiler recently supplied. Complaint was made that the fire (made up at 9 P.M.) had burnt out and the pipes were quite cold long before six in the morning. The boiler was properly set, and there was said to be a perfect draught, as the chimney "roared again." Here was the fault plainly visible, but the man could not see it. "A furnace was no use if you could not make it roar up the chimney," so he had been taught in the old days of flue-heating, and consistently practised. The boiler was condemned as a failure, it must be returned, &c. After much persuasion the damper was nearly closed and very little air was admitted under the fire. With a few trials the fire kept in over twelve hours, but the pipes were scarcely warm. The other extreme had been reached—there was too slow a combustion, and a common coal was used which gave very little heat; but the fault was chiefly in not having raised the heat early enough in the evening. Again, the man was begged to make a good fire and the pipes thoroughly hot by 6 P.M., opening the roof ventilators an inch for a few minutes if the temperature became too high, after that to increase the air supply under the fire, and bank up (which always reduces the heat), when it was found that the fire kept in and the pipes comfortably hot till seven the next morning. Less fuel was burnt, less labour required, and a more regular heat obtained than with the "roaring fire." A special test in an almost empty house some time ago showed that when closed one afternoon the thermometer stood at 62°, three hours later it had fallen to 45°. A fire was lighted and raised it to 50° in two hours, then fire made up for the night, and the next morning there was registered a maximum of 52° and a minimum of 40°. The next day the fire was lighted, when the house was closed at 60°; in three hours it was 55°; it was then made up and left for the night, the range registered in the morning being from 58° to 50°. Precisely the same quantity and class of fuel was used in each case, the outside minimum being 1° lower on the second occasion.

As to Fuel.—A gentleman had a large boiler fixed for twelve houses, and determined nothing should be spared in the way of good fuel. Best coal and coke were mixed, but the conduct of that boiler or its fire was decidedly erratic for a long time; but on examination it was explained, through the coke being thrown in just as it came, sometimes large lumps that would not burn through, and then small pieces with an excess of coal burning quickly. Small broken coke and breeze was advised, with a harder coal equally mixed, when an improvement was manifest at once, and ultimately common breeze alone, costing 3s. a ton (or chaldron, I forget which) besides its cartage, was found most satisfactory at half the cost or less.

Flues.—A boiler was replaced elsewhere by one of greater nominal power, having the same size of fire-hox but one-third more piping on, and the same class of fuel (anthracite and coke) was burnt, but sufficient heat was not attainable. On inquiry I found that less fuel was being burnt to do more work; but the man said it would not burn more, which was true. The previous boiler had an upper flue in it, and thence over the top direct to the chimney, in which you could "hear it roar." The new boiler had inner flues and then underneath, making three times the distance to the chimney, which was too short for good draught, consequently the fire burnt too slowly. Five feet was added to the chimney shaft, the coke broken small, and now the extra pipes are heated well with the same fuel as formerly.

Gas or Oil.—The importance of raising heat early in the evening is more marked, and most necessary where gas or oil is used as fuel, as, owing to the less surface acted upon by flames, a less degree of heat is of course obtainable. Many persons who have bought a gas apparatus

because it was so clean and easily attended to, have been terribly disappointed to find one morning that frost has nipped some of their tender plants near the glass, though the gas was burning full and the pipes hot at 9 A.M.; the fact being that they had not lighted the gas till 8 P.M., and before the water could become hot the frost had done its mischief; but afterwards, say at 6 A.M., the pipes got comfortably warm, and increased as morning advanced. Had the gas been lighted three or four hours earlier and the water raised to boiling point, or nearly so, a less consumption of gas would have kept it hot during the remainder of the night. On the management of oil or gas stoves very much might be written to account for the many failures and few successes therewith.—B. W. WARHURST.

AUTUMN PROPAGATION OF ROSES.

MANY methods of striking Rose cuttings are mentioned in the *Journal of Horticulture* from time to time, and of course failures in doing so are also recorded. I find the following plan to answer well.

Take well-ripened cuttings 8 to 10 inches long, and place them in boxes (leaving two or three eyes above the soil) any time from the end of October to the end of November, and place them until March where they will be protected from east winds and hard frosts. Then put the boxes into a frame with a little bottom heat. Most of the cuttings that are callused will grow, and can be transferred into 6-inch pots in another month, pruned as soon as established, afterwards hardened off and planted out in May, or even in June, taking care that the roots are as little disturbed as possible. Mulch the ground with decayed manure after planting out, and supply water if necessary.

The boxes should be about a foot deep, and the bottom should have a few holes bored through for drainage and covered with about half an inch of sand, the cuttings to be inserted very firmly. When the cuttings are ready for potting knock the bottom of the box out or take it in pieces, as the roots would be too much broken if any attempt was made to dig them up. I make the cuttings without a heel and plant them rather thickly, as many will not callus, and some that do will die. I know some of your readers will say, "What a lot of trouble!" but if Roses are worth growing on their own roots surely they are worth a little trouble, especially as you get good strong plants that bloom the first season. The above only refers to Hybrid Perpetuals, as I find that Teas will root almost at any time with the assistance of a frame.

I do not wish anyone to think that Roses on their own roots bloom as freely as when budded on the Manetti, Briar cuttings, or seedling Briars, as they do not, and the free-blooming varieties only should be used. The best, I find, is Marie Baumann. John Hopper and some few varieties bloom fairly well, whilst others make large plants, plenty of wood, but no blooms worth mentioning.—W. BOYES, *Milford, Derby*.

DEEP SOIL BEST FOR POTATOES.

LAST spring we began to trench a large quarter in the kitchen garden here, but the weather and other work prevented us finishing it, and only part of it was turned up to the depth of 2 feet, the remainder being dug over in the ordinary way. In trenching a large quantity of all kinds of rough garden refuse was turned into the bottom, and finally a quantity of manure was forked into the surface. This was used to both the trenched and dug portion, deep drills being opened 3 feet apart and Potatoes planted all over the piece. By-and-by a row of Broccoli plants was placed between the drills of Potatoes, and all the stems of the latter appeared to be of the same bulk and strength, but on lifting the roots the other day the crops were widely different on the trenched and untrenched ground. The variety was the Scotch Champion, and on the ground which was only dug over the crop might be termed light, but on the trenched part it was very good indeed, and according to measure we had as many from two rows on the trenched soil as in three on the shallow-tilled part. The size, too, was more uniform on the trenched piece, and the results altogether are decidedly in favour of trenching or deep digging.—J. MUIR.

SEASONABLE FLORAL DECORATIONS.

WE have had an exceptionally busy fortnight of floral decoration, beginning early every morning with the arrangement of cut flowers and foliage for sitting-rooms, and ending each evening with a brisk three hours of dinner-table decoration, the greater part of the last day being given to the decoration of a church for a harvest festival. This has recently occurred, and has left behind it a keen sense of knowledge gained, of views enlarged, altered, or strengthened; and what is even more important, has afforded much insight into the difficulties which beset the efforts of beginners in a branch of gardening that not unfrequently puts the skill, taste, and originality of old practitioners to the severest test. It is hoped, therefore, that a few hints may again be usefully jotted down for the assistance of many of your readers whose efforts in this work are beset with doubts and difficulties; and first let us give some attention to the

Choice of Materials.—Tameless and monotonous repetition are to be avoided. Let us therefore strive to impart a season-

able air to our designs by the free use of as many hardy flowers and leaves as prove suitable for tasteful combinations, for all such are undoubtedly admissible, and the true artist never objects to foliage or flowers because it is familiar or common, and has no sympathy with that ultra-refinement which rejects all but rare exotics or costly forced flowers for house or table decoration. Rather does he cherish a fondness for beauty of form and colour under whatever guise it presents itself, not in obedience to arbitrary rules or canons of taste, but involuntarily, and from a habit and sense of pleasure that grows in keenness and intensity as he learns with Kingsley to "Drink in all the forms of beauty which lie in leaves and pebbles, and mossy nooks of damp tree roots, and all the lowly intricacies of Nature." Autumn is especially rich in the lovely tints of decaying foliage that brighten the woods and hedgerows with a wealth of colour on which the eye lingers all the more fondly for its brief duration. The garden, too, has its own special autumnal brightness, affording us ample materials for our work.

A Virginian Creeper on a southern gable was first this autumn to change from sober green to gorgeous crimson, and very useful were its bold handsome pinnate leaves, especially for large flower stands. *Ampelopsis Veitchii* soon followed it, and has now on the last Saturday in October been in full beauty for several weeks. Many of its leaves have fallen, but some lovely patches of them, each covering many square yards, remain, and are all aglow with scarlet, crimson, carmine, purple, yellow, and green, all blent and shaded in most gorgeous brilliancy. How beautiful it is! and how exceedingly useful are the full-sized leaves, or rather leaves of all sizes, as well as the long slender growth of the current year. The huge specimen of it here continues spreading on all sides so fast that there really appears to be no limit to its growth. I have made no actual measurement, but from my knowledge of the height of the building against which it grows I may safely say that it already covers an area of some 4000 square feet, and from its habit of taking hold of everything it touches it may become twice as large in course of time, for there is ample space for it to do so.

Polygonum Sieboldi has also been very useful. Its handsome foliage changed to a rich orange, occasionally blotched with crimson, and while at its best the long slender shoots made charming wreaths and sprays. *Æsculus laciniatum* also afforded an abundant supply of bright yellow leaves, doubly useful from the elegant fan-shaped form, lighter in colour, and with narrower lobes than the common Horse Chestnut, which, however, possesses a beauty of its own that, however familiar, calls for special mention. The foliage of one particular tree of it here, with branches pendent almost to the ground, changed to a deep rich yellow, and formed a golden bower of wonderful beauty, especially on a bright and sunny day.

Acer polymorphum atropurpureum still retains its lovely foliage now of a bright crimson-scarlet hue. The cut sprays of it are most useful to mix both with blossom and foliage. It is so beautiful that several have been planted here. One of the best specimens is growing near an *Æsculus laciniatum*, and the effect of the masses of crimson and yellow foliage has been very striking. Hardy Azaleas have changed to many shades of crimson, some to a deep purple, and others of various shades of yellow, so that one hardly knows whether they are not more beautiful now than when they afford us the full glory of their gay flowers. The scarlet Dogwood, the soft green slender sprays of *Spiræa Thunbergiana*, the bright yellow leaves and scarlet berries of the Japanese Rose, the deep crimson leaves and glossy berries of *Viburnum Opulus*, crimson and yellow leaves of the Dutch Medlar, bright crimson leaves of common Blackberry, the silvery-awned seed clusters of *Clematis Vitalba*, with green Fern fronds and silvery plumes of dried Grasses, have all been used in pleasing combinations, and are all mentioned to show what is really useful at this season of the year. All are hardy, and so easily established as permanent trees and plants that there should be no difficulty in obtaining a supply from every garden. A lady of undoubted taste having recently to arrange some cut flowers and foliage at a house where she was staying, complained to me that although the garden contained numerous glass houses filled with choice plants as well as beds and borders of flowers in the open air, yet it was sadly deficient in suitable materials for what she had to do.

Of flowers single Dahlias and tuberous-rooted Begonias have borne with impunity one sharp frost. Both are delightful modern innovations in our flower borders, and both are remarkable for what may be termed an affinity of usefulness. Easily raised from seed in spring, they grow so quickly that they come early into bloom in summer, and continue in full beauty late in

autumn. Single Dahlias are so lovely that I have used them for almost every purpose for which cut flowers are required. They make an excellent change for the dinner table, and tell well in vases and bowls of all sizes. For a tripod stand some 3 feet high, supporting a large bowl, they have had the preference for many weeks. I have arranged them in it in a variety of ways; at the present moment as follows:—The bowl is filled with moist sand; about eight large fronds of *Lastrea Filix-mas* are thrust into the sand and bent down over the edge of the bowl; three long sprays of *Clematis vitalba* are also bent over upon the Fern fronds, curving over them diagonally; three or four clusters of the berries of Japanese Rose, with a few of its yellow leaves mingled with rather large leaves of *Ampelopsis Veitchii* form a margin above them; single Dahlias arranged lightly fill the bowl, rising to a height of about a foot in the centre, and from among them the seed plumes of *Bromus sterilis* (Barren Brome Grass) spring upwards and outwards, some bending over the sides and bending outwards from the centre full 2 feet above the highest Dahlias. Flowers of early Chrysanthemums are ready, but none will be used till the Dahlias are over.

For the dinner table flowers may frequently be dispensed with entirely at this season of the year, and foliage used instead. Large central bowls of the shape of c, fig. 73. told well with fronds of Male Fern bent down and resting on the tablecloth, a long shoot of *Cissus discolor* with well-coloured leaves curved right round well out from the bowl and resting upon the Fern fronds,



Fig. 73.

Useful forms of vases for dinner-table decoration. A is of iridescent and crackled glass, 6 inches high and 2 $\frac{3}{4}$ inches in diameter at top. B is a slender vase, 7 inches high and 1 $\frac{1}{2}$ inch in diameter at top. C is a plain transparent glass bowl of various sizes, used singly, and in circles and clusters; they are also useful for suspending from chandeliers by slender wires fastened under the rim.

then came clusters of scarlet leaves of *Ampelopsis Veitchii*, three or four sprays of *Polygonum Sieboldii*, some small leaves of *Caladium Wightii*, shoots of *Coleus Pompadour* and Royal Purple, dried spikes of *Briza maxima* among the foliage and slightly raised above it, with tall silvery spikes of common Hair Grass and *Poa pratensis* above all. A few crimson leaves with Maidenhair Fern and trailing shoots of *Selaginella cœsia* suffice for such vases as B, fig. 73, of which circles may be arranged round the large central bowls, with a wreath of crimson leaves upon the tablecloth winding gracefully about among the vases and dishes.

Of the materials used for church decoration for the harvest festival the principal were plenty of nice fresh green moss, leaves of *Ampelopsis Veitchii*, *Aesculus laciniatum*, Japanese Rose, *Polygonum*, and crimson-blotched leaves of Grape Vines, little sheaves of Wheat, Barley, and Oats about a foot in height, large flowers of scarlet Cactus Dahlia Fire King, berries of wild Guelder Rose, hips of Dog Rose, and berries of *Cotoneaster Simmonsii*, fronds of common Bracken, with fruit of Fearn's Pippin Apple, Beurré Clairgeau Pear, Tomatoes, and Capsicums. With these simple materials a bright and tasteful effect was obtained, and all vulgar display avoided.—EDWARD LUCKHURST.

THE BEST WHITE BEDDING PELARGONIUM.—Inquiries have been made in your Journal by "S. C." as to the best white-flowering bedding Pelargonium. I quite agree with him with regard to White Vesuvius; it is not so good as Madame Vaucher, indeed I think this is the best white we have. If "S. C." has any, or can procure any, old plants of Madame Vaucher, cut the roots well in so as to get them into large thumbs or 60-size pots, shift them in the spring into 5 or 6-inch pots instead of turning the plants out of their pots at the bedding-out season, and plunge the pots deep enough to hide them. The plants will make less foliage

and more flower, though they will require planting closer together to give the desired effect. I have used the same plants three years in succession, and they gave every satisfaction.—J. PITHERS.

PEAR TREE IN FULL BLOSSOM IN NOVEMBER.

I HAVE forwarded a few sprays of blossom of the Jargonelle Pear. The tree, which is 20 feet high, is one mass of blossom, and to us the effect is extraordinary. The tree flowered in the spring and produced fruit. In July it suddenly lost all its foliage, and now it is, as you see from the specimens sent, flowering again from every bud. We should like to hear through the Journal what you think about this enrious freak.—JOHN MALLETT, *Gardener to H. Collier, Esq, Hoe Street, Walthamstow.*

[We have not had a box of prettier flowers this year, every spur—and there are thirty-three of them on the branchlets—terminating in a cluster of flowers as fine as we ever saw Pear blossom in the spring, but appearing more beautiful now in its isolation. The result is due to the check the tree received in July. Had it continued growing the force of the sap supplied by the roots would have found expression in the leaves, but since these were lost it forced the blossom; the tree, in fact, went temporarily to rest, had its little winter in July, now followed by its spring in November. The blossom has expanded now instead of next March, and a similar display must not be expected at the ordinary period of blooming next year.

It is not unusual for Pears to occasionally produce some blossom in the autumn, or even in summer. The Windsor Pear is especially apt to do this in dry soils and hot districts. A partial cessation of growth occurs by the heat and drought, and the tree rests; most genial weather follows, and it starts into growth again, blossoms, and even bears fruit. This is notably the case in France, hence the Pear has become known as *Poire Figue, Figue Musquée* and *Deux fois l'an*. The same peculiarity has, however, been observed in this country upwards of three centuries ago, for Sir Hugh Plat, in giving the authority of "Master Hill," who lived about 1563, "Why trees transplanted doe alter," says, "Trees that bear early, or often in the year, as Pear trees upon Windsor Hill, which bear three times in a year; these though they be removed to as rich, or richer soil, yet they do seldom bear so early, or so often, except the soil be of the same hot nature, and have the like advantages of situation, and other circumstances with those of Windsor. And, therefore, commonly the second fruit of that Pear tree being removed, doth seldom ripen in other places."]

CRATÆGUS AZAROLUS.

UNQUESTIONABLY this is one of the most beautiful Thorns we have, and it richly deserves the attention of those whose time and minds will be occupied during the next two or three months in planting and replanting various kinds of evergreens and deciduous trees and shrubs. At this time of the year it certainly has a very attractive and charming appearance, and cannot fail to elicit admiration from many who are not habitually close observers of the beauties of Nature, but whose innate love of bold and striking objects compels them, unconsciously as it were, to notice anything above mediocrity. For planting out on lawns or in parks as single specimens it is admirably adapted, and where it does not already exist a few trees would add much to the scenery, and greatly improve the surroundings of any country or suburban residence. Its blossoms are probably less showy than any of the scarlet or common white Thorns, but the haws which the trees are still bearing are exceedingly pretty, being of a beautiful bright orange-scarlet in colour, almost as large as Cherries, and borne in clusters of from three to ten, render it very conspicuous from a considerable distance. Although the character of the tree is seen to the best advantage when growing singly, we do not doubt but that clumps or rows along the outskirts of woods and plantations would be equally effective. If it were desired to heighten the effect a few clumps of Pampas Grass planted in front would form a very pleasing and striking contrast.—J. HORSEFIELD, *Heytesbury.*

PANSIES AND VIOLAS.

It is easier to answer the query of "H. Notts," respecting the distinction of the Pelargonium and the Geranium than it is to distinguish the so-called Viola from the Pansy. Mr. H. Cannell, jun., seems to have solved the question without difficulty, and the varieties he mentions are no doubt true off-springs from *Viola cornuta*—hence the distinction from the Pansy. But going further, and referring to Cannell's Guide, at Violas, for instance, I find—"Holyrood, deep indigo blue, dark blotch;" then turning to Show Pansies (selfs) I find, "Bluegown, deep blue self, dark blotch;" then *Viola Countess of Kintore* and *Pansy Magpie*. I cannot see here the distinction of the two sections Violas and Pansies.

Some three or four years ago when on a visit to Sale I called upon Mr. Brownhill. He then had two beds of seedlings, one of Violas and the other of Show and Fancy Pansies. There were about 1200 plants flowering in each bed, the first bed producing moderate Show and Fancy Pansies and Violas, so-called, the latter producing Violas and Show and Fancy Pansies. It was just at this time when the question was asked, "What is the difference between the Viola and the Pansy?"

There is no doubt a wide difference between the Show and Fancy Pansy and the true *Viola cornuta*; but when we come to such varieties as Holyrood, Waverley, Pilrig Park, Admiration, and others, I fail to

see any trace of *V. cornuta* in them, and they appear nothing more or less than inferior varieties of the Pansy, as Mr. Plant well observes.

It rather puzzles me that any true form of the *Viola cornuta* should drive out of the field such good old plants as Purple King Verbena and yellow *Calceolarias*, but I am fully aware that it does not take much to please some people.

The *Violas* Mr. Cannell speaks about so highly no doubt are good in their way, but if they were planted side by side with such charming varieties of Pansies as *Bluestone*, *David Cavin*, and others I could name, I have no doubt the tables would be turned.

While on the subject I may refer to a sweet-scented Pansy, *Miss Darling*. It has the perfume of *Mignonette*. It is a noble yellow *Fancy*, free-blooming, and ought to be in every collection.—JAMES PERCIVAL, *Smithy Bridge*.

I WILL only intrude a line or two on this subject (*vide* page 374), as I do not consider myself an authority; but the point is important, especially from an exhibition point of view. I was pleased to see Mr. H. Cannell, jun.'s contribution on this subject; and no doubt, as he says, it is easier to distinguish with the eye than to find words to exactly make that distinction plain. What do you say to a rough-and-ready distinction of considering all those with radiating distinctly marked lines from the eye as *Violas*, and the others Pansies—*Show*, *Fancy*, or *scifs*? Mrs. Gray, Countess of Kintore, *Favourite*, &c., would come under the former, though very beautiful.—W. J. MURPHY, *Clonmel*.

STORED-UP SAP IN VINES.

It is impossible to reconcile Mr. Taylor's theory of stored-up sap in Vines (p. 372) with facts or common observation, and I believe there are few experienced gardeners who believe that Vines subsist on "the stored-up food" of the previous autumn till the shoots are 7 inches long and the leaves 5 inches broad, as Mr. Taylor states. What is meant by root-action is the absorption of food from the soil, and this begins as soon as the Vines are started. If this is not so, will Mr. Taylor explain the well-ascertained fact that a Vine cut off at the root does barely more than burst its bud-scales before it dies? And will he also state why Vines "bleed" before they break, and stop bleeding as soon as severed at the neck? Does such a flood of sap come from the roots, and are the roots in action or not when they do so draw it up? Is this sap what Mr. Taylor calls "food," which he speaks of coming from the roots to put colour in the leaves? If it is not food, why does the loss of it enfeeble a Vine and cause it to push weakly shoots and pale small foliage? Sometimes people wrongly apply the term "root-action" to root-growth or extension, which does begin later than that of the branches; but Mr. Taylor makes it clear that by root-action he means drinking up food, and he tells us he acts consistently with that meaning by not applying water to the roots till root-action begins. I shall be much obliged by an answer to these questions as they are put by—A NON-BELIEVER.

LILIUMS.

LILIES! What a number of beautiful forms pass in review at the mention of this name! We can fancy we are enjoying afresh their associations, beginning early in the season with the charming little scarlet-flowered *L. tenuifolium*, and ending with the indispensable *L. speciosum* and its varieties still lingering with us. The most charming of all bulbous plants they are, and it is desirable to make the most of them. What can be more serviceable and lovely than the Trumpet Lilies? Take *L. longiflorum* and its several varieties for instance. Very easily I have had great enjoyment from this species, having the first flower expanded on the 16th of May, and have still pure white flowers by the dozen, and this is the 5th of October. The first flowers were from the excellent variety named *L. Harrisii*, and the same variety is now in its second flowering state. Some bulbs are even producing a third set of stems for this season. Of course a good number of bulbs have been worked to maintain such a lengthened display, and all the well-known forms of *L. longiflorum* have been utilised, commencing with *L. Harrisii*. The next to flower was the type, and in order *L. Takesima*, *L. eximium*, *L. albo-marginatum*, and *L. Harrisii* the second time. It is difficult to over-estimate the value of Lilies for garden decoration, as the numerous kinds flower at different periods throughout the season from April to October, and can thus be enjoyed. Of course a judicious selection is necessary.

Cultural Requirements.—These are by no means so numerous as we have been led to believe. Some of the commoner species have been cultivated for centuries and are still favourites, little or no trouble being taken to insure their happiness. Speaking broadly Lilies are happiest when left alone, especially if the position they occupy is not too impoverished. When planting this should be considered, and a good supply of thoroughly decayed manure be well incorporated with the soil near them. Lilies are gross feeders, and enjoy a liberal supply of good manure. There is no doubt they also enjoy a well-drained sandy soil, and plenty of moisture when in full activity. A good

method when planting the bulbs, especially if they have been out of the ground long, is to place a layer of gritty sand about them, which not only insures drainage for the bulbs, but appears to have some other advantages more difficult to explain than appreciate. The question of positions as regards sunlight is one respecting which Lily growers disagree. In my opinion the position as regards the health of the plant's matters little, in relation to sunlight, if the roots are right; the flowers are most likely of less duration when fully exposed to sunshine than otherwise. I have seen equally as good examples of several species of *Lilium* grown in very open positions as in partially or even entirely shady ones. The secret is undoubtedly when they are grown in exposed positions to keep the roots cool, which is easily managed by carpeting the surface with *Sedums*, *Saxifrages*, or similar dwarf plants, for as simple a matter as it may seem, it is most advantageous to the Lilies. Of course when huge masses are formed, so that the foliage is thick enough to thoroughly shade the surface, nothing of the kind is necessary, and the system of covering the ground is decidedly desirable from an artistic point of consideration. Bare ground is truly an eyesore to the lover of Nature. Here is an example of a style of gardening which should be greatly encouraged, and which has for the last three weeks been very charming. The ground is covered with *Corydalis lutea* and the old *Plumbago Larpentæ*; rising above and from amongst this groundwork are *Fuchsia virginialis*, *Amaryllis Belladonna*, and *Lilium speciosum rubrum*, the two latter in grand masses.

Lilies are more than ever grown in pots for decorative purposes, especially *L. auratum*. The varieties of *L. speciosum*, *L. longiflorum*, and even the old *L. candidum* are sharing largely in popular favour for this purpose. No time should now be lost in getting them potted and placed in a cold frame until they have drawn roots well. The bulbs of *L. longiflorum* are generally placed three in a pot, when a good show of bloom is secured. Of course, unless home-grown bulbs of *L. auratum* are secured these cannot be potted until they arrive from Japan, which is usually well into November, or even December. A great mistake is often made in potting bulbs of this Lily. They are put into the flowering pots at once, and very often watered freely, the result being the bulbs frequently decay through the abundance of wet soil about them. They should be placed in small pots, which will just take the bulbs and allow of a layer of sand about them, and be kept in them till they draw roots well, when they may be transferred to the flowering pots, using a rich compost for that shift.

Much is said and written about preserving the bulbs of *L. auratum* after flowering, which could be dispensed with. One thing is certain—the bulbs in nine cases out of ten grown in pots are almost useless for blooming the following year; the game is hardly worth the powder and shot when the low price at which they may be purchased is taken into consideration. Good bulbs are usually sold at 6d. and 9d. each. The plan I adopt is to make fresh purchases yearly, and plant out the old bulbs after once flowering into well-prepared rich ground, and pinch off all flowers which show themselves the following year, and in due course the bulbs get strength and reach again a good healthy flowering stage. The species and varieties described below are only a small portion of the kinds obtainable from specialists, but they constitute a good series, the flowering period extending over several months, and those the most enjoyable of the year in the outside garden.

L. auratum, Lindl.—This grand species is too well known to require any description in these pages, being now grown by all lovers of flowers, the price being within the means even of all enthusiasts. There are, however, some varieties of it which are but little known, such as *rubro-vittatum* and *cruentum*, the former with broad crimson bands taking the place of the yellow bands in the typical form of flower, the latter resembling it, but with maroon bands and purplish crimson spots. These are both magnificent varieties. Flowers from August to October. Japan.

L. Batemannia, Wallace.—A very charming slender-growing species, 3 to 4 feet high, with narrow leaves. Flowers erect, in umbels of from three to eight; perianth nearly cup-shaped, of a rich, deep apricot colour, and about 4 inches across. It resembles very closely some of the *L. Thunbergianum* varieties, to which species it undoubtedly belongs botanically. Native of Japan, flowering in this country from the end of July to September.

L. Browni, Miell.—A very highly appreciated species, growing from 2 to 3 feet high, with numerous deep green lanceolate leaves, and large, mostly solitary, flowers; perianth tubular, bell shaped, 6 inches or more long, with a spreading limb with revolute segments, pure ivory white inside, and deep purplish brown outside, the colours contrasting very finely. Native of Japan, and is closely related to *L. japonicum*, if indeed anything more than a

variety of that species, but from a gardening point of consideration it may be regarded as distinct, flowering in July and August.

L. bulbiferum, Parkinson.—An old-fashioned and well-known Lily, so frequently seen with *L. croceum* in cottage gardens, producing stems from 2 to 3 feet high, or even more in some soils, carrying umbels of deep red flowers about 3 inches across. Native of southern and central Europe, flowering in June and July. Among the earliest of Lilies.

L. candidum, Linn.—The Madonna or old white garden Lily, so well known to everybody, and more than ever appreciated with its tall stems of bright green leaves and racemes of pure white flowers. When planted this Lily should not be frequently disturbed, or it will flower very indifferently. There is a variety called *speciosum*, which is more robust, floriferous, and with rather larger flowers. Another form named *striatum* produces flowers striped with purple, while another produces double flowers. None is more serviceable than the typical form. Southern Europe, &c. July to September.

L. canadense, Linn.—This is a very variable Lily, including a large number of varietal forms, geographical as well as local. The type grows about 2 feet high, with slender stems and whorls of narrow leaves. Flowers nodding, usually umbellate, bright orange or yellow, freely spotted. North America; flowering in August, sometimes in July. A good variety of it is named *parvum*, growing taller with many-flowered racemes of yellow-spotted flowers.

L. carniolicum, Bernh.—This is a handsome Lily, growing from 2 to 3 feet high, with numerous lanceolate leaves clothing the rather slender stems. Flowers few, in a raceme of a bright orange-red colour, finely spotted inside, from 2 to 3 inches across, with the segments revolute. Native of southern and eastern Europe, flowering in June and July.

L. chalcedonicum, Linn.—The Scarlet Martagon, as it is frequently called. Stems erect, from 2 to 4 feet high, thickly clad with narrow, lanceolate, light green leaves. Flowers in racemes, usually few; the perianth of a bright vermilion colour, frequently finely spotted upon the inner surface, with the segments sharply revolute. Native of southern Europe, flowering in July and August. This Lily makes but poor growth the first season after planting even if the bulbs are strong. Last autumn I planted several bulbs, and they flowered very indifferently and were very dwarf. A few days ago I lifted some of them, and they were making excellent root and bulb growth. It is a most lovely kind, not at all fastidious, growing almost anywhere, and is a universal favourite.

L. Columbianum, Hanson.—This is perhaps only a slender-growing dwarf variety of *L. Humboldti*, but for cultural purposes it may be considered distinct. Stems from 2 to 4 feet high, with a few leaves in whorls. Flowers in umbels or racemes, few or numerous; perianth of a rich orange-red colour, freely spotted with deep purple spots, the segments sharply reflexed. Native of Oregon and British Columbia; flowering in July. It is a very graceful and pretty kind, growing freely in light sandy soil.

L. croceum, Chaix (the common Orange Lily).—A well-known old garden favourite, growing from 2 to 5 feet high, with numerous narrow leaves, and large deltoid racemes of bright orange-coloured flowers 3 to 4 inches across the open perianths. Native of southern Europe, flowering in July close upon the heels of *L. bulbiferum*, to which it is closely related. One of the most useful Lilies for planting in the border and woodland.

—T.

(To be continued.)

MESSRS. GEORGE BUNYARD & CO.'S NURSERY, MAIDSTONE.

THE town of Maidstone, picturesquely and pleasantly situated on the Medway, is in the centre of a large fruit and Hop-growing district, and Messrs. Bunyard's nursery has long been known in connection with it; but it is not until of late years that it has so rapidly developed its fruit-tree-growing character; and as it was to see this portion of the nursery that I went I shall leave on one side the other departments, merely saying that there is a fine stock of Conifers and shrubs out of doors and an excellent collection of Camellias in the Camellia house. There are about eighty acres of ground, and the largest piece of about forty acres is that through which I went the other day, and concerning which I should like to record my impressions. Mr. Bunyard is a successful Rose exhibitor, and anyone seeing the very beautiful stock which he has mainly on the seedling Briar (although there is a large quantity on the Manetti) would not be surprised at his success. The stock is not so large as that of many of our great Rose-growers, but I have nowhere seen finer plants; and as some were being lifted in the execution of orders, I can testify to the splendid roots, which showed how well the soil suited them, and is not of that especially heavy character which

oftentimes makes it difficult to grow the plants which have revelled in it; while the breezy character of the situation on high ground insures a certain amount of hardiness which is so favourable to their transportation into climates which are not, perhaps, peculiarly favourable to Roses. The Tea Roses on the Briar were especially good, and many lovely blooms of this favourite class were expanding their beauties in the warm October sun. How lovely they have been this season!

While other counties may grow and do grow Pears, Plums, and Apples, Kent is essentially the county for Cherries, and anything more beautiful than the stock of these it is impossible to conceive. In the various quarters there were upwards of 13,000 standard Cherry trees, and of these Amber Heart, Bedford Prolific, Kentish Bigarreau, Napoleon, Frogmore, Large French, Early Rivers, Early Elton, Governor Wood, East Kent, Turkey Heart, Kentish Red, Tartarian Black are the kinds most in demand, and of which the largest stock is kept.

The Apples were in almost untold numbers; but while perhaps 120 sorts are grown, there are some for which there is an almost universal demand, and these are grown in very large quantities. To those who desire to plant for profit the following are recommended:—Of dessert Apples Blenheim Pippin, good for dessert as well; Cox's Pomona, Duchess of Oldenburg, Gipsy King, Margil, Mr. Gladstone, of these there were 1000 trees; Old Winter Nonpareil, Scarlet Nonpareil, Claygate Pearmain, Worcester Pearmain, of this beautifully coloured Apple 2500 splendid trees were grown; Cox's Orange Pippin, of this the king of all dessert Apples there were upwards of 3000 trees; Summer Golden Pippin, Ribston Pippin. By-the-by, what a superstition there is about this. How frequently we are told that it is dying out, and that the Ribston will be soon a thing of the past. Why, here were thousands of fine plants without any trace of canker or decay. Delicious as a good Ribston is it must yield, I think, to the Cox's, which is not so hard, yet crisp and delicious—even, I think, in flavour superior to the Ribston. Red Quarrenden, King of the Pippins, Reinette de Canada, and Washington, a grand Apple. Then of kitchen Apples the most marketable varieties are Annie Elizabeth, Belle Dubois or Gloria Mundi, Cellini Pippin, of this were some marvellously coloured fruits on small trees; Keswick Codlin, a variety greatly in request; Ecklinville, another grand Apple; Gascoyne's Scarlet, a Kentish variety; Grenadier, a most desirable fruit (one of the few Apples certificated at the Congress); New Hawthornden, Lady Henniker, Loddington or Stone, a grand kitchen Apple of Kentish origin; Lord Suffield, of this well-known Apple there is no need to say anything; Lord Derby, another grand fruit; Northern Greening, very late; Queen Caroline, Small's Admirable, Warner's King, very fine; Wellington, and Winter Queening. The standards of these trees had stems from 5½ to 6½ feet.

Among the multitudinous varieties of Pears there are some which always command attention as market Pears, such as Bon Chrétien, Beurré Bosc, Beurré de Capiaumont, Beurré Clairgeau, Bishop's Thumb, Calebasse Bosc, Doyenné d'Été, Rivers' Fertility, and Hessel; while for those who desire in their gardens to have the most delicious Pears grown the following are recommended:—Beurré d'Assomption, Beurré Superfin, Doyenné du Comice, the finest flavoured of all October Pears; Comte de Lamy, small but most delicious; Glou Morceau, Jargonelle, Marie Louise, Louise Bonne of Jersey, Pitmaston Duchess, Souvenir du Congrès, and Josephine de Malines. The trees are of all kinds—standards, half standards, dwarfs on Pear and Quince stocks, some double-grafted, others of Rivers' variety of Quince.

Plums and Damsons are very largely grown—budded plants of a year old with clean growths of from 6 to 10 feet, while the two-year-old plants were so vigorous that the junction had completely grown over, and all fear of loss was obviated. Thus of the Bush Plum, a Kentish variety, there are 5000 trees, of Cox's Emperor 5000, of the Pershore Egg Plum 2500, of Rivers' Early Prolific 5000, Orleans 5000. The others most in request for market purposes are Pond's Seedling, Prince Engelbert, Royal Dauphine, The Czar, The Sultan; while for garden purposes Coe's Golden Drop, Green Gage, Jefferson, Oullins Golden Gage, Transparent Gage, and Washington are always in request; but of the Plum tribe the most remarkable growth is that of the Farleigh or Cluster Damson, of which there are from 40,000 to 50,000 trees. This is a Kentish variety and most astonishingly prolific, hardly ever failing to produce fruit, and that in the greatest profusion. It is stated that one Kentish grower sent last year 3000 bushels to market, which realised 14s. a bushel. So great is the demand for it that every year Messrs. Bunyard dispose of from 10,000 to 15,000 trees.

If Cherries are the first great speciality of Kent, Nuts are the next in importance. The Kent Filbert is famous, but it is now being rapidly superseded by the Cob Nut, as being much more profitable and a more constant bearer, and of this Messrs. Bunyard have about 20,000 trees, and the demand for them is rapidly increasing.

Of Gooseberries, Currants, Raspberries, Mulberries it is needless to say that there is an immense stock of the best varieties, and any fruit-grower either for market or for their own use will find in these nurseries everything to satisfy their wants, no matter how great their demand may be. I may perhaps best exemplify what Messrs. Bunyard can do by stating what they *did* for Lord Sudeley. His lordship determined on going in largely for fruit-growing as a profitable investment. At his seat at Toddington, Gloucestershire, he has begun by planting 500 acres, and he was so satisfied with some smaller transactions that he had with Mr. George Bunyard that he placed the matter in his hands. The particulars of the trees supplied were published on page 170, the issue of March 1st of the present year. This was indeed a gigantic operation, and it is much to Mr. Bunyard's credit that it was conducted entirely to

Lord Sudeley's satisfaction. Nor is this to be wondered at. Mr. Bunyard is young and active, he superintends everything himself—is not satisfied with entrusting it to others however capable, and can thus guarantee whatever he sends out from his establishment.

There are many other things of which I might speak, but I must not trespass on your space, and can only add that I was received with the utmost courtesy, a fact which those who know Mr. Bunyard will not be surprised at. After I left him I went to see my old and valued friend Mr. Jno. Hollingworth, who was loud in his praises of the fruit-bearing properties of some pyramid fruit trees he had obtained from Mr. Bunyard, showing that in his own neighbourhood, as well as at a distance, the character of his culture stands high.—D., Deal.

HEREFORD APPLE AND PEAR EXHIBITION.

I AM anxious to correct an error that appears in my report of above Exhibition last week in reference to the Onibury Pippin. This excellent dessert Apple cannot be too widely made known and recommended; indeed, I believe it to be worthy a place in every collection however small, where it might form a well-matched triplet with one of the very best and hardiest culinary Apples, Wormsley Pippin, and that well-known late dessert Pear, the Monarch; all *chef d'œuvres* of that indefatigable pomologist, Andrew Knight. It was a subject of general regret that a choice collection of cider Apples (some fifty varieties), expressly sent from Normandy to the Exhibition at Hereford, arrived too late. From a cursory glance I have had there is hardly any resemblance to be now traced between them and our present Norman cider varieties, presumed to have been introduced from Normandy into our Herefordshire orchards by Lord Seudamore of Holme Lacey about the early part of the seventeenth century. I will only mention that the nomenclature of the several varieties, as now grown in the different countries, are as widely different as their structural and other characteristics; but this is not the occasion to more than allude to this interesting subject.—THE HEREFORDSHIRE INCUMBENT.



THE ROYAL BOTANIC SOCIETY'S SHOW FIXTURES for 1884 are as follows:—Exhibitions of Spring Flowers, March 26th and April 23rd; Summer Exhibitions, May 21st and June 18th; Evening Fête, July 2nd; Promenades will be held on the other Wednesdays in May, June, and July; Botanical Lectures will be held on each Friday in May and June.

— IN connection with the Fisheries Exhibition Mr. J. D. DICK the resident official of the Royal Horticultural Society, was placed in charge of the turnstiles, and thus the enormous sum of money that was taken passed through his hands. His staff, to the number of thirty, entertained Mr. Dick and his assistant, Mr. G. Browning, at dinner last Thursday evening, and presented them with a ring each, bearing the following inscription—"Presented to J. D. Dick, Esq., as a mark of esteem by his staff, I. F. E., 1883." "Presented to Mr. Geo. Browning as a mark of esteem by his staff, I. F. E., 1883." The dinner was kindly given by Messrs. Bertram & Roberts. We are very pleased to record this mark of recognition of the urbanity of Mr. Dick, and further trust that his services will be handsomely recognised by the Fisheries Committee.

— WE learn that an EXHIBITION OF CHRYSANTHEMUMS will be held by T. H. Bryant, Esq., in his grounds at Glencairn, Surbiton, on Thursday, Friday, and Saturday, November 15th, 16th, and 17th, the admission to which will be 1s., and the proceeds are to be devoted to the Surbiton Cottage Hospital. The Show will be open from 1 until 10 P.M. each day, the tents being lighted by the electric light in the evening. The St. Mark's band will also attend. Those who saw the handsome plants at Kingston last year will remember what a fine display they afforded, and numerous visitors will doubtless be desirous of seeing this year's productions.

— LETTERS have reached us directing attention to the undesirable CLASHING OF CHRYSANTHEMUM SHOWS. This is no doubt in a great measure unavoidable, and the objection that has been taken to the Committee of the Kingston Society fixing their Show on the same date as that of Mr. Bryant's Show above alluded to is certainly not merited. The date of the Kingston Show was announced last December, but the notification of the Surbiton Hill Exhibition only reached us a fortnight

ago, and its fixture was certainly not made public antecedent to that of Kingston. It is unfortunate that two shows in the same district should be held on the same date, as the public are deprived of visiting both on the opening day. The Kingston Show, which is expected to be a very fine one, will naturally have the preference. They will, however, have the opportunity of visiting the Surbiton Hill Exhibition on the second and third days. Surely such a clashing as this might have been avoided, and more especially as it is calculated to prejudice the fund for a hospital.

— THE beautiful variegated form of *SIBTHORPIA EUROPEA* is rarely seen in the neighbourhood of London in such condition as represented in the Heath house at Kew. This plant is rather difficult to grow, and it is only after many experiments and some failures that success has been attained. It was, we learn, grown in a cool frame in a rather shady situation with the pot standing in a pan of water, and under no condition is water given over the foliage. It is now almost as much at home as the common form.

— "J. A. W., Alderminster," writes:—"Where *LILIUM AURATUM*, *L. SPECIOSUM ALBUM*, &c., are very late out of doors, as they are very often the first year, and look as though they would not open, let them be cut down with a long stalk and placed in water in a deep vase, where they will gradually unfold their beauty and fill the house with their rich perfume. The same may be done with the unopened buds of the *Magnolia*, only in this case if you do not care to cut off any wood you must use a bowl and not a vase."

— MR. J. ROBERTS, The Gardens, Tam-y-Bwlch, Merionethshire, sends a box of blooms of the *MARIE LOUISE VIOLET*, which he considers is not surpassed by any other variety, and observes—"We grow thousands here, and are not without blooms one month out of the twelve." The flowers are very fine, but not equal in size or colour to examples of *V. odorata pendula* of New York that were sent to us in January last by Mr. Beachey of Kingskerswell, who grows "twenty-six varieties of Violets, but has none which equals New York for general utility." Does Mr. Roberts grow this variety?

— WE are informed that the *CHRYSANTHEMUMS AT SLOUGH* are in remarkably fine condition this year. Mr. Charles Turner's collection comprises many thousand plants in all the leading varieties. They are now approaching perfection, and an inspection is invited. The principal houses will be illuminated on Wednesday the 14th inst., from 6 till 9 o'clock P.M., and the effect will undoubtedly be very beautiful; but for a critical examination of the varieties an inspection during the day is preferable. The Royal Nurseries are worthy of a visit at any time, but never more so than during the Chrysanthemum season.

— IT appears from the programme announced at the closing of the Fisheries Exhibition last week that there is little prospect of a large INTERNATIONAL HORTICULTURAL EXHIBITION being held in London for several years. It is true that the Food Exhibition for 1884, the Machinery and Invention Exhibition for the year 1885, and the Colonial Exhibition in the following year will afford some scope to horticulturists in the various departments, but no display of a special nature is promised; and it is to be regretted that the statement officially announced a short time since should have been made when no definite course had been decided upon. Each of the Exhibitions proposed will be interesting and instructive, but it is doubtful if they will attract the public in the same proportion as the one just terminated has done. Over two millions and a half is an enormous number, far exceeding the expectations of the most sanguine of the projectors.

— "AMONG the many *Androsaces* now in cultivation," writes "D. D.," "none, I think, is more suited for rockwork decoration than *ANDROSACE LANUGINOSA*. When once well established it is almost an continuous flowerer. The flowers, which are produced in loose umbels, are of a light mauve colour. The leaves, which are densely clothed with silky hairs, present a lively appearance at all times of the year. It does not, however, relish a damp situation, and I find after various experiments that planting just behind a ledge or sloping stone, and allowing the long straggling shoots to scramble over its surface, is the most successful treatment."

— THE PUBLIC CHRYSANTHEMUM SHOWS in London continue to attract large numbers of visitors. Both the Temple collections have now a greater number of blooms open, and Mr. McIntyre has his usual interesting display in Victoria Park. During the next week they will be

all at their best, and visitors to the principal competitive exhibitions should by no means miss the opportunity of seeing how Chrysanthemums can be grown in the midst of London smoke and fogs.

— PROPOSED NATIONAL CHRYSANTHEMUM SOCIETY.—We are informed that at a full meeting of the Borough of Hackney Chrysanthemum Society, held on Tuesday night, it was resolved and carried almost unanimously that at the end of the current year this Society be constituted a National Chrysanthemum Society.

— THE "JOURNAL OF FORESTRY" for November contains, amongst other papers, interesting articles on "Forest Rambles in Finland," "Through Sherwood Forest," "Industries of Shetland," and "An Excursion to Ettrick Forest," together with a variety of news and notes.

— THE DURHAM, NORTHUMBERLAND, AND NEWCASTLE, INCORPORATED HORTICULTURAL AND BOTANICAL SOCIETY held their fifty-ninth annual meeting in the Alexandra Hotel, Mayton Street West, on October 31st. Councillor Thos. Gray presided. The Secretary, Mr. Gillespie, read the report, which showed the income was in excess of the expenditure by £143 16s. 8d. Paying a balance of debt of £86 7s. 1d. leaves now to the credit of the Society £57 9s. 7d. It must be a matter of congratulation to all connected with this Society that it is out of debt, and that it will be able to still further aid the development of horticulture in the north. The Society will hold its spring show on April 23rd and 24th, 1884, and the summer show on the 23rd, 24th, and 25th of July. The President this year is H. G. Mayton, Esq., West Denton, and the Vice-president the Mayor of Newcastle.

— GARDENING APPOINTMENTS.—Mr. J. Clark, recently gardener to Lord A. E. Hill Trevor, Brynkinalt, Chirk, has been appointed gardener to J. F. Le Trove Bateman, Esq., Moor Park, Farnham, Surrey. Mr. Frederiek Burgess, lately foreman at Idsworth, Horndean, Hants, has been appointed gardener to W. Pink, Esq., Shrover Hall, Horndean, Hants. Mr. G. Grant has resigned his situation as gardener to J. B. Cooper, Esq., Horley Hall, Surrey, to take charge of the garden and grounds of the New County Asylum, Cane Hill, Surrey, and is succeeded at Horley Hall by Mr. Squibb, his late foreman. Mr. J. Mabin, late gardener to Sir J. Astley, Orleans Club, Twickenham, has been appointed gardener to Col. Carden, Stargrove, Newbury, Berks. Mr. James Lloyd, foreman at Ashton Court Gardens, Bristol, has been appointed gardener to Vincent Stucky, Esq., Hill House, Langport.

— SELDOM is KNIPHOFIA QUARTINIANA seen in such perfection as it is at present near the new rockery at Kew. This is the most distinct of all the Kniphofias, and even when out of flower the fine glaucous leaves are quite ornamental; they are from 1 to 2 feet long, and gradually tapering from the base to the point. The flower spike is from 2 to 3 feet high; and the individual flowers, which are about 1 inch long, are of a dull red before opening, changing when fully expanded to deep orange; the anthers are bright yellow, and protrude above the flower. In habit this much resembles one lately received from Natal, and which is said to be the finest of the genus. We believe a painting was made by Miss North during her recent visit to South Africa, and is included amongst the pictures now being added to the collection in the north gallery at Kew.

— THE Secretary of the INTERNATIONAL FORESTRY EXHIBITION has received the following letter from Her Majesty's Secretary of State for Foreign Affairs, which is highly gratifying to the promoters of what bids fair to be an undertaking of national importance, alike in its educational as in its commercial aspects:—"Foreign Office, October 27th, 1883. The attention of Her Majesty's Government has been directed to a project for an International Exhibition of Forestry to be held at Edinburgh in the summer of 1884, the organisers of which are desirous of securing the co-operation therein of such foreign countries as the matter may concern. There is reason to believe that the proposed Exhibition, for which the necessary funds have been guaranteed, will be influentially and ably supported. The object is one which, in the opinion of Her Majesty's Government, deserves every encouragement, scientific forestry having hitherto been much neglected in this country; and I have therefore to request that you will bring the Exhibition in question to the notice of the Government to which you are accredited, as being one in which their participation might be attended with advantage to both countries. I enclose for communication to the proper quarters copies of programmes and other documents connected with the proposed Exhibition, which have been supplied by the Committee.—I

am, with great truth, your most obedient humble servant, Signed (for Earl Granville), EDMOND FITZMAURICE."

— WRITING to the *London Daily News* in reference to KENTISH APPLES AND THE APPLETONS, Mr. Lewis Appleton says:—"In connection with the National Apple Congress, it has been justly stated that the county of Kent is the chief English contributor. Reaching back as far as the eleventh century, Kent has been famous for its Apple gardens and orchards. In 1066, the year that William of Normandy invaded, conquered, and was crowned King of England, several of his Royal followers settled in Kent, amongst whom was a lady of his court named Mahilia. This lady fixed her residence in the vicinity of a forest of Apple orchards, and in consequence she received the surname of Mahilia d'Appleton, or Mahilia of the Apple Orchards. From this Norman lady sprang the family of the Appletons, who for eight centuries have maintained their ground as an ancient family in Kent and the adjacent counties. In 1641 a member of this family, John Appleton, was one of the 'Puritan Fathers' who sailed in the 'Mayflower' for the American continent, and from him sprang the family of Appletons in the United States. Charles Sumner and the poet Longfellow intermarried into that family. The crest of the family became, at a very early date, a bough with leaves and Apples, and it still remains the crest of the family, of which I subscribe myself a humble descendant."

— A WRITER in the *American Gardener's Monthly* thus describes the GARDENS AT VICTORIA, VANCOUVER'S ISLAND:—"Though the mountain tops some fifty miles away are perpetually white with snow, except when the morning and evening sun lights them up in purple and gold, the air in the town is warm, though without sultriness, owing to the long day's sun (sixteen hours now) warming the sheltered spots where the high mountain ridges keep off the arctic winds. The people are fond of flowers, and almost every cottage was embowered in Vines, and seemed ready to break down with their load of blossoms. In my early life in England I have memories of whole buildings completely covered from roof to the ground with sweet Roses and gratefully scented Honeysuckles, but I have often found that early memories become magnified. The distance of time lends an enchantment to the early view. I had come to suspect that the Roses may not have been quite so strong, nor the Honeysuckles quite so sweet, as these early memories recorded them. But here they were even excelling these impressions and giving a new echo to the voices of youth. The tale was true. The wild English Honeysuckle, running up by the cottage door, rambling under the eaves to almost gable end, dropping in festoons between the windows, and only by the aid of art permitting a glimpse of the within, and giving out thousands—yes, thousands of bunches of their deliciously scented purple and white and yellow flowers. And the Roses, and the Pyracantha, and the evergreen Ivy, and scores of other plants—here may they be seen climbing in wonderful luxuriance, or making bushes, in some cases nearly as large as the abitations they adorned.

— "It is wonderful how the Roses do here. Even the standard or tree Rose is grown to an enormous extent, and make the same beautiful ornaments in yards that they make in the Old World. And the indigenous Rose—*Rosa cinnamomea* or Cinnamon Rose—grows in a state which I may almost call grandeur. I have it growing in my Germantown garden, but about 3 feet is all the height it cares to grow for me. Here you may see bushes—nay, masses—scores of feet in diameter, 10 feet or more high, and bearing thousands of their remarkably sweet rosy flowers, giving a fragrance to the air for long distances away. In many instances the Sweet Briar and Eglantine of the Old World had become naturalised, and had got into the fraternal embraces of their native brother; but these also were growing with equal luxuriance, showing that it is the climate which does it all."

GRAPES AT CHISWICK.

ALL who had not the opportunity of seeing the great show of Apples recently held at Chiswick certainly lost a rare treat. I availed myself of the opportunity to visit the show, and did so for a threefold purpose. First, to see the large collections of Apples; second, to see Chiswick; third, to see the Grape conservatory. The last, but not least, was a sight worth seeing. This may be termed the school for Grape-growing, for here no doubt Mr. Barron has made it the base of operations in compiling his treatise on the cultivation of the Grape Vine.

This is a very able and masterly work, which I can strongly recommend to all interested in Grape-growing. The Grapes in this huge vinery gave evidence of the correct treatment they had received, and fully detailed by Mr. Barron in his treatise. We were particularly struck

with the condition of Gros Guillaume, which seemed to be as free and regular as the Black Hamburg. On our leaving the large conservatory we passed a long narrow vinery with span roof; this was full of ripe Grapes, fine developed berries, and as black as sloe. They appeared to us to be Gros Colman. Of black Grapes this variety appears to be the leading article in Covent Garden Market.—A. O. W.

EXHIBITING CHRYSANTHEMUMS.

Now that the critical time has arrived for watching exhibition flowers a few hints may be useful to some of your subscribers, among whom may be many amateurs. Earwigs must be closely sought for, as one of these in a flower often spoils it in a night. The florets must also be kept in their place as they are produced. Sometimes they come twisted or curled, hence

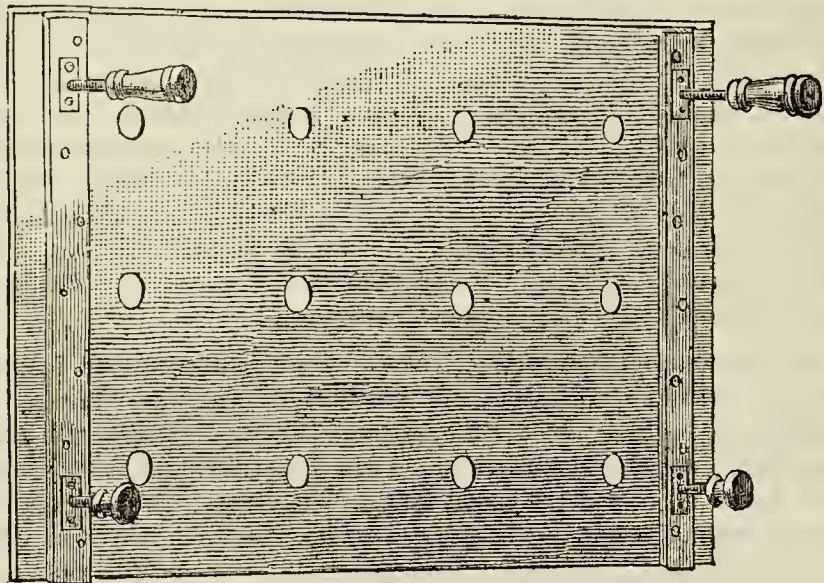


Fig. 74.—Board for Chrysanthemums, under side.

need attention with the tweezers, and occasionally one or two may require removing, yet the less taken from an incurved flower the better.

Collars will be required for rather loose flowers of the Queen tribe, and these should be placed on in time to keep the bloom solid. Circular pieces of cardboard are the best for this purpose with a small piece taken out of the centre, and a straight cut from the centre to the outer extremity of card, which will enable it to be placed very easily round the stem of the flower.

A few hints may be useful to young beginners at the forthcoming shows with regard to boards for exhibiting. In staging forty-eight blooms it is the most convenient to have two boards made for twenty-four flowers, which should be 24 by 18 inches; three-quarter-inch deal answers admirably painted a rather light green. The legs should be made to screw in and out of battens at the back and front, and should be of the right length for raising the board 6 inches at the back and 3 inches in front. The engraving (fig. 74) represents the underneath side of a board. Tubes can be made by any tinman, and must, of course, be a little shorter than the legs of the board.

Cups (fig. 75) in three sizes are required; the largest for the back row may be 3 inches long, for the middle a little more than 2½ inches, and for the front row a trifle shorter. These cups may be of wood and turned in a lathe, or may be purchased in tin from such florists as Mr. Cannell.

The blooms also require to be fixed firmly in their places by wedging the stems with small pieces of soft wood or cork, or, as is often used, a piece of the stem taken off the bloom stalk, as that is always at hand. This must be done from the bottom of the cup, as shown in fig. 76.

When flowers are inclined to come with short centre florets, placing the blooms in a dark cupboard or in the exhibiting box will often draw them up in the centre, and in some cases improve the colour in light varieties.

Larger boards are necessary for Japanese flowers, as these are far more spreading; higher cups also are necessary. Every grower should have a pair of tweezers, but beginners must be careful in using them, as the blooms are easily spoiled. The quills and short petals are all that should be removed, and many flowers need no dressing at all. Be sure also to shade from bright sun, as this reflexes the incurved flowers sooner than anything. Also too much heat without air will have the same effect.—GROWER AND EXHIBITOR.

[The above notes, by a very experienced cultivator, will be useful to those who have not seen Chrysanthemum blooms prepared for the stands. Boards and boxes (fig. 77) for containing them, tier above tier, are made of a superior order, and can be had ready for use. Such are represented in the figure we are enabled to submit by favour of Messrs. Cannell and Sons of Swanley. Our artist has represented one of the cups with such fidelity as to show a part of the stem, as it has been broken accidentally; this part, as will be apparent, is for inserting in the tube.]

PELARGONIUMS AND GERANIUMS.—The botanical differences between these are clear and distinct, and there is none of the confusion that exists amongst so-called Violas and Pansies. The Pelargonium has a five-

parted irregular corolla, and the upper segment of the calyx on the outer covering ending in a nectariferous tube running down the peduncle, while the Geranium being a regular flower—that is, the petals being all alike, and having no nectariferous tubes. The Pelargoniums I think are all from the Cape of Good Hope, and are not hardy; while the Geranium is perfectly hardy, and at least a dozen species natives of Britain, annuals and perennials, while exotic species are amongst our finest hardy herbaceous plants.—JAMES PERCIVAL.

WORK AMONG APPLE TREES.

As the time for planting Apples is at hand I send a few notes, the result of my experience with Apples on a light but rich soil, in which vegetables of the Cabbage tribe, Lettuces, and French Beans make wonderful growth, but in which Carrots always fail, and it is not suitable for most other root crops. A peculiarity with Apple trees is, that all varieties canker in the wood to some degree; trees on the Paradise stock being so much more subject to canker than those on the Crab, that in the case of Blenheim Pippin, which cankers very badly on the Crab, has died out entirely budded on the Paradise stock. Wellington (Dumelow's Seedling) again, which only cankers very slightly on the Crab stock, does so to a great extent on the Paradise stock. Another result of my experience is to plant maiden trees only. In order to obtain a number of bearing trees of a few good and reliable varieties, we a few years ago purchased a number of 2s. 6d. trees, but the only kind of these that has at all done well has been Stirling Castle; others will be burned this autumn, and their places taken by maidens prepared in the garden. Maidens planted two and three years have borne larger crops and handsomer fruit than prepared trees planted seven years ago.

Our work amongst Apples this autumn includes the lifting of a large number of maidens planted two years ago, and of older trees that were lifted two years ago. We have also a large number of home-budded plants to transfer from the rows in which they were budded, and to place in fruiting rows. If we had a command of turf, each of these home-prepared maidens would have its roots placed between two layers of turf, in which the trees would form a good foundation. A few of the more particular sorts will be so treated, but not all. Some that were two years ago planted in a mixture of decayed vegetable refuse have done so well that the others will be planted in the same manner. The older trees are lifted with a ball of soil and at once replanted. Some decayed refuse will be placed round and over the roots of these; and not to be forgotten is a mulching of horse-droppings given to each tree. Each tree is also supported by a stake. Fresh-planted trees are not pruned, but such buds as are not wanted are rubbed off in spring, and the foundation of a plant formed with those left.

As to work among older trees, so long as the trees grow well and bear

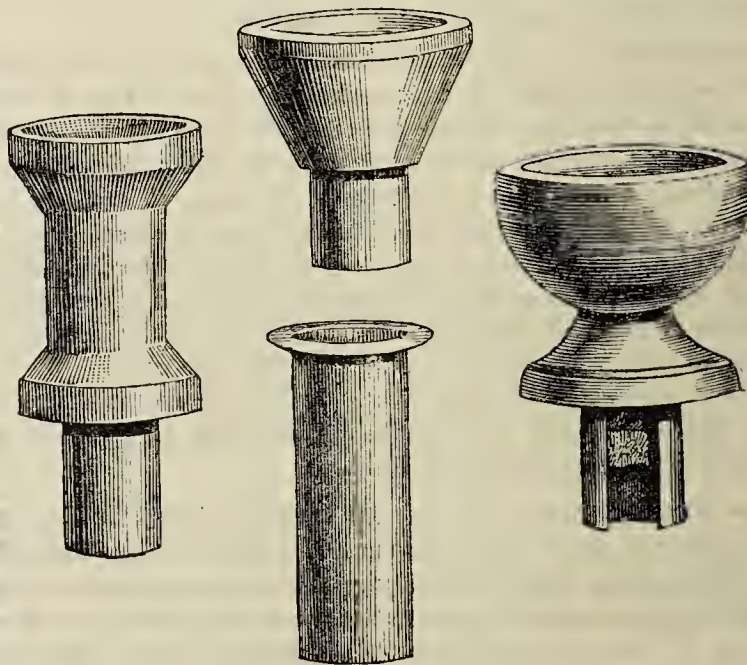


Fig. 75.—Tube and Cups for Chrysanthemums.

freely I do not know that it is wise to disturb the trees. Our plan has been to leave yearly a large amount of young well-ripened wood, and to cut out any cankered or bare branches. Four years ago a number of old trees, free-bearing sorts, were lifted and replanted in another part of the garden. Though the roots with them were destitute of fibres, all except one have grown, and this year the others have borne heavy crops of fruit. It is, doubtful, however, if it would not be a better plan to replant with healthy young trees which produce much better fruit than can be obtained from old trees.

As to the varieties to grow, there is no doubt that those which do well in one locality do not succeed in others. As instances I may say that such generally good sorts as Blenheim Pippin, Cellini, and Hawthornden do not succeed here. The first cankers in the wood, the second is small in the fruit which cracks badly, and the last simply stands still without making any progress from year to year. My plan is to increase the number of trees of really good varieties, so that those which will be grown

after a few years, though limited as to number, will be sure to bear even in bad seasons, and thus secure a supply of fruit when it is most wanted.—B.

SINGLE ROSES.

I MUST begin by saying I am not by any means a great admirer of single Dahlias, about which just now there seems to be a craze, but as I



Fig. 76.—Fixing flower in cup.

love every flower by all means let them be exhibited. However, I fully agree with "A. C." (page 354), as to the propriety of classes at the National and other great shows for single Roses. Before, however, we do have such classes, it would be wise to lay down some guide as to the properties of the single Rose. I have seen single Dahlias with from eight to ten petals. Surely this must be a mistake. Is not eight the legitimate number? It seems to me that in single flowers with large petals the number of petals should be strictly limited. In your issue of October 18th are engravings of two single Dahlias—Lucy Ireland, with eight petals, and Fairy Pet with, well, it is difficult to say, but I should fancy at least twelve to sixteen. Moreover, in this variety, if I may so put it, the row of petals seems to be double. If this multiplication of petals continues it will be very difficult to say what constitutes a single Dahlia. I cannot help thinking eight the legitimate number, but I should be glad if the voice of authority spoke on this matter. As a boy I well remember the old single Dahlia, which, as I imagined, by selection was converted into the show Dahlia of the present day; perhaps, however, I am wrong in this.

As regards a single Rose, however, I imagine the proper number of petals is five, but if there is a looseness of regulation as regards the Dahlia, why not for the Rose? I apprehend that one great point in judging the single bloom in flowers professing to be round must be its rotundity, with as little of the stellate character as possible. Of course if more than five petals are allowed for the Rose, and more than six or eight for the Dahlia, it is easy to obtain the circular outline by number of petals, which would obviate the otherwise stellate appearance. This, it seems to me, should not be permitted; hence arises the necessity in making these single flowers—show flowers—of adopting some hard-and-fast line as to the number of petals. A Pansy with six or eight petals would immediately be out of the running. Why not a single Dahlia exceeding a certain number of petals?

It must be allowed that the single Roses would be very beautiful. The round cupped form, the beauty, arrangement, and number of the stamens, and the obtaining of some colours, as in the orange-and-yellow, at present unattained in exhibition varieties, would all add to the fascinations of a Rose exhibition, and I hope "A. C.'s" appeal to our good friend "D., Deal," may not be lost. But before the ball is opened let the subject be well ventilated, and thanking "A. C." for his kind notice of the Rose election, I send these thoughts for consideration on the subject.—JOSEPH HINTON.

MADAME FALCOT ROSE.—Let me recommend this beautiful and very hardy Tea Rose. It has rich, clean, dark foliage, is a certain and

abundant bloomer, exquisite in bud-colour, a rich apricot, and very lasting. Few surpass this old friend. Madame Falcot never sticks or damages, neither, I think, does Marie Van Houtte. Many of the close Roses, as Madame Bravy, President Willermoz, do.—A. M. B.

AUTUMN-BEARING RASPBERRIES.

THESE are not so extensively cultivated as they deserve to be, seeing that they come into bearing just at the time the supply of kindred fruits is being exhausted, and continue to yield good supplies until stopped by the frost, a fact which considerably enhances their value. This year the crop is, as it has been for several years past, very good, the canes being until late in October studded with fruit. Belle de Fontenay is the variety we principally grow, and is the best autumn-bearing Raspberry that I am acquainted with. It is a robust grower and prolific bearer of large dark red fruit, having a pleasant flavour.

Raspberries, like everything else worthy of being cultivated, pay well for liberal treatment. Therefore a piece of ground in a warm situation should at once be deeply trenched and liberally manured. In this plant the canes in rows 4 feet apart and 6 or 7 inches asunder in the row. And the stronger the canes are when planted the better will be the results the following year; for although the canes now planted will have to be cut down to within an inch or two of the ground in February or March next, the young canes subsequently proceeding from these stools, and which will produce fruit during the autumn, will, in proportion to the strength of the latter, be more or less strong. When planted the canes should be tied either to a couple of wires strained to light oak posts driven firmly into the ground 18 or 20 feet from each other, or strings fastened to sticks, the former being the better and neater way of training; and then have a mulching 3 or 4 inches thick of half-decayed dung placed on between the rows.

It will be seen by the foregoing remarks that the autumn-bearing Raspberries, unlike the summer-bearing varieties, bear fruit on the current year's shoots, those of the preceding year's growth being, as already stated, cut away in early spring; therefore, all superfluous growths in the way of suckers should be kept cut away during the summer months, so as to concentrate the flow of sap to the development and consolidation of fruiting canes, otherwise the result, although all other cultural details may have been properly attended to, will not be satisfactory. In conclusion I may add that the size and quantity of the fruit will be greatly increased by giving the canes half a dozen good soakings of liquid manure during the interval from the middle of August to the middle or end of September; indeed, in the absence of



Fig. 77.—Chrysanthemum stand and box.

rain at that time such waterings will be absolutely necessary to assist the fruit attaining a presentable size.—H. W. WARD.

THE PHYLLOXERA.

A KENTISH correspondent having forwarded to us some Vine roots which we examined and found infested with the phylloxera, has in reply to our notification of the fact sent us the following letter with additional specimens of Vine roots.

"I send you another piece of root from the same Vine, and you will find it even more thickly covered with insects than the former; also a piece of lateral shoot and leaf to show you the vigour of the Vine, which is a Black Hamburg. The introduction of the pest here is a mystery,

unless it was introduced with the Vines five years ago; no Vines having been planted since then with the exception of one this year, which is quite clean so far. If it was introduced with the Vines, how come they to be so vigorous now? This Hamburg Vine, one of seven, the others being Muscats, has always given good crops of well-finished Grapes; this year it and the Muscats are more vigorous than ever. Is it possible to introduce phylloxera with imported Lilacs?

"The infested Vines have already been consigned to the fire. The border (which is an inside one and completely isolated from the others) is being wheeled out. The glass, woodwork, and wires will be washed with petroleum, the brickwork washed with hot lime; the drainage will be drenched with a solution of soap and petroleum, and dusted with hot lime afterwards, and then we shall plant again. But where are Vines free from phylloxera to be had?—R. GRAY."

[The portion of cane sent is very good, and the leaf large and of a deep green colour indicative of perfect health. Both portions are clean. The insects on the root are very small, and have apparently not been numerous until recently, and as yet not made any impression on the very healthy Vines. Next year the Vines must inevitably have changed for the worse, and they have been wisely destroyed. We fear this Vine scourge is more prevalent than is generally supposed, and its spread has not been limited by keeping its presence a secret, as if it were a disgrace to a gardener to have it on the Vines in his charge. It is no more a disgrace to him than it is to have the Potato disease in his crop in the garden, and not half so much as having thrips and red spider on the occupants of a vinery, as these are preventible. We are quite unable to answer the question relative to the probability of the phylloxera being introduced with Lilacs, but we do not think it very likely that it would live on the roots of those shrubs. Can any of our correspondents give information on this point? As to the inquiry of "where are Vines free from phylloxera to be had?" we assume it was not expected to elicit an answer, but rather intended to convey the writer's opinion of the general and wide-spread existence of the pest in this country.]

UVULARIAS.

RARELY do we see any record of the species of *Uvularia* cultivated in gardens, and we may imagine under the circumstances that it is a genus of plants either little cared for or not sufficiently well known to cause their cultivation to be more extended. By some they may be looked upon as plants more curious than beautiful; but singular and beautiful they are beyond doubt, and they only need to be well grown and disposed in suitable nooks in the garden to gain the high appreciation they so well deserve. Plants are often wanted for a shady position, or to cover spots where most plants refuse to flourish or even grow. The *Uvularias* are well adapted for such work, and they would look well if associated with hardy Ferns so employed, and at the same time afford a display of bloom such as few other plants would do under similar conditions. In the case of a venerable old tree growing on a lawn nothing could be more advantageously employed to enliven its immediate surrounding than the members of this genus, along with several species of *Gaultheria*, Ferns, and other shade-loving plants. When so employed a top-dressing of decayed leaves would prove highly beneficial both to the *Uvularias* and the rest of the plants.

So far I have simply stated how the *Uvularias* may be employed in occupying spots where the usual kinds of herbaceous plants would prove a failure. They are worthy of being represented amongst the choicest collections of hardy plants. They are of inestimable value for planting in dells, either with rock plants, or in moist positions with hardy Ferns and bog plants, with which they harmonise admirably. A noble form of Solomon's Seal on a moist rock, and a *Uvularia* on another, would indeed produce a most pleasing feature.

All the species enjoy a light and moist soil, consisting mainly of decomposed leaves, peat, and sand. Under such treatment they thrive surprisingly. In general aspect they approach nearer to the Solomon's Seals than to any plant I am acquainted with; but the flowers, which are invariably pendent, vary from 1 to 2 inches in length, according to the species producing them. The underground stems are very similar to those of the Lily of the Valley and as densely produced. The species under cultivation in this country are few, and are the North American representatives of the genus. *U. grandiflora* is probably the most noble of all. It grows a foot high, and its distant perfoliate leaves are 3 or more inches in length by about 1 inch in diameter. Each stem, which is indeed a perfect plant, bears about three flowers, which are produced singly from the axils of the leaves on long, gracefully drooping peduncles, which are furnished with a leaf identical in outline with those of the main stem but smaller. The flowers of this species are probably the most decided yellow of all. *U. perfoliata* is known from this by its almost truly ovate leaves, which are $1\frac{1}{2}$ inch or more

across, and rather smaller flowers. *U. puberula* is somewhat dwarfer, with sessile, not stem-clasping leaves, and pale yellow flowers. *U. sessilifolia* is the least of all, attaining a height of 6 inches, with leaves 2 inches long by half an inch in diameter; its solitary buff-coloured flower with inconspicuous green streaks pendent and terminating the main stem. All the species have the flower segments free to the base and slightly spreading.

Their flowering season is from the end of April or early in May to June. Dividing and replanting is best attended to in autumn, as they are not absolutely at rest during the winter months any more than are the Snowdrop and Crocus.—T. ENTWISTLE, *Wood Lawn, Didsbury.*

LEAF SOIL.

BY parcel post I send you a sample of leaf soil made by us from last year's leaves, ready for use in September last, or nine months after being gathered. We proceed very much on Nature's plan, and if you think the sample a near approach to the leaf soil of the Belgians, perhaps the following note may be of interest to those of your readers who have not a large extent of woods to gather leaf soil as manufactured by Nature.

In an out-of-the-way corner of a wood near the garden we have a space cleared of all underwood, and levelled so that surface water does not collect on it. Here we place all the clean leaves as they are collected, leaving them barrowload deep only, so that they do not heat to any extent. During the early months of the year a good quantity of these is used for hotbeds, forcing Rhubarb, &c. About March the remainder of the leaves is spread out about a foot deep, and then thrown into narrow ridges by running a fork along the bottom and packing the leaves up on each side. In a few weeks the birds generally pretty near level the ridges down, when the fork is run along the middle of the old ridges, piling them up as before. This is repeated as often as is necessary till midsummer. The object to be aimed at is to get them into a half-decayed state without allowing them to ferment or become saturated with wet.

After midsummer we take the first opportunity of dry weather to shake the whole of it over and remove the shortest to a dry shed, and by September it is fit for use after being passed through a half-inch sieve. The remainder is again thrown into ridges, and is placed under cover before the ground is wanted for leaves of the current year. We make no selection of leaves, but I may say that Oak predominates. I have practised this mode of making leaf soil with more or less success, according to the season and amount of care taken with it, for several years, and I think it was from reading something in your pages which first led me to do so. On a clay bottom it is rather difficult to make a good sample in a wet season, on account of the moisture absorbed. On a gravelly bottom it is much easier. The difficulty of moisture can be overcome where the use of an open shed can be spared.—R. INGLIS.

[This sample sent is similar in character to the Belgian leaf soil, but is not equal to it in quality.]

GARDENERS' BENEFIT SOCIETIES.

I AM very glad to see the article on page 349 of our Journal on the United Horticultural Benefit Society, and I have no doubt hundreds will derive benefit from it, as very little has been heard about this Society previously. I should think all gardeners who are not members of a benefit society will flock to its colours at once, and then, as unity gives strength, its funds will probably be in an even more satisfactory condition than they are at present.

I think we ought to patronise a *bonâ fide* gardeners' society in preference to a mixed one, for two reasons. First, because we are helping our brethren in the profession, and we are told by the highest authority to show charity at home first.

Secondly, looking at it as a business matter it is far the best, because gardeners are not so liable to require aid in this way as mechanics and others, as their occupation is far more healthy, and also their social life and morals are considerably better, so that it is not fair for them to pay their hard-earned wages into a mixed club on the same scale as the other members. I am told this is recognised by some of the life insurance companies, and that they insure a gardener's life at a much lower premium than mechanics and others. Another instance of this is the small cost per member for sick pay last year in the Gardeners' United Provident—only $4\frac{3}{4}\%$ for the year; whereas I could mention a mixed club—a branch of a very extensive brotherhood—that paid away more last quarter for sickness, &c., than their receipts amounted to for the same period.

There is one thing connected with our other Society, the Royal Benevolent, which I cannot understand. Perhaps the Secretary will kindly enlighten me through your pages, as I have no doubt others would like to know a little about it.

A friend of mine paid ten guineas to this Society, thinking thereby to provide for a rainy day. By-and-by he became seventy years of age and unable to pursue his calling any longer. On applying to be placed on the pension list he says he was told he had paid the ten guineas as a donation, and consequently was not eligible for a pension. I mention this for the benefit of others who may be thinking of joining in this

way, under the impression that a single payment of ten guineas is equivalent to a yearly subscription. Such was my opinion, but since the above case occurred I feel rather doubtful on the subject, especially since I have carefully read the rules again, and can find nothing there, as far as my judgment goes, which would enable my friend to claim his pension. I also notice all the so-called life subscriptions are entered as donations.—W. H. DIVERS, *Burghley Gardens, Stamford.*

YOUR correspondent, "A Sussex Gardener," seems to have placed his hand on the one blot in the otherwise excellent system of management of the Society to which he refers—viz., its failure to let the great body of gardeners know of its existence. Peculiar circumstances have brought it to the front. Let it step into the position rightly assigned to it as the real gardeners' society, and not hide its light under a bushel, but give a wide publicity to its worthy aims; for as we have been well told, advertising is to business what steam is to machinery, the grand propelling power. In this connection will you kindly allow me through the medium of your columns to venture to offer a suggestion to the Executive? It is this—that your excellent article on the Gardeners' Society, which appeared a fortnight ago, be reprinted, and a copy sent to every gardener in the United Kingdom, with a circular from the Committee drawing attention to it. The materials for carrying this into effect are contained in the useful and indispensable "Horticultural Directory." Unless I am greatly mistaken the result of this would be a considerable accession to the muster roll of this deserving Society. Events seem to be conspiring for the benefit of the "United," and with the advent of a new year it seems a fitting time to turn over a new leaf and take a new departure.—J. B.

SHRUBBY CALCEOLARIAS.

HAVING seen a reference to the "uncertain yellow Calceolaria," and as I think nothing is better as a yellow bedding plant when it does well, I submit my experience to your readers. I took charge of a foreman's place some time since, and was told by the man in charge of the flower garden that Calceolarias would not grow there, so I took extra trouble to make them. I struck the cuttings in an ordinary box on a spent hotbed. The box was shallow, and when the soil was in 6 inches space was left for the cuttings. The soil consisted of one-half sifted red sand or gravel and half soil from a Cucumber frame, covered with half an inch of the sand. The cuttings were inserted thickly early in October, and had a good watering; they were syringed lightly and shaded on bright days while necessary, and had plenty of air through the winter. As soon as growth commenced in February I pinched out the points, and the first week in March the young Calceolarias were planted in the garden, the soil being well dressed with the manure of an old Mushroom bed, and protection afforded. The plants were watered sufficiently, and all flowering shoots pinched out. Although in consequence of the spring bedding it was June when they were bedded out, they came up with balls as large as a man's head, and so never experienced any check. They were soon masses of yellow, and remained so the whole summer in spite of a shallow sandy soil, and they were never watered except once when they were planted. I was in that situation over three years, and they did equally well each year. I entered on my present charge in June, and found nearly all the Calceolarias dead. I was told they "wunt du here." On inquiry I found they had stood in the cutting-pit till bedding time. Whether I shall succeed in making them "du" remains to be proved. I shall try, the soil being heavy. I shall dig gritty matter in the beds, and will in due time record the result. I may mention that I protect the plants with mats till the first or second week in May.—A. L. G.

GARDENS ABOUT BRISTOL.

(Continued from page 361.)

SNEYD PARK.

THE gardens attached to the picturesque residence of J. Derham, Esq., are more remarkable for their completeness than for their extent. No expense appears to have been spared either in the construction of the mansion, the terraces, pleasure grounds, or the fruit and plant houses. The same remarks, perhaps, apply to innumerable other places, but it cannot be said of very many such that everything has been subsequently maintained in such good order as at Sneyd Park, this being alike creditable to the owner as well as the gardener, Mr. W. Rye. A small conservatory adjoins the residence, and this at the time of my visit was gay with the usual autumn occupants of such buildings. The flower beds would look better if grouped farther away from the front of the house, and if fewer in number and much larger might be much more effectively planted. As it is, the best is done with them. There are great numbers of Coniferæ and shrubs in the pleasure grounds, but not having been many years planted they are not of noteworthy size.

The kitchen garden and plant and fruit houses are situated at the bottom of the pleasure grounds. The principal range of houses is about 200 feet in length, and presents a particular noble appearance from whatever quarter viewed. Appearance, however, was too much studied by the architect, and the range might well have been less expensive and better adapted for the various purposes to which it is applied. The central house has a high-domed roof, and if, instead of an ugly fountain, the centre had been planted with a few stately Palms, the effect must

have been grand and striking. There are a considerable number of well-grown flowering and other plants in this house, and many still better in the plant houses to the right and left of it, one being devoted to tropical plants, the other to plants requiring a greenhouse temperature. In the former are several grand well-coloured specimen Crotons, such as *C. undulatus*, *C. Weismannii*, *C. irregularis*, *C. majesticus*, and *C. variegatus*, and there are besides very fine specimens of *Cycas revoluta* and *Dæmonorops palembanicus*, *Dracenas* in variety, the curiously flowered *Ceropegia Sandersoniana*, *Marantas*, &c. In other compartments *Gardenias*, *Dipladenias*, *Allamandas*, *Begonias*, *Ferns* in great variety, *Pancratiums*, *Eucharises*, *Orchids* in variety, *Poinsettias*, and many other heat-loving plants are all to be seen in excellent condition and in goodly quantities. In one of the cool plant houses Fisher Holmes, fine variety of *Lapageria*, is extensively grown, and several *Ericas*, *Genetyllis*, *Azaleas*, and other hardwooded plants are well represented. *Bouvardias* are particularly well grown, and most serviceable they must prove. During the summer and early autumn months they are planted in cool pits, and were recently potted up for their long flowering period. *Cinerarias*, *Solanums*, and *Primulas* are also well grown. Crowding is avoided in all the plant houses, and cleanliness rules everywhere.

In addition to being a good plant-grower Mr. Rye is also noted for the excellence of the fruit grown under his management. The Grape Vines generally are in a very satisfactory condition, the Black Hamburgs being especially well finished. The crop was fairly heavy, and a rod of Black Alicante—the result of inarching on the Hamburg—was also carrying a heavy crop of well-finished bunches. This variety under cool treatment, however, is generally inferior in quality, and well repays for a little extra fire heat. In another house the Vines of Muscat of Alexandria, Gros Colman, Syrian, and Madresfield Court were all well cropped with fair-sized bunches, and the foliage in every case was clean and good. The Peach house standing in the upper part of the kitchen garden is fully 100 feet in length and 30 feet wide, with a high circular span roof, both this and the above-mentioned range of houses being built with iron and glazed without putty. The centre bed is filled with two rows of standard Peach and Nectarine trees, all of which are in excellent condition, and annually perfect heavy crops of fine fruit. Unfortunately the fruits as a rule are of poor colour and somewhat sour. The fronts and ends are all covered with trained trees, and these again fruit heavily, while each of the circular iron girders are utilised for Rose-growing. The varieties preferred are Adam, Safrano, Devoniensis, Celine Forestier, and Gloire de Dijon, and all are budded on the Briar. They are grown on the single-rod system—that is to say, the leading growth was gradually taken up, and all side shoots have since been annually spurred in at the winter pruning. In this manner large quantities of superior blooms are cut during the spring, summer, and autumn months. A wing has recently been added to this fine house, and here were growing remarkably fine crops of Tomatoes, the favourite varieties being Hathaway's Excelsior and Vick's Criterion. I ought, perhaps, to add that the varieties of Peaches preferred are Rivers' Early York, Early Grosse Mignonne, Grosse Mignonne, Royal George, Noblesse, and Barrington; and Nectarines Lord Napier, Pitmaston Orange, Pine Apple, and Elruge.

The Pear trees trained to the walls are exceptionally healthy and fruitful, and the same may be said of the large number of closely planted pyramidal Pear and Apple trees that fringe the whole of the walks in the kitchen garden. Neither the position nor the soil can be considered particularly favourable to the production of such crops of fine clear-skinned fruits, and the success is due to the frequent liftings and root-prunings the trees receive. About one-third of the pyramids are completely lifted and turned half round every season, each tree in this manner having its turn every third or fourth year. By season in this case I mean any favourable time from November to March. By no other means could exuberant growth be checked and the trees prevented from becoming unduly crowded; and as the trees are thus prevented forming large rambling roots, but on the contrary have abundance of close growing fibres, no great check is given, and it is very rarely the trees fail to bloom abundantly and strongly. From these pyramidal trees many dishes of fruit have been exhibited at the Bristol and Bath Shows, and these have been awarded first prizes both in large and small classes. The Pears most preferred as being good bearers and superior in quality are Beurré d'Amanlis, Souvenir du Congrès, Beurre de l'Assomption, a less sure bearer than the preceding variety, Marie Louise d'Uccle, Beurré Superfin, Duchesse d'Angoulême, Beurré Hardy, this bearing every other year, Beurré Diel, always good, Easter Beurré, Marie Louise, Louise Bonne of Jersey, Marie Louise, Nouvelle, Bergamotte Esperen, Conseiller de la Cour, Tyson, and Jersey Gratioli. In addition to the pyramids, Apples are also trained over a long archway, and for this purpose Cox's Pomona would appear particularly well adapted. Other profitable sorts, especially as pyramids, are Cox's Orange Pippin, Mother Apple, Ribston Pippin, Golden Pippin, Braddick's Nonpareil, Court of Wick, Golden Reinette, Irish Peach, Pearson's Plate, Sam Young, Sturmer Pippin, and Reinette de Canada. In concluding these brief notes it is a pleasure to add that Mr. Derham takes great interest in every department of his garden, and that in Mr. Rye he has a painstaking gardener in every way equal to the place.—W. IGGULDEN.

SINGLE FLOWERS.

AMONG the first communications you honoured me by publishing was one advocating the cultivation of single flowers, and directing attention to the fact that not a few natives are possessed of a beauty and an elegance

well entitling them to a higher place in the esteem of flower lovers. My communication was subjected to much criticism. But, in language now classical and much hackneyed, "many things have happened since then," and one of the most marked changes in public taste then just beginning to appear has become fully developed. I mean the now fashionable taste for single flowers. Having once been in the fashion, and thereby drawn the attention of all classes, it is not likely that single flowers will again become unduly despised, or double ones unduly exalted, though at present single ones are the craze. The word "craze" is written advisedly, for with many it is not love of flowers, but love of fashion. The great tall-growing, huge-flowering Sunflowers have a decidedly strong claim on those who have a garden; and they are handsome, bold, and beautiful when properly employed. But as breast bouquets —!

The great beauty of most single flowers is their elegance or their neatness. There seems a deep-rooted idea that it is in their size. Just get a flower larger than usual and the producer is delighted beyond measure. His idea is that nothing can be too lank, and as for coarseness, nothing is too coarse for an unrefined taste. Happily, very happily, a strong opinion exists that we have been having our things too large, and a decided flow of public opinion is setting in in favour of good things no matter what their size may be. Indeed it may be doubted if there is not an inclination towards favouring things because of their smallness.

But it depends on what it is. If it is a *Dendrobium* or an *Odontoglossum*, then the larger the better; if a *Dahlia*, the smaller. Now the taste that prefers an *Odontoglossum* simply because it is a little larger than some other equally beautiful in every other respect may be questioned. Taste with such persons is a mathematical matter. However, we have no fault to find with those who prefer their beauty on a large scale, only we confess to a liking for having many things not larger than now but smaller. If Sunflowers are to be used for buttonholes and breast bouquets (which they will not a couple of years hence) instead of the great glaring disks so often employed, would not neat little Daisy-like flowers like *Marguerites* or some of the smaller *Dahlia*s be more proper?

Speaking of *Dahlia*s, it may be doubted if there are many more shades producible that are worth striving for—unless the blue can be evolved. What seems the most desirable points to secure are dwarfness, floriferousness, and, above all, flowers that will not so readily drop their ray florets. There remains something to be done in this direction.

It is a wonder that no single *Chrysanthemums* are forthcoming. They would be certain to take at the present juncture. An Ox-eye Daisy or a Corn Marigold at Christmas, if presented in its thousands, ought to be enough to make a little fortune to its producer. *Marguerites* silver and gold, ought to be in much demand.—S. H.

NEW CHRYSANTHEMUMS AT CAMBERWELL.

DURING several years Mr. Davis, 66, Warner Road, Camberwell, has made a speciality of *Chrysanthemums*, and has made a point of procuring all the principal new varieties annually raised on the continent to compare with the older and better known favourites. His collection has steadily increased, notwithstanding that the proved useless varieties are discarded to make room for the more meritorious, and it now comprises over 900 varieties, including many old curiosities and all the finest of the additions obtained within recent years. Considerable attention has also been paid to raising seedlings, and one large bed of Pompons contains several of great promise, while a series of "single varieties" bear such popular names as *Oscar Wilde*, *Æsthetic*, *Iolanthe*, and others of a similar character. The one last named is very promising, and without doubt the whole group will be welcome in a decorative point of view. This rapid extension of the collection has rendered the old business premises insufficient for the purpose, and ground has been procured that will allow much more scope for the cultivation of the plants in large quantities. Several houses there of moderate dimensions are already filled, but others will soon be required to contain the stock.

It need scarcely be said that the plants throughout are in admirable condition, and a large number of the blooms are fit for any exhibition stand, and, moreover, would require no "dressing" to prepare them for that place of honour. Mr. Davis rightly considers that numbers of varieties when thoroughly well grown do not need any manipulation, as the mere act of placing them in their cups brings the blooms into suitable form. This is especially notable in the case of the *Mrs. G. Rundle* family, which this season have proved remarkably good there, and with such handsome varieties as *Queen of England*, *Empress of India*, and *Alfred Salter*, with the golden types of the two former are simply magnificent. In several cases it is indeed doubtful if better examples will be staged this season. Some fine blooms of *Nil Desperandum* are also notable, particularly on plants that were cut down to within 6 inches of the soil in May last, the two shoots taken up from each plant bearing blooms of great size and substance, far superior to those on other plants not so stopped. This is a hint that is worth attention, as several other varieties appear to be advantageously treated in the same way. All the finest of the incurved varieties are grown, but novelties in this section are not numerous. One of the best is

Reine des Blanches, which, though scarcely up to exhibition standard, will be most valuable for decorative purposes, as it is extremely free, the blooms very large, pure white, with broad substantial florets. This will undoubtedly become a great favourite.

Madame Texier.—This was received as a sport from Fair Maid of Guernsey, which it resembles in habit and foliage; but the blooms are incurved, white tipped with purple, and likely to be an acquisition, though it has not yet been sufficiently proved.

Japanese varieties are similarly largely grown to the preceding, such old favourites as *Elaine* being in strong force. There have been indeed about 300 blooms of this open, and a large proportion of them are all that could be desired; substantial, full, and pure. *Thunberg* is also unusually fine, its grand golden blooms being very numerous. *James Salter* is similarly handsome, and in one case three plants in a large pot have had over sixty flowers, quite a display in themselves. *Comte de Germiny*, *L'Incomparable*, *M. Ardene*, and *M. Audiguier* are all in first-rate condition, especially the last, some blooms of which bid fair to rival Mr. Molyneux's grand exhibits last year. Of the novelties the following demand special note.

Rosca Superba.—Rosy purple, with reflexed florets; large, and of good colour.

Mary Major.—White, tinted rose, with strangely twisted florets; fine handsome flower.

Source d'Or.—One of last year's novelties. Of a rich bronze-amber hue, with fluted florets; of moderate size, but very free.

Mons. Pantheon.—This is also one of last year's varieties, and is regarded as an improvement upon *Bouquet Fait*. It is equally free, but with much larger, deeper, purplish lilac blooms.

Mons. Juan Cruz d'Equileor.—A handsome variety, with flat florets; rich maroon, gold on the under surface, which has a fine effect when a few florets are turned over.

Angèle.—A very distinct form of a lilac-purple tint, with flat twisted florets somewhat after the manner of *James Salter*, but forming a dense fall from which the narrow points of the florets protrude in a curious manner.

Souvenir d'Amsterdam.—Remarkable for the distinct shade of colouring, quite a violet-crimson; the florets are flat.

Simon Delaux.—Like all of the *Delaux* family this is very good, and reaches a great size, blooms having measured a foot in diameter. The colour is deep crimson with a yellowish shading.

L'Or du Rhin.—A sturdy variety, of free compact habit, and likely to be very useful for decorative purposes. The florets are rich yellow, fluted; the blooms are from 3 to 4 inches in diameter, and are produced in great numbers.

Pompons form an important feature both in old and new varieties, Mr. Davis having paid especial attention to them. Of the old form the pretty fringed *Marabout*, the neat bronzy yellow *Lizzie Holmes*, the lilac *Atila*, the yellow *La Vogue*, *Model of Perfection*, and *Madame Marthe*, are excellent, while several additions to the greys are noteworthy.

Purple Pompons.—A French variety with a good-sized full crimson-purple bloom, much like *Comte de Morny*, but the latter has flatter florets, apparently the only distinction, and that may not be a constant one.

M. Micou.—Bloom neat in form, bronzy red, with a little yellow.

Prinee of Orange.—Fine orange-yellow; an improvement on *Aurore Boreale*.

Golden Circle.—A beautiful free and early yellow Pompon, which is much like a sport Mr. Davis obtained some years ago from *St. Thais*, but which was then lost.

La Pureté.—A free-flowering white variety; blooms neat in form.

The *Anemone* type is well represented, many large blooms being observable of *Empress* and *Lady Marguerite*; but the most remarkable of all is a new Spanish variety.

Fabias di Maderanax.—This is lilac and white, tinted in its early stages with gold; but the great peculiarity is in the form, the centre florets being very narrow and twisted into a ball, while the lower ray florets are strongly reflexed, giving a curious and distinct appearance to the bloom.

The early-flowering varieties are now past their best, but good blossoms are still to be seen on that useful white, *Mrs. Cullingford*; the other good white varieties being *Madame Desgranges* and *La Vièrge*, the latter being preferred to *Sœur Melanie*, though as generally seen the last is much the better.

Some discussion took place last season in reference to *King of the Crimson*s. Mr. Davis has two varieties similar, but quite distinct, one under the above name and the other called *Crimson King*. The latter is of more straggling habit than the other, the blooms being weaker and of a crimson-maroon tint, the other being a reddish maroon much less bright. The larger variety is thought by Mr. Davis to be the older variety, but nothing certain is known respecting its history. The other he received from Liverpool through Mr. Molyneux. Both have evidently been known for a considerable time, but the present *King of Crimson*s is much finer than the other, and is a really handsome bloom for exhibition or general culture.—L. CASTLE.

PENLLERGARE, SWANSEA.

THIS fine old country seat is the residence of J. T. D. Llewelyn, Esq. It is situated five miles inland and northwards from the thriving town of Swansea, and there is no place in the neighbourhood more noted for the excellency of the garden and the beauties of its associations. Mr. Llewelyn is a real gardener himself, a gardener's friend, and a true promoter of horticulture. He is, too, one of the most popular gentlemen in Wales, as the substantial hand and help he constantly extends to every good work which has the slightest tendency to elevate or amuse the community has long gained for him the warmest esteem of the whole of the principality, and the interest he takes in horticulture is of no local order. To many outside Wales he is also well known, and there is

nothing connected with gardening too great or too small to command his attention. In considering these facts, and many more too numerous to mention, it would be expected that the attractions at Penllergare were of a highly interesting character, and they really are so, with every indication of increasing.

In leaving Swansea the surroundings are a constant repetition of mineral and manufacturing works, with innumerable small houses and no ornamental vegetation intervening; and although we cannot help admiring industries of the kind, it is quite a relief to leave them behind and gain the country beyond. The sides of the highway leading to Penllergare were beautifully studded with clusters of red and white Heather, and in passing through the lodge gates along the winding avenue, with its woodland slopes, lakes, and ravines, it can be seen at a glance that the present squire is not the only owner of Penllergare who has taken a delight in beautifying their home. The woods are so numerous and dense that a stranger can hardly tell the elevation of the ground, but in passing up the drive the ground slopes away to the right to a stream which forms several large lakes with waterfall outlets, and their margins are richly adorned with vegetation, whilst the ground near bears a happy aspect of half woodland, half pleasure ground, the large Coniferous and other choice trees being seen in great luxuriance, and the size, beauty, and numbers of the Rhododendrons are proverbial in the whole country side. No one interested in such subjects will be long in Wales without being asked if they have seen the Rhododendrons at Penllergare while in bloom; and the question is not a frivolous one, as the vast banks and bushes of these when in bloom must be attractive in the highest degree, and in my opinion the best place to secure a full view of them would be in a boat in the centre of some of the lakes, as from the edges of some of these the Rhododendron banks rise sharply up to the height of 90 feet or so and extend for more than 200 yards. The plants are mostly hybrids, and all healthy well-developed bushes. These banks are intercepted with walks, and in spring and early summer the scene here must surpass description. Some of the banks are close to the house, and from this substantial structure many fine trees and shrubs can be seen in all directions.

The flower garden occupies a large space on one side of the mansion, and on the other side there is another old-fashioned garden, chiefly filled with Carnations and Picotees. At the time of my visit the modern flower garden was highly attractive, as the well-arranged beds were in the height of their beauty. One large bed with a massive centre of *Lobelia fulgens* Queen Victoria, and edged with *Centaurea ragusina*, was most attractive and charming in its effect, and some large beds completely filled with China and Quilled Asters were certainly the finest masses of these favourite annuals I have seen for a long time. In a ribbon border were some large Sunflowers in the back, and further forward the old *Calceolaria amplexicaulis* was showing well. Altogether the arrangements in this part were admirably carried out. On the carriage entrance side of the house there is a portico which forms a good receptacle for pot plants in bloom, and, at the time I saw it, it was beautifully decorated with well-grown Zonal Pelargoniums, Vallotas, Tuberos Begonias, Lilliums, &c. Further round still than this there is a large conservatory, also attached to the house, and there Camellias are a great feature. They are mostly planted out in beds and growing very luxuriantly. The roof of this house is very attractively draped with Fuchsias, Roses, and Lapagerias.

Near to this conservatory is the old-fashioned flower garden, and before going further we glance into it. It is a snug little corner railed round and well protected with ornamental bushes, and it is here Mr. Llewelyn keeps all his show Auriculas, Pansies, Carnations, and flowers of this class. The collections are very large, containing all the newest and best varieties in cultivation, as well as many home-raised seedlings of great merit, and the whole are in first-rate condition. They are evidently well cared for, and they reflect great credit on Mr. Stafford the gardener Mr. Llewelyn has to attend exclusively to this department.

Crossing the road from here we enter another garden, which was the special resort of the late Mrs. Llewelyn, and is a very comfortable enjoyable spot. It was designed and formed by Mr. William Barron, the well-known South Wales landscape gardener of Sketty, Swansea, and is a masterly piece of work. It was made and planted in 1868, and the choice Coniferæ and Rhododendrons have progressed well since, as many of the Cupressus and other plants are 20 feet high. Rhododendrons fringe the boundaries, and must be glorious when in bloom. The grass here is in excellent order, and the beds contain many old-fashioned plants.

Some little distance from the house we come to the kitchen garden and fruit and other houses. The vegetable garden is about five acres in extent. The crops consist of the kinds generally found in a well-managed garden. Every square yard of ground was fully occupied with vegetables in every way excellent for the table, and the winter crops gave promise of gaining the most useful proportions. The vineries are four in number. Black Hamburgs and Lady Downe's are the favourite varieties, and it would be difficult to imagine anything more perfect than the quality attained by the Black Hamburgs. Heavy crops of high-class fruits were the rule. One long lean-to house of Lady Downe's was most noteworthy on account of the splendid crop each rod was carrying. Peaches are confined to the open walls, and the crops were much above the average of this year; and in speaking of fruit I may say that Gooseberries are found most prolific and serviceable on north walls. I was rather surprised to see the fruit hanging profusely on the bushes on the 31st of August, and the last of them were not gathered for some time after that. Dan's Mistake, Souter Johnny, and Thumper are three of the latest of all.

The plant houses are rather scattered, but they contain some fine specimens, especially of Orchids. The chief of these are to be seen in a small span-roofed house. Here we saw a fine *Aerides odoratum purpurascens* 11 feet high, with thirty side shoots, which at one time not very long ago produced ninety-one spikes, and some of them opened as many as sixty flowers; this plant is a grand sight. *Vanda cœrulescens* is 3 feet high, and *Vanda teres* 4 feet. *Calanthe Veitchii* has bulbs 18 inches long. *Dendrobium pulchellum* has made splendid growth in a basket, as also has *Cypripedium Parishii* in a pan. *Peristeria elata* is represented by a grand specimen; and the *Cœlogynes*, *Phalænopsis*, *Cattleyas*, *Odontoglossums*, and many more of the finest of the Orchids have been grown into fine plants. *Nepenthes Rafflesiana* was bearing thirty-six fine pitchers, and the plants generally were in excellent condition; in fact the whole place is a great credit to Mr. Warmington, the gardener, who has managed the things so well, and although my visit was rather a hurried one, I promised to visit the garden again when the Rhododendrons are in bloom.—M. M.

ROSE SOUVENIR DE LA MALMAISON.

THIS old Bourbon Rose is one of the very best that can be grown for producing flowers in autumn when the majority of other varieties have done flowering. Where a good supply of blooms are wanted at this season of the year, and those planted outside have to be relied upon for producing them, none will be found to surpass, if equal, this beautiful fragrant free-flowering variety. It is worthy of being planted largely in every garden, for it is one of the first to open its flowers early in the season, and what more delightful can be desired than its blush white flowers in a half-expanded state? or even when fully developed they cannot be despised. This Rose should commend itself especially to those residing near towns, for it appears to thrive where smoke abounds better than the majority of varieties. This variety does much better on its own roots than when worked upon any stock, and will thrive wonderfully in soil of a much lighter nature than is required in which to grow many varieties to perfection. When planted not only for the first batch of blooms or those that continue to be produced more or less the whole season, but more especially for autumn, when Rose blooms and free-flowering varieties for that season are scarce, none should be planted but those on their own roots. This is important, for the plants will throw up abundantly towards autumn strong growths from the base which terminate with a large bunch of flowers. These shoots are those that must be encouraged to produce flowers at this season of the year which are not so freely or liberally produced from worked plants.

When planting the autumn should be kept in view, and the plants placed together as far as practical on a border where they can be temporarily protected. To insure good blooms at this season of the year it is necessary that this provision be made, not only to shelter them from early frosts, but the heavy falls of rain that are so frequent at this season of the year, and which do more harm than slight frosts to unfolded Rose buds.

The system of protection that is most desirable is that of placing old lights over them, and if planted with that end in view but little labour is occasioned in so doing. A few stakes should be driven into the border—as many as are necessary—and a few boards nailed to them at the back and front; in fact, make round them a temporary frame upon which the lights can rest to protect them from frost and heavy rains. During fine days the lights can be removed or tilted to give the plants abundance of air. By planting this variety and affording them this simple mode of protection some beautiful blooms will be produced for a long time, and which will more than repay for the labour expended in their production.—SCIENTIA.

TUBEROUS BEGONIAS.

ALLOW me to corroborate what your able correspondent "Experientia Docet" says on page 288 respecting the above useful class of plants, and to give my experience of the same. We obtained a small packet of seed, which was sown on the 23rd April last. From this, which was sown in a pot and placed in a temperature of about 60°, we raised a number of seedlings. As soon as these were large enough they were pricked out in boxes, and from thence into a three-light frame. This was prepared by placing at the bottom some partially decayed manure, about 4 inches in depth, and on this nearly 3 inches of good soil. In this they were planted about 4 inches apart each way, and well attended to in every respect. When well established in their new quarters all the air possible was given them; in fact, on all favourable occasions the lights were removed during the day and replaced at night, being left open 2 inches at the top all night. In this position and with the treatment mentioned they grew very fast, so much so that by the end of September they were almost one mass of growth and flowers. We now determined to have the best potted so that they could be used for decorative purposes as well as to prolong their season of usefulness. We therefore lifted them carefully with a trowel, retaining a good ball of soil to each, and potted them in 4-inch pots. This done they were transferred into a house, had a good soaking of water given them, and were kept rather close for a few days, and slightly sprinkled overhead occasionally with the syringe. As a result, they are now (October 26th) looking grand, and will do so for at least another fortnight.

That they will make good specimens the first year our plants testify,

and I have no doubt they will do equally well outside with the liberal treatment your correspondent has so fully described. Ours average 8 inches high with about three or four stout stems to each; and some of the blooms, which are of various colours from deep scarlet down to almost pure white, measure as much as $4\frac{1}{4}$ inches across.

As they become more known and their cultivation better understood I have no doubt they will become popular bedding plants, and deservedly so too.—J. RICHARDSON, *Calverton Hall, Notts.*

NOTES FROM THE RIDDINGS.

RIDDINGS HOUSE, the residence of T. H. Oakes, Esq., is three-quarters of a mile from Pye Bridge station, and in a district abounding in coal pits and ironworks, therefore it is hardly the place we should go to in order to see high-class gardening in all its branches, but there it is nevertheless; plants, fruit, and vegetables are all grown in great quantity and of high quality.

The ornamental grounds, though not extensive, are neatly laid out and well kept, the principal feature being the fine collection of specimen Hollies, which are regularly pruned and cared for. In one part of the grounds is a semi-octagonal-shaped conservatory built many years ago, the beginning of the present large extent of glass, the roof of which is covered with *Lapageria alba* and *L. rubra*, bearing at the present time some hundreds of their lovely flowers. Adjoining the mansion is a beautiful structure in two divisions containing fine specimen Palms and Ferns, one of the latter (*Cibotium spectabile*) being one of the finest plants in the country. In close proximity is a good plant of *Dicksonia Youngii*. At the opposite end and in the cool division are several very healthy and fine examples of those much-neglected though strikingly handsome plants, *Beaucarneas* and *Dasyliroids*. Leaving a block of houses on our left, consisting of two early vineries and two other houses filled with well-budded *Azaleas* and specimen *Lapagerias* and *Bougainvilleas* that are now resting after doing duty at some of the leading horticultural exhibitions, we proceed to another part of the grounds, and enter a block of houses consisting of a beautiful and well-furnished winter garden, Orchid house, *Ixora* and *Croton* house, two hip-roofed Peach houses, span-roofed Palm house and stove, two propagating pits, &c. To give a detailed account of the contents of all this glass would occupy too much space, but suffice it to say that all the occupants are clean and in the most robust health.

Some distance from the house and grounds, and in another part of the village, is a walled-in garden filled with glass structures devoted to the culture of Grapes, Peaches, Pines, Melons, and Strawberries, and one large span-roofed house is filled with specimen New Holland plants and gigantic *Kalosanthes*. *Ericas* in variety are 3 to 5 feet in diameter, and with foliage to the rim of the pots. *Genetyllis* and *Dracophyllums* are similar. This house alone is well worth a journey to see, so well trained and cultivated are its occupants.

The Peach trees have borne excellent crops of fruit, and are now ripening good fruiting wood carrying clean and healthy foliage. The late vineries contain heavy crops of well-finished fruit of all varieties except *Gros Colman*; this variety rarely finishes well in late houses, but treated as a midseason Grape it generally colours well, as is here exemplified in an earlier house where, it is finished equally as well as a well-finished *Lady Downe's*; indeed I have never seen *Gros Colman* carrying so much bloom before. *Muscats*, *Alicantes*, *Lady Downe's*, *Trebbianos*, and *Madresfield Courts* are all well grown by Mr. Ward, as has been frequently testified in various parts of the country during the past three or four years. A span-roofed Strawberry house in two divisions is at present occupied by French Beans of sturdy habit; these will produce their fruit up to Christmas, when the Strawberries will take their place. There are several other span-roofed houses for forcing Cucumbers all the year round, and Melons in their season, good crops of both being produced every year. Tomatoes are grown in great quantities, as there is a great demand for them at the Riddings. *Trentham Fillbasket* and *American Trophy* are the kinds relied on, but *Fillbasket* appears to be much the best of the two both in flavour and cropping qualities. Pines, which are now rarely grown in private gardens, are extensively and well grown by Mr. Ward, *Queens* and *Smooth Cayennes* appearing to be the favourites.

The kitchen garden is about half a mile from the house, and in another direction, without elaborate walls and walks, but in high cultivation, as is evidenced by everything it contains; whether it be two-year-old *Asparagus* or *Potatoes*, *Cauliflowers* or *Celery*, dwarf *Roses* or dwarf *Apple trees*, the produce is abundant and good. Mr. Ward relies on *Celery Major Clarke*, and speaks very highly of *Potato Suttons' Prize-taker* and *Suttons' King Cauliflower*, but thinks that for general use the *Walcheren Cauliflower* is not easily surpassed.—J. U. S.

GARDEN CHEMISTRY.

BURNING SOILS.

THE advantages of burning heavy clayey soil have long been known, although it has not been so much practised, especially in gardens, as it might have been with every advantage. By properly burning clay and carefully mixing it with the staple, soil may be changed from a half-sterile, ill-to-work, cold, wet condition to one exactly the reverse.

Burnt clay acts mechanically, and it is in order that adhesive soils may be opened that gardeners burn them. But burning clay so alters it chemically that it has often been substituted by farmers for

manure in numerous cases with no small amount of success. Sixty years ago Major-General Alexander Beatson wrote a book entitled "A New System of Cultivation without Lime, or Dung, or Summer Fallow," and, according to the account given, burnt clay and thorough pulverisation enabled him to raise better crops than his neighbours, who employed all of them. A dressing of burnt Oxford clay enabled Mr. Pusey to increase his Wheat crop from $37\frac{3}{4}$ to $45\frac{1}{2}$ bushels per acre, and Mr. C. Randall mentions the great benefits derived from burning clay—benefits which continued unabated for twenty years after the operation.

Dr. Voelcker found that while unburnt clay only gave 0.269 of soluble potash, the same burnt gave 0.941. The decomposition of rocks by cultivation, frost, application of manure and chemical agents, all tend to liberate potash, but slowly; burning does so rapidly. Much of the potash in most soils exists in the form of silicate, which is insoluble in water, and not readily attacked by garden plants, though grasses and cereals have a greater power of attacking them. In the process of burning any lime present is converted into caustic lime, which attacks potassic silicate and decomposes it, calcic silicate being formed and potash being set free. Burning also alters the iron in most soils to a more soluble form. When it is present to an injurious extent this is no small advantage, as much is then easily removed by the water passing through. Any soluble phosphates present are rendered insoluble. This has been considered an unfavourable result of burning, an opinion which must be modified in the face of Mr. Jamieson's experiments, and which should never have obtained credence in the face of the fact that clay soil after burning is more fertile than before. This increased fertility is largely due to a greater amount of available potash, a fact that indicates the desirability of using potash more frequently than is the case. Burning dispels the nitrogen which may be present as well as any organic matter, but the porosity gained, and the greater absorptive power of the friable clay, far more than counterbalance such loss, the more especially as in such soils as are most benefited by burning the organic matter present containing the nitrogen is very rarely of much use other than mechanical. Because of this absorptive power burnt clay is a capital deodoriser, and for mixing with sewage and similar matter is of extreme value.

Wherever fuel can be had the burning of clay is a simple matter. The way we have usually seen adopted in gardens is to trench over the piece to be operated upon, laying as much clay from the subsoil over the good earth as it is intended to burn. Sometimes the surface soil itself is burnt; but it is a pity to burn the only soil fit for forming a proper staple, and, when properly done, the under soil is nearly as good. It is apt to burn into brick-like masses, but this may be avoided with care. The clay should only be baked or charred, not burnt as bricks are.

Having the piece trenched and the fuel in proper condition, a fire should be started in the middle. Some care is needed in building the fire properly. If wood is used it ought to be cut in regular lengths, and split so that it may burn readily. If coal be used dress is best, as lumps are very apt to burn too fiercely and burn the clay into ballast, unless special care can be taken. But wood is to be preferred. The fuel should be built pyramid fashion, broad at base and narrow at the top. The centre should be of twigs readily ignitable, and the outside of stout pieces capable of supporting spadefuls of clay laid against them in the way that earth is heaped against a Potato pit. After the fire is fairly going the clay should be laid spade thick all over the pyramid or ridge. If it is dry at all it will speedily become hot and the fire will break through in all directions. This should be prevented by heaping on more clay until the fire within declines, when the heap should be pulled to pieces, more fuel added, and clay again, until enough has been secured or the stock of fuel exhausted. If fuel enough can be secured it may be well to do the whole garden at once, but even when only a small quantity now and again can be got much improvement may be worked piecemeal. Fruit-tree borders, flower beds, and other particular spots may be done first, and the body of the garden attacked as material can be secured. Prunings, Cabbage stumps, old Pea sticks, and similar rubbish if kept dry are all fit for the purpose on a small scale.

There can be no room for doubting that burning is at once the cheapest and most effectual way of improving tenacious clays when ordinary opening material is not at hand. So much does it improve such, and so much have we been struck with the alteration from almost unworkable clays into which roots could hardly penetrate or rain pass, to excellent friable soil, that we would not hesitate to make Vine borders out of the toughest agricultural clay, with nothing else, if we only had fuel to char part of it, and borders, too, not deficient in a single thing necessary. But there is no garden crop that may not be benefited by it.

In addition to clays, peats are frequently benefited by burning, and the ashes resulting from charred peat are often found excellent applications to almost any kind of soil, but especially heavy ones. The tough turf that forms on poor moorland is also often burned,

after which sometimes a rotation of crops are taken and the moor laid down again in grass. Oftener it is for the purpose of destroying the hard innutritious grasses that clothe such soils. After such burnings fine tender grasses spring up to be by-and-by extirpated by coarse grasses, which are again burnt. But these are more farming than garden operations.

When heaps of weeds are burnt—a very wasteful process, as thereby the nitrogen present is dissipated—much earth is charred, and more might be if added for the purpose.

All charred soil should be perfectly incorporated with the soil in the manner already described.—SINGLE-HANDED.

HAMWOOD, CO. MEATH.

AMONG gardens of interest in this part of Ireland (Co. Meath), one of the most notable is Hamwood, Clonee, occupied by G. Hamilton, Esq. Although not so extensive as many demesnes, the garden is well cared for, especially the flower garden, which is admirably kept, and some very pretty beds were to be seen at the time of my visit last month. When flowers are past their best the flower beds are so arranged as to always afford something to meet the eye, instead of being bare. There are in most of the beds well-kept shrubs, such as Golden Hollies, the foliage of which was the brightest I have seen. Golden Yews and other shrubs are also employed in other beds. Ageratum Lady Jane is much prized, being better than Cannell's Dwarf. Iresine Lindeni is also much used; and of Pelargoniums John Gibbons and Amaranth are in request. Maréchal McMahon and Crystal Palace Gem are grown in thousands, as is a really good pink Zonal called Mrs. Masters, the best pink I have seen in this locality. Carpet bedding receives due attention, but was past its best on my visit. Some noble specimens of Conifers are notable, including Araucaria imbricata, Cedrus Deodara, Picea Pinsapo, P. Nordmanniana, and many others tastefully arranged.

The glass houses are numerous, and every inch of space is occupied. In one house the back wall is covered with Heliotrope, where Mr. Latimer, the gardener, tells me he can always cut quantities of bloom winter and summer. In this house are large plants of the most useful scented Pelargoniums, as a large quantity of cut flowers are needed here in the winter months. A stove contains flowering plants, amongst which are some very healthy Gardenias grown in large pans. One part of the house is filled with Tuberous Begonias, Abutilons, and Pelargoniums, and very fresh they looked. Another house contained Tomatoes in pots, which have produced a large quantity of fruit, and as soon as a plant has been cleared another is in readiness to take its place, so that there is every likelihood of being plenty till Christmas.

At the east end of the kitchen garden are some fine herbaceous beds and borders. One border was very effective, having a back row of Lobelia cardinalis, next to it Anemone japonica alba loaded with flowers, and a row of Tuberous Begonias, which produced a grand effect. Through the centre of the kitchen garden runs a broad walk, over which are trained cordon Apples, meeting in the centre and loaded with fruit. These have a very fine appearance. There are numbers of cordon fruit trees in all styles. Every provision is made for the protection of vegetables by Beech hedges, which are about 10 or 12 feet high, these dividing the garden into squares. Here we find some luxuriant beds of Lily of the Valley, and a fine border of Roses. The squares are filled with superb crops of vegetables, looking remarkably vigorous with the exception of Spinach, which Mr. Latimer tells me he has much trouble with. Large quantities of Violets are grown in cold pits, also Lettuces, Endive, and other salads. In another was a quantity of Primulas and Cinerarias all in good health. Large clumps of Hellebores assist in yielding a supply of flowers during the winter months. Mignonette in pots, and other useful winter-flowering plants, occupy several pits. Chrysanthemums do not receive the same attention here that they do in some parts of England, although numbers of useful plants are grown for flower supply. Out of doors, too, is a large bed of Schizostylis coccinea, from which roots are lifted and potted for winter flowering, proving extremely useful. In the Mushroom house were two beds bearing freely, a second just showing, and a third bed just spawned.

The walks are exceedingly well kept, adding very much to the appearance of the garden. I have seen a kitchen garden well cropped where the walks were green with weeds, which spoiled the whole. It is not the case at Hamwood, as the walks are solid and dry, covered with very fine shingle or gravel of a slate colour, reminding one of the walks in some of the London parks. The garden altogether reflects much credit on Mr. Latimer.—J. PITHERS, *Summerhill*.



KITCHEN GARDEN.

Digging and Trenching.—Vegetable quarters are now becoming vacant, and as soon as they are cleared it is a great advantage to turn

them up that the soil may be fully exposed to the weather. In spring, when the soil is being turned up immediately before putting in the crops, the surface of the soil is generally made quite fine; but at this season it cannot be left too rough, and that which is turned on to the surface, whether in digging or trenching, should be thrown down in spadefuls without any breaking. Deep cultivation is one of the secrets in securing first-class vegetables, and all surface-worked soils should be trenched to the depth of 2 feet or more. In our large kitchen garden we cannot trench it all annually, but we do one or two of the quarters every winter, and the whole of the garden has to be trenched in succession.

Sowing Peas.—The early half of November is the proper time to sow autumn Peas, and in many instances these will supply pods several days earlier than those sown in the spring months. Peas at all seasons delight in a deep rich soil, and previous to sowing the seed the ground should be deeply dug or trenched and well manured. Borders are generally better for sowing in at this time than open quarters. The position should be a sunny and warm one, and as much out of currents of wind as possible. One of the best to sow now is William I. The rows should be 5 or 6 feet apart, the drills 3 inches deep, and after the seed is covered with the soil, a thin layer of ashes should be spread over the surface of each row to prevent snails and other vermin from eating the young growths when they are tender and just coming through the soil.

Broad Beans.—Where these are valued early in spring a sowing may be made now. They are very hardy and bear severe weather well. They will grow in any kind of soil which has been well manured, and they may be treated in sowing in much the same way as we have advised for Peas.

Forcing Asparagus.—Asparagus is not much valued when Peas and other choice summer vegetables are plentiful, but in many instances it would be acceptable from the time the last Peas are gathered until they come again. This is our experience, and we do our best to meet it. The first roots were put into a bed of a Cucumber pit on October 26th, and on the 1st of November some of the young growths were 2 inches above the soil. When the crowns are well developed and thoroughly matured they force very easily at this time, and as time goes on and the roots are longer rested they grow still more freely. The heat never exceeds 70° at the bottom and 65° in the air, with fire heat. In lifting the roots for forcing, the fibres should be preserved as much as possible, and in putting them into force the crowns should be covered with any light rich soil. In cutting, the strongest will of course be sent to the kitchen, and should there be any straw-like growths they should be cut away soon, as they do no good, and their share of nourishment may be thrown into some of the stronger heads. The best of all places to force Asparagus is a Cucumber pit, but where this is not available a good hotbed and frame will answer the purpose very well, and some may be inclined to try it in a Mushroom house, in which case it will come white, and then it will be found flavourless and next to worthless.

Parsley.—It is of the utmost importance that a good supply of this should be kept up during the winter, as in the majority of kitchens it is in demand daily, and any deficiency causes great inconvenience. Where it is deficient of growth and showing signs of being eaten at the root with worms, it should have a good watering with water in which 2 ozs. of guano has been dissolved per gallon. Protect with frames where necessary.

FRUIT-FORCING.

PEACHES AND NECTARINES.—Earliest Forced House.—Where ripe fruit is required at the close of April or beginning of May the trees will have been pruned, dressed, and secured to the trellis, the lights being replaced, and everything prepared for a fresh start. If, however, the lights have not been replaced they should be placed on at once, and the house in either case closed by the middle of the month. The outside border should be covered with 9 inches to a foot thickness of dry fern or litter, and if with a good slope, so that by placing shutters or tarpaulin over it in rainy or snowy weather to throw off the wet, it would be a great advantage. Should the roof lights not have been removed it is likely the inside border will be dry, in which case it will be necessary to give the border a thorough soaking with tepid water, or if the trees are weak employ liquid manure in a tepid state. No fire heat will be needed if the weather be mild during the first fortnight, or only to exclude frost, the day temperature not exceeding 50°, at and above which ventilate freely, and 40° to 45° at night. The trees may be syringed in the morning, and again in the afternoon if they become dry, but they must not be kept constantly dripping with moisture, and should be so damped that the branches, become fairly dry before nightfall. When obtainable, a bed of fermenting materials made up in the house will be a great aid to the swelling of the buds by the maintenance of a moist genial atmosphere. Two-thirds leaves, Oak or Beech, to one of stable litter thrown into a heap and turned over once or twice, and then introduced to the house at the beginning of December, will greatly facilitate the forcing process, as well as lessen the necessity for fire heat.

Succession Houses.—The trees in all but the latest houses have become leafless, and ought to be pruned and dressed as soon as possible, the houses being also thoroughly cleansed. The surface soil of the borders should be removed down to the roots, presuming this has not been done already in lifting or root-pruning and renovating the borders, removing the remains of the mulching and the loose surface soil, and replace with good loam, to which has been added some crushed bones and charred refuse, and give a good watering, although this may not be needed in the case of trees that have been exposed to atmospheric

influence for some time by the removal of the lights, but in the case of the lights not being removed a good watering will be of great service in settling the fresh soil about the roots and keeping the buds plump and sound during the resting period, for should the soil become dry at that season it is likely the buds will fall. The lights having been removed they need not be replaced until severe weather commences. If the lights are fixed ventilate fully day and night whenever frost does not prevail; and unless there are plants that need safety from frost do not employ fire heat to exclude it, as the cooler the trees are kept the more complete the rest, so essential to a vigorous blossom and after-growth.

Late Houses.—The foliage will be ripening, and the trees may be assisted in shedding it by lightly brushing them with a broom, but no forcible removal of the foliage must be attempted. In the case of trees that have not yet ripened the wood gentle fire heat by day with free ventilation will be serviceable, but no fire heat should be employed at night, and air must circulate through the house constantly. A somewhat dry condition of the atmosphere is advisable, but there must not be any deficiency of water at the roots, or the buds will not be plumped. In the case of trees that do not ripen the wood kindly a trench taken out at about one-third the distance from the stem the trees cover in extent of trellis, and as low as the roots, detaching all roots and leaving the trench open for about a fortnight, will assist them wonderfully, and then removing the soil from the trench inwards to the stem down to the roots, lifting if necessary and laying-in in fresh compost, ramming firmly, as also in the trench, and giving a good watering, fresh rootlets will be admitted in readiness for the support of the blossom. Trees in unheated late houses may be treated similarly, but in no case operate on the trees except by taking out a trench until the wood is firm and the foliage is becoming mature.

Cucumbers.—During such mild weather as has lately prevailed very little fire heat has been necessary, and the atmospheric moisture under those conditions has necessarily had to be reduced. This needs some judgment and prompt attention, as to keep the house close, moist, and warm during such weather is apt to cause the plants to become succulent and ill fitted to bear the vicissitudes of our variable climate. With a change to severe and bright weather more moisture will be necessary, but as a rule damping all available surfaces in the morning and afternoon will be sufficient, with a light syringing early in the afternoon of exceptionally fine days. Autumn fruiters, or the plants that were put out early in September, will be showing fruit freely, and as the results at Christmas to March depend entirely on the treatment in this and next month, it is necessary that the plants be not now allowed to crop heavily, removing all superfluity forthwith, and attend carefully to stopping, thinning, and tying the young shoots, disposing them evenly and avoiding overcrowding. Remove any decayed portion of wood or foliage that may appear, and keep the glass clean both inside and out, as every ray of light is now of consequence.

PINES.—Fermenting Beds.—Tree leaves in many places are still employed as a heating medium for Pines, and where plentiful supplies can be obtained they will with ordinary care when made up into beds afford heat for a long time quite sufficient for the requirements of young growing stock, the nature of the heat not being surpassed if equalled by that obtained by any other means. Oak and Beech leaves, from their hard texture, and therefore more lasting, are the best—indeed those that should be used. The chief point in their management is to collect them when dry or in a moderately moist condition, as they do not in that state decompose so quickly, and a prolonged supply of heat of a general and evaporating character is thereby secured. To plunge the pots in about a foot of tan is better than leaves, and has a neat appearance which in private establishments is of considerable importance.

General Remarks.—The weather has not yet necessitated sharp firing, and so long as the recent mild weather continues the temperature indicated in our recent calendars may remain in force; but with the setting-in of severe weather it is better to be content with 5° less in each department than have recourse to hard firing. Coverings as aids to the heating apparatus are of importance, and less the plants feel the effects of sharp firing the better, which coverings in severe weather considerably molify, as well as the fuel bill. Be careful in the application of water to the roots, and only apply it when necessary, but then thoroughly. Keep the glass free of accumulation of dirt, as every ray of light kept from the plants is representative of so much depreciation in their health.

PLANT HOUSES.

Primula obconica.—This is a most useful Primula for cultivation in pots, and is admirably adapted for conservatory decoration at this season of the year. It is very free-flowering in a small state; in fact, the plants we possess flowered more or less all the season, and the strongest are now in grand condition. It should be raised from seed either sown at once or early in the new year, but the sooner the better, for the greater size and strength the plants attain the more attractive and beautiful they are. The flowers, which are pale lilac in colour, are by no means showy when the plants are small and only bearing one or two trusses of flowers, but when strong and a dozen or more are borne above the foliage, with as many others to succeed them, they are invaluable. The seed should be sown in an intermediate temperature, and the young plants grown on afterwards the same as the varieties of *Primula sinensis*. After they are placed in the pots they are intended to flower in, 6 or 7-inch pots being a good size, they can be stood outside until autumn, and then housed in the greenhouse when required to be brought forward into flower.

Carnation Souvenir de la Malmaison.—Those requiring plants in pots

of this and its pink form Lady Middleton to flower next June, July, or August, and the same plants to flower the following year during March and April, should make a start at once. Young plants that have been layered outside and are strong and dwarf should be selected and placed in 4-inch pots in a cold frame, which should be kept close until they are well rooted. Early in the season when these pots are full of roots place them in 7-inch pots, and from these into 10-inch when ready. Those required for flowering during the first month mentioned should do so in the 7-inch pots, but those for the last two months in the last-named size. These plants should be grown under glass to do them well, especially so when wanted to flower in early spring the following year. After flowering, the growths that start from the base should be pegged or layered on the surface of the soil, and plants for spring flowering will be produced that will carry from six to nine spikes of large flowers.

Rhododendrons.—The early-flowering varieties, such as *R. Early Gem*, *R. præcox*, *R. multiflorum*, and others that have been planted out and required for flowering early, should be lifted and potted without delay. These when lifted should be placed under glass, and when required to flower should only be brought forward slowly and gradually, or else their buds will stand still and refuse to open. The flowers from lifted plants do not last so long or are so readily induced to flower as those that are established in pots. We have discontinued the lifting practice with these varieties, and advise all that require them early in flower to do the same. The forcing required can be done under glass in the spring, and the plants will unfold their flowers under almost natural treatment early in autumn. Our earliest batch would come into flower in about three weeks if kept close and we required them. They are still outside and will remain for some time, but in case of frost they will have the protection of mats.

THE BEE-KEEPER.

BEE-FARMING.

"F. H. P." wishes to gain some information concerning bee-farming. Although bee-keeping has been a hobby with us for many years, and we have mainly indulged in the pursuit because of the pleasure and recreation thereby obtained, at the same time we have endeavoured to make it a profitable undertaking from a pecuniary point of view. We are therefore able to some extent to reply to "F. H. P.'s" questions on page 365. However, our experience has not been with a very large number of stocks, the most we ever kept at one time being under fifty. We have kept year by year an accurate account of the outlay and income in respect of our apiary, and can therefore give some idea as to the profit or loss to be expected in bee-keeping. We cannot say how far these results would be affected either way by keeping a large bee-farm such as is contemplated by "F. H. P." We will answer the questions in order:—

1, Bee-keeping is decidedly profitable if well managed and under certain conditions. With proper care and attention heavy losses in bad seasons are not to be expected, but a certain amount of expenditure will be incurred with no income. It must not be expected that all the income is to be derived from the sale of honey alone; bee-farmers derive their income from several sources—the breeding of queens, the sale of swarms, of bee appliances, &c. A bad honey year is often productive of many swarms, and the accounts are balanced by the sale of the same.

2, There are doubtless men who could obtain, and who do obtain, a substantial income from bee-keeping, but it is only by much labour and skill that a large apiary can be managed with success.

3, We can confidently say that in a fairly good neighbourhood, taking an average of seven or ten years, £1 per hive per annum can be counted on as profit. This is, as we have before stated, the case where not more than fifty hives have been taken into account. A neighbourhood may no doubt be overstocked, and in order to obtain a nett income of £400, some 400 stocks should be kept. These would have to be scattered over a large area, not all kept on one plot of ground. Extra labour would be thus necessary to travel from plot to plot, and expenses would crop up of which we know nothing, nor will we venture to give any advice concerning such a large undertaking.

4, We should certainly say that with such a number of stocks Heather alone could not be depended on to give a profitable return. Such a year as 1882 would render the honey harvest from Heather almost nil. Early summer crops, such as Mustard, bush fruit, Clover, &c., should be within reach of the bees; they would fly for these more than a mile, but of course the nearer the pasture is to the hives the more honey there will be stored.

5, The best hives to use would be well-made double-walled bar-frame hives of large capacity for obtaining surplus back and front or on both sides of brood-nest, as well as over the same. The common English bee or the Ligurian pure or crossed with the former stock are what we should cultivate.

6, We would recommend the careful study of several good books

on bee-keeping. For practical purposes Cowan's is one of the best. Root's "A B C of Bee Culture" will give much valuable information on bee-farming, and Professor Cook's treatise is another excellent work on the subject.

7, The knowledge required in order to successfully manage a large bee-farm could only be obtained after much practical experience and intimate acquaintance with the natural history and habits of bees. If starting an undertaking of such proportions as "F. H. P." proposes, we should advise him to secure the services of a properly certificated expert. In order to hold a first-class certificate a man must have passed an examination by a duly appointed committee of the British Bee-Keepers' Association, and before he can do so he must have made himself thoroughly conversant with the science of bee-keeping both theoretically and practically. Question 8 we cannot answer.—P. H. P.

PASTURAGE FOR BEES.

HAVING experimented quite extensively with honey-producing plants this summer, I will contribute my mite toward improving bee pasturage.

I must join with Mr. J. F. Plummer in pronouncing Borage the plant *par excellence*. Bees will leave everything else if they have that. The honey is as light as white Clover honey, but of better taste and flavour. Next year I intend to sow several acres with this plant. If sown three weeks before white Clover comes into bloom it will be at its best when that plant begins to fail. I sowed some as late as July 1st, after which drought set in, in consequence of which it was very slow in coming up. But it is blooming now, and the heavy frosts we have had this month have not injured it in the least, the bees improving every shining hour on it, especially the Italians. The latter will be out working even when quite cool; the blacks would not.

On Mignonette they worked very little, last year not at all. Last year and the year before I sowed some Sweet Clover, but it never came up; but I have seen the roadsides in Virginia covered with it, but no bees working on it, though there was no other plant in bloom except, perhaps, red Clover, which is very extensively cultivated, but no bees did I see on that either.

Then I received also some twenty different kinds of seed from Switzerland, among which were a few kernels of the Giant Balsam (not Giant Lady Slipper, as someone wants to have it, as it is not related to the Lady Slipper family or species). I am sorry to say the seed did not come up, as also many other kinds did not make their appearance. Some proved to be biennials, not flowering the first year. Among those which bloomed Phacelia was visited the most. All the others the bees treated with indifference.

But one other thing I have noticed, that bee pasturage improves where bees are kept, perhaps, on account of a more extensive fertilisation of the plants by bees, causing a more abundant seeding.—A. R. KOHNKE. —(*American Bee Journal*.)



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

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

Journal des Roscs (*E. B. M.*).—This periodical can be obtained from M. Scipion Cochet, Grisy-Suisnes, Brie-Comte-Robert, Seine-et-Marne, France.

Grubs in Manure (*F. B.*).—We do not think the grubs will do any injury; still you will do well to give your Vine border a good dressing of lime, and point it in lightly, as besides destroying the grubs it would benefit the Vines.

Correspondence (*K. D.*).—We are obliged by your letter, and are glad our columns have been of service to you. The writer you name is in a situation. The other subject to which you allude shall have due consideration. You need not hesitate to send your questions; they will be readily attended to.

Boilers and Stoking (*Dugald*).—Your letter will be readily inserted, as it is well written and relates to a subject of importance. We scarcely suppose that your proposal will meet with universal acceptance; it is, however, worthy of discussion.

A Good Insecticide (*J. Clare*).—We shall be glad if you will send us a sample of the article that has proved so efficacious for examination; we will also have it tried as you suggest, and inform you of the results of any experiments that may prove satisfactory.

Pond Mud (*J. M.*).—Much depends on its nature, but in all probability it will not do any harm on the grass land. Replies in this column are only intended for regular subscribers.

Large Chrysanthemums (*P. M.*).—Large blooms do not depend altogether on what you may give the plants now. Unless they have been well grown during the season, and disbudded at the proper time, the finest examples cannot be obtained by any fertiliser applied at the present time. Sulphate of ammonia is the quickest in action, perhaps, of all fertilisers, and a small thimbleful spread on the surface of the soil of each pot and watered in, or a quarter of an ounce or a little less dissolved in a gallon of water, and in this form given to the plants, will be ample. Clay's fertiliser is good as a top-dressing, and soot water is very beneficial. You may use any of these as may be the most convenient.

Zonal Pelargonium **Hon. Mrs. Oakeley** (*John Roberts*).—This richly coloured double variety raised by you three years ago is decidedly above the average of new varieties that are sent to us. The truss is symmetrical without being "lumpy," the pips large without being so crowded with petals as to prevent free expansion, the colour dark yet not dull—a glowing purplish crimson. As you say the plant is of dwarf habit and very free-flowering, even in winter, you will find it useful for decorative purposes.

Dextrine (*J. P.*).—It is known in chemistry as the soluble or gummy matter into which the interior substance of starch globules is convertible by acids or diastase. It is admirable for securing the petals or florets of flowers that are prone to fall quickly, such as Pelargoniums and single Dahlias. We have some of the latter in our office which will retain their florets until they shrivel, while there is no trace of the presence of anything having been used to secure them. Dextrine is sold by chemists and druggists.

Mushroom Beds (*G. W. S.*).—It would be advisable to turn the straw which is close and wet, choosing a dry warm day for the operation, and if the temperature of the air at the time is above that of the bed there will be no escape of heat from the latter. During very heavy rains outdoor Mushroom beds are occasionally injured if not covered with sheets or something to throw off the wet, and especially if the sides of the beds are too flat, as many are; they should be built as steep as possible, and the top well rounded.

Planting Flower Beds (*A. G. B.*).—As you say you are "expected" to plant the beds in the manner you have shown in the plan before us, by all means carry out your employer's wish, and especially as a "showy" flower garden is particularly desired. The method of arrangement will be bright, and we can only suggest that the effect would perhaps be a little more cheerful if a few purple Violas were mixed with the variegated Pelargoniums in the corner beds, and a few plants of Veronica Andersonii variegata with the Heliotrope if this latter is a very dark variety.

Violets not Flowering (*H. E. B.*).—The plants are perhaps too crowded, and sun and air could not circulate amongst them to develop the crowns. This is the cause of many Violets not flowering freely, especially in the autumn, and your plants may produce blooms in the spring. Stout healthy offsets should be planted a foot apart in good soil in April.

Vine Roots Decayed (*J. Ricks*).—The roots are in a very bad state, but there is no phylloxera on them, nor are there any signs of the insects; not half enough roots, however, were sent for satisfactory examination. They appear to have been taken from a wet sour border.

Propagating Aralia Veitchii (*J. S.*).—This plant can be increased by cuttings, but they are by no means easy to strike, and this mode of increase is a slow one. The custom is to strike such as *A. reticulata* and other narrow-leaved kinds that emit roots freely, and use them as stocks on which *A. Veitchii* is grafted. *Reidia glaucescens* is increased by cuttings of half-ripe wood inserted in sand under a bellglass in a propagating house. *Cocos Weddelliana* and all Palms are raised from seed.

Raising Cucumbers (*Subscriber, Ireland*).—On this matter everything depends on your skill and judgment as a cultivator. Under your circumstances we should sow the seed about Christmas, and have a small heated case in a convenient position in the house for raising the plants. January probably will be a better time for you to commence, and then if the first plants fail you will have time enough to raise others. If you could have a little conversation with Mr. Pithers, the gardener at Summerhill, you would find it advantageous, and he would no doubt readily see you by appointment.

Amarylises (*H. S. P.*).—The plants require turfy loam, with a sixth part of wood ashes and decayed manure, also an admixture of gritty matter to keep the compost porous. They must not be overpotted. When making their growth and producing flower spikes they need a sunny position in a warm house, with sufficient water to keep the soil moist. After flowering they cannot have too much sun, a shelf near the glass being a good position for them, watering them regularly till the leaves are fully developed, then about August keeping the air drier and reducing the supply of water to the roots until the foliage dies down, when water may be withheld for several weeks. Some cultivators keep the plants steadily growing through the winter; but the resting system is practised in the London nurseries, where these beautiful plants are grown so well.

Order not Acknowledged (*W. T., Quebec*).—The best thing we can do under the circumstances is to send your postcard to the tradesman to whom you allude, whom we have always known to be highly respectable. There must have been some mistake, or perhaps a letter may have failed to reach its destination. If you do not hear further on the subject the fault will, in part at least, rest with yourself in not giving your name on the postcard; your address, however, may perhaps enable the order to be traced.

Fuchsia with Petaloid Anther (*J. E. W.*).—The malformation of which you send an example is common, and in some cases the whole stamen becomes petal-like, as in double and semi-double flowers. In the flower submitted one lobe of the anther has been converted into a small petal, and has a strange appearance; the whole bloom is, indeed, deformed, as the style with

one stamen is combined with one of the sepals. Such freaks cannot be accounted for; they simply prove the convertibility of the different organs into others, and indicate the probability of the accepted theory that they have a common origin.

Late Dessert Apples (H. J.).—The following are richly flavoured, late keeping, and good bearing varieties, that will probably answer your purpose:—Scarlet Nonpareil, Braddick's Nonpareil, D'Arcy Spice, and Ashmead's Kernel. We do not know the Gipsy King Apple by any other name, though other names may probably be given to it locally. We are not able to say in what form the record of the late Apple Congress will be published.

Back Wall of Vinery (F. J.).—If the roof of your house is to be thickly covered with Vines you must not expect any very profitable return of fruit of any kind from the back wall, and it will be of little or no use your planting either Peaches or Nectarines, as they would give little fruit, but might produce excellent crops of red spider. We have seen a fairly good crop of Black Alicante Grapes on the back wall of a vinery, also of Brown Turkey Figs; but if no sun can reach the foliage of Vines or fruit trees they cannot be productive. You may grow good crops of Tomatoes for a year or two, but these will not bear freely when the shade becomes dense. Camellias are good for covering the back walls of vineries. We have no preference for either of the boilers you name; both are good, and with pipes arranged properly will answer their purpose. You will not err if you decide on the question of cost.

Vines on the Continent (H. S.).—It is impossible to give categorical replies to your series of questions, for the simple reason that as many methods of treatment are adopted in training and pruning in the French vineyards as are practised here in vineries, and more. In the south of France the fruit needs shade, therefore the growths are allowed to extend from the stem in all directions, and cover the ground much in the same manner that the growths of Brambles are seen at home, but more thinly disposed; and in the winter a selection of the best young canes is made for the next crop, the others being cut away. In other districts they are trained in all the modes that are represented in training Raspberries in British gardens—namely, against fences, secured to stakes of various heights, and the canes bent and secured to each other without stakes. In all cases the bearing parts are cut down and young canes secured for the next crop. We have seen three or four canes tied to a stake 4 or 5 feet high, and we have seen stakes driven in slantingly, three or four round each Vine, and a cane secured to each. Disbudding is a question of judgment, and depends on locality, as in the hot districts, as before stated, shade is needed by the fruit; in the colder more direct sun is essential to its ripening. The number of bunches left on the laterals depends on the strength of the growth and the size of the bunches, as in English vineries, and the stopping the growths is practically the same in both countries. There is no rule-of-thumb process adaptable to all circumstances in the culture of Vines, either under glass or in the open air.

Planting Shrubs (A. H. P.).—We have never had greater success in transplanting Hollies than when the work was done in April; but small shrubs of all the kinds you name for inserting in quantity may be planted as soon as your ground is ready for them, provided the weather be mild and the soil is in free working condition. When planting is deferred until spring it is of the utmost importance that the roots of shrubs do not become dry in transit, as they not infrequently do, and failures consequently occur. When the roots are kept moist the shrubs usually succeed admirably. Loudon's "Encyclopædia of Trees and Shrubs" is the best work on that subject you can have. If you require a work on Conifers there is none comparable with Veitch's "Coniferae." Sutherland's "Hardy Herbaceous Plants" also might be useful; but the most complete work of that character is in French—namely, Vilmorin's "Plantes Vivaces de Pleine Terre."

Dog's-tooth Violets (H. A.).—It is getting late for planting the bulbs, as last month would have been the most suitable time, but if the weather continues open and not too wet they may still be planted. The soil should be good loam, not very heavy, and it must be well drained to insure their success—indeed, it is advisable to place a little sand round the bulbs to prevent them decaying. They may be placed in masses, but lines are preferable, and these should be near the front of the border, the bulbs being about 4 inches apart in the rows, and just beneath the surface of the soil. They may be left undisturbed for two or three years, when they can be taken up and divided if necessary, but unless very much crowded they thrive best when undisturbed.

Artesian Wells (W. H.).—Though we are willing to answer your question, "What is an Artesian well?" it is not likely you will make one for supplying water for your Cucumber house. An Artesian well is a perforation, often of many hundreds of feet, into the lower strata of the earth, for tapping the subterranean reservoirs, and securing an unfailing supply of water. The name Artesian is derived from Artois, a province of France, where especial attention has been given to this means of obtaining water; but it appears, from sufficient historical evidence, that wells of this kind were perfectly well known to the ancients. Niebuhr cites a passage from Olympiodorus, who flourished at Alexandria about the middle of the sixth century, in which it is stated that when wells are dug in the Oâsis to the depth of 200, 300, or sometimes 500 yards, rivers of water gush out from their orifices, of which the agriculturists take advantage to irrigate their fields. The oldest Artesian well known to exist in France is in the ancient convent of the Chartreux, at Lillers in Artois. It is said to have been made in 1126. Others exist at Stuttgart of great antiquity, though their dates cannot be fixed with precision. The inhabitants of the great desert of Sahara appear also to have been long acquainted with this mode of obtaining water, and the Chinese are said (but the truth of the statement is questionable) to have practised it for thousands of years. If you reside in a marsh or fen country where there are no rocks an Abyssinian pump might answer your purpose, and of which you can obtain particulars from an ironmonger. Do you store all the rain water that falls on the roofs of your premises?

Dinner-table Decorations (C. E.).—There is no book that will give you the precise information you need. Dinner tables are not so heavily laden with flowers as formerly. Some years ago a very good judge suggested that the following canons of judgment and taste should prevail:—1, The greatest effect produced by the simplest materials ought certainly to be considered

an important point. 2, That it is essential that the tables be not so crowded in the centre that the view is distorted. 3, That large quantities of strongly scented flowers should not be introduced. 4, That harmony of colouring should be considered, and the effect of light on certain colours. For these there are good reasons. The first can hardly admit of cavil. Everywhere and in everything true taste is always simple. What is that which we call "cockneyism" but the flagrant violation of simplicity? What is it we call "ladylike" in dress? is it not simplicity? The second reason ought to be equally as readily acknowledged. It is true people do not talk across the table, and we do not require a clear stage and no favour; but withal, the *coup d'œil* of a dinner party ought to be considered, and to so divide the guests by tall and cumbrous decorations as to make it two dinner parties is clearly a great mistake. We have, by the *diner à la Russe*, got rid of the hot steaming dishes with their strong savoury smells, but we do not want to exchange that for the equally strong odour of highly scented flowers. To have quantities of Lilies, Stephanotis, and such flowers is to load the atmosphere with perfumes which are positively intolerable to some and disagreeable to many. With regard to the fourth, it must be remembered that there are many colours which might harmonise well by day, but which do not look well at night. Blues ought to be avoided, as, although the stands are exhibited by day, they are intended for night when artificial light is used. All deep blue flowers become nearly black at night, and yellows fade into whites. Again, it must be remembered that a good deal of coloured glass is necessarily now used—ruby and green for light wines; and too much colour, then, in the flowers ought to be avoided as tending to glare—the fault, *par excellence*, of bad taste. The Marsh stand is one of the best for the centre of a small dinner table that can be used, because it does not obstruct the view, a point always to be studied in table stands. To arrange such a one in good taste Fern fronds are indispensable. Care must be taken in dressing one of these stands not to crowd them with great variety, or overfill them; a few simple medium-sized flowers, properly and tastefully associated with foliage, being more effective and pleasing than a huge display of large flowers and glaring colours. Small fronds of Lygodiums or frondules of Selaginellas have a beautiful effect trained round the shaft of the stand. Read Mr. Luckhurst's article on this subject in our present issue.

Names of Fruit (J. Mackenzie).—As the small Pear invariably ripens in November it can scarcely be Winter Nelis, but both in size and quality the fruit resembled that variety, which sometimes ripens prematurely; we therefore indicated our uncertainty of the name. No. 2 was so very inferior—in fact, worthless—that we hesitated to name it at all. It may be Beurré d'Amanlis in very bad condition. Beurré Superfin has been bearing fruit for thirty-nine years. (A. J. Browne).—1, Reinette de Canada; 2, Doctor Harvey; 3, Lewis' Incomparable; 4, Claygate Pearmain; 5, Gravenstein; 6, Not known. (R. W.).—Cox's Pomona. (W. W.).—1, Lord Sniffield; 2, Summer Golden Pippin; 3, Sweeny Nonpareil; 4, Not known; 5, Urbaniste. The Lapageria will be referred to. (Capt. Isacke).—The Cluster Golden Pippin and the Bedfordshire Twin Apple frequently grow in the manner of the one you have sent. Does yours often come so? (H. L. K.).—1, Beauty of Kent; 4, Herefordshire Pearmain; 5, Cox's Orange Pippin; 6, Bess Pool. Tickets were displaced from two; the green-striped flat Apple is Yorkshire Greening. (W. A. P.).—1, Cellini; 2, London Pippin; 3, Christie's Pippin; 7, Winter Greening; 10, Minchull Crab; 12, Dumelow's Seedling.

Names of Plants (J. W. Hall).—Gloriosa superba. (W. G.).—As we have stated on many occasions, we do not undertake to name varieties of florists' flowers, but only species of plants. Varieties of Chrysanthemums, Pelargoniums, Fuchsias, &c., that are so readily raised from seed are so numerous, and many of them resemble each other so closely, that it is impossible for anyone to name them with accuracy, except by comparing them with others in a large collection. We do not refuse to give the name of any flower with which we are familiar when a good example is sent; those you have sent are so imperfect that no one could determine their names with accuracy. (W.).—Epidendrum dichromum, var. amabile.

Bees Irritable (E. S. W.).—Bees are always more irritable at times when there is little honey to collect, while we find them most docile during a glut of honey. The past unsettled summer caused bees to be more than usually spiteful. Robber bees are also very touchy customers to deal with. When once they have learnt the practice of habitual robbing (and some few bees in every apiary always seem to become so demoralised) they will often without any molestation dart at the face or hands of a bystander; they seem to consider that every man's hand is against them, and they are ever ready to show fight. Robber bees are readily known by their wavering, fussy habits; they hover before the entrance of this or that hive uncertain as to whether they dare run the gauntlet, whereas the lawful occupants of the hive deliberately settle among the guards or fanners and pass at once through the doorway. The loss of a queen has the effect of making the bees of the bereaved hive wholly demoralised, less careful to collect stores, and to guard that which is already collected, but we do not think such a loss, after the first day or two, tends to render them spiteful. The robbing which you knew nothing about until the hive was entirely depopulated may have been going on all the while the hive was being fed, and all the food given had been taken away by the robbers as fast as it was put on, while the hive really may have been untenanted for a long time by permanent occupiers.

COVENT GARDEN MARKET.—NOVEMBER 7TH.

BUSINESS steady, and no alteration in prices with the exception of Pines. The first cargo of St. Michael's to hand affecting the value of home-grown fruit.

		s. d.		s. d.				s. d.		s. d.	
Apples	½ sieve	1	0	3	0	Melons	each	2	0	3	0
"	per barrel	0	0	0	0	Nectarines ..	dozen	0	0	0	0
Apricots	box	0	0	0	0	Oranges	100	6	0	10	0
Chestnuts	bushel	0	0	0	0	Peaches	dozen	0	0	0	0
Figs	dozen	0	9	1	0	Pears, kitchen	dozen	0	0	0	0
Filberts	lb.	1	0	0	0	" dessert ..	dozen	1	0	3	0
Cobs	per lb.	1	2	1	4	Pine Apples English	lb.	2	0	3	0
Grapes	lb.	1	0	3	0	Plums and Damsons	0	0	0	0	0
Lemons	case	25	0	35	0	Strawberries ..	lb.	0	0	0	0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney lb	0 0	0 0	Mustard and Cress punnet	0 2	0 3
Bect, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley .. dozen bunches	3 0	4 0
Brussels Sprouts .. ½ sieve	2 6	3 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots bunch	0 4	0 0	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzoneria bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale basket	0 0	0 0
Cucumbers each	0 4	0 0	Shallots lb.	0 3	0 2
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 0
Herbs bunch	0 2	0 0	Tomatoes lb.	0 3	0 8
Leeks bunch	0 3	0 4	Turnips bunch	0 0	0 4
Lettuce score	1 0	1 6			



IMPROVED DAIRY CATTLE.

(Continued from page 389.)

AFTER having stated the style and type of Shorthorn cattle which we require for our purpose, we will now refer to the Guernsey stock, not only to the style of cows we shall require

the fancier, as with refined traits of high breeding she combines those of size, vigour, breeding, and milking. Her skin in colour, as seen in the ear, the udder, and, in fact, on any part, is not nominally, but actually, that of gold, and it is not necessary to approach her or open the hair to see her glow. Her breeding is as follows—Bred by Mr. Stephen L. Pelley, St. Andrew's Parish, Guernsey; purchased by D. O. Le Patourel, La Ramee; born in spring of 1875; dam, Elegante; Grad-dam, Tulip; sire, Excelsior 1st. First prize Grand Royal Agricultural Society, Taunton, England, 1879. Before leaving the island she won the second prize of the Royal Agricultural Society, and first prize in the Herd Book Show, where all are selected animals." It appears that this cow was shown in America at the last State fair in the free-to-all class of milch cows, where she met worthy competitors—in fact, Holsteins, Shorthorns, Devons, Jerseys, &c., but she carried off the honours. The cream and milk of the herd, shown at the same time, commanded universal attention by its peculiar colour and quality. In large glass jars the milk showed 30 per cent. cream as the herd average.

There is no doubt that forcing the animal for phenomenal tests by feeding with as much stimulating and rich food as an animal will take is wrong, for it must eventually have an injurious effect on the constitution, and also that a long-continued strain as in an annual record must, more or less, impair the vigour and breeding value of the milch cow. We consider that the general producing capacity of a breed under such circumstances as will not exhaust or stimulate them, and on such foods as a farmer may be generally expected to supply, should be the actual and practical measure of the value of the animals. We are further informed that the largest amount of feed given to this celebrated cow Elegante on Fernwood Farm has been six

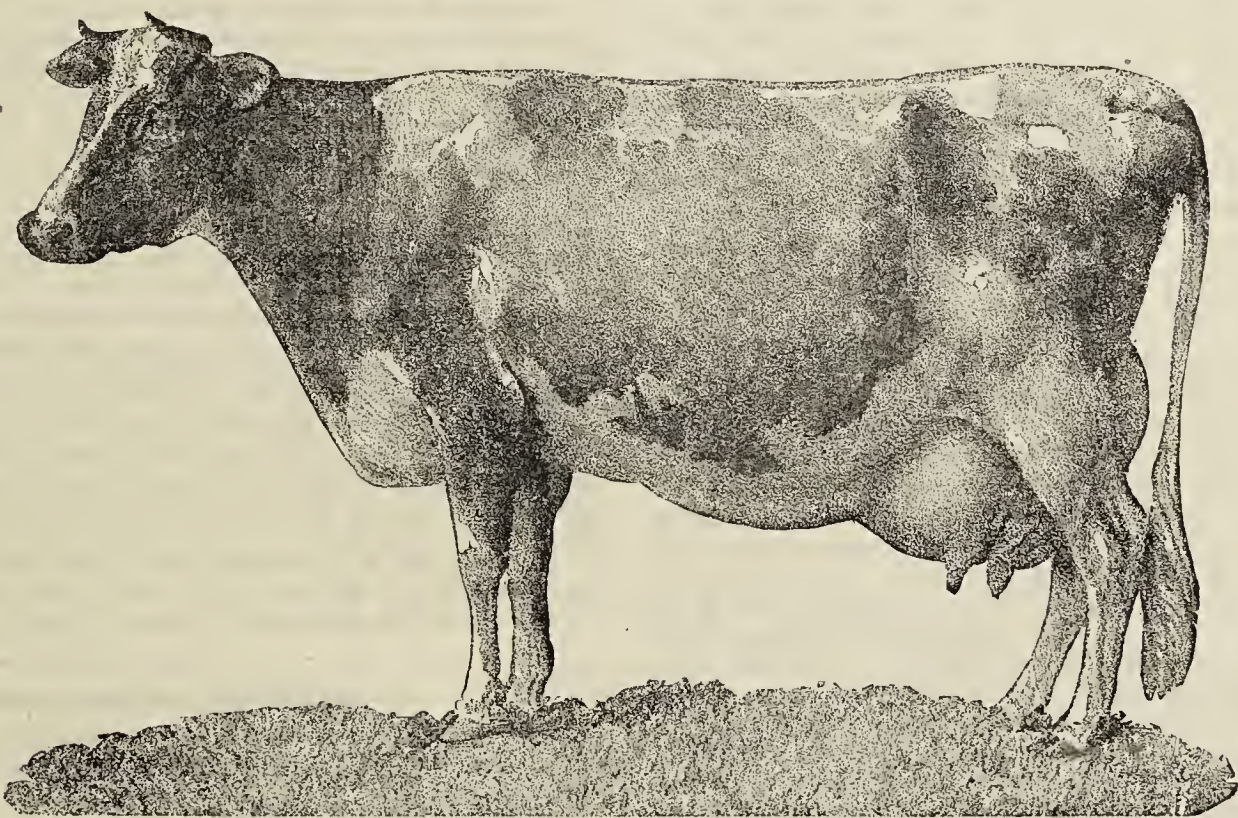


FIG. 78.—GUERNSEY COW "ELEGANTE."

in the future, but also to the bulls, as these will be of special importance throughout the changes we propose making in the improved dairy cattle. We do not recommend crossing to yield us a cross-bred stock for the future, as we only intend to take a dip into the Shorthorn blood, and expect thus to obtain all the characteristics required by never using any but Guernsey bulls of the best character and the latest improved strain. To illustrate what we seek we furnish a portrait (fig. 78) taken from the "Agricultural Gazette" of November 13th, 1882, of a Guernsey cow owned by Mr. L. W. Ledyard of Fernwood Farm, Cazenovia, New York, who says—"The cow portrayed is one well known among Guernsey breeders as 'Elegante,' No. 592 (No. 198 in the Island Registry). The engraving conveys a very accurate idea of her in nearly all respects except colour. Her colours are pure white and light lemon-fawn, and the latter is no darker on the head and neck than on the body. She will bear the close inspection of the practical farmer as well as that of

quarts of bran and two of corn meal mixed, and divided into two feeds of four quarts each, one feed in the morning the other at night. No other feed or drink other than water has been allowed. On this it appears she has made of golden-coloured butter, dry and unsalted, 2¼ lbs. per day, or 19¼ lbs. per week. But it must be imagined how much high feeding, with thrice milking daily, would have increased this record with a cow that would eat much more. Persons familiar with the high feeding of dairy cows will be the best judges. We well recollect the fact of a Guernsey cow we possessed many years ago, although only getting good pasture grass she made for several weeks in the month of June 18 lbs. per week of butter of the choicest deep yellow colour. In this case, however, the cow could not hold all the milk, and if she had been milked thrice instead of twice daily the butter record would have been greater without injury to the cow. Another circumstance we recollect, one of the best dairy cows we ever possessed was bred from a Shorthorn cow crossed by a pure-bred

Guernsey bull. Again, whenever we have known the cross reversed we have never seen it result in anything approaching a good dairy cow, and yet we have known it tried in numerous instances between really highly bred stock.

Although we have taken Mr. Ledyard's Guernsey cow *Elegante* as illustrated for our model of what a dairy cow ought to be for producing milk and butter, and at the same time showing a first-rate type and outline, yet we have no information given us as to the flesh-making capacity of the animal. It is therefore the only quality or capacity to which we wish to call the attention of breeders beyond that exhibited in our chosen model. This is, however, of great importance to secure in our attempt to improve the present race of Guernsey cows, for many of them will fatten fairly well when gone dry, but others are more of the style of Jerseys, having neither size or aptitude to fatten to recommend them to the dairy farmer. In order to show the value we ought to place upon the Guernsey cattle we must give the facts relating to their origin and the care which has been taken to preserve and maintain their purity of blood and other valuable characteristics of the breed. Tradition relates that even a century ago their merits were so fully appreciated that it was determined the introduction of any foreign blood must be objectionable. In 1798 we are informed that a law was passed by the Legislature of the island of Guernsey forbidding the importation of any cow, heifer, bull, and calf under a penalty of 200 livres and the forfeiture of the boat and tackle which should bring them, and a further penalty of 50 livres on any sailor on board who should fail to inform of the importation. Since that date we may assume that the cattle of the island of Guernsey have remained as absolutely pure as any breed that is known. The object that has animated the breeders of Guernsey during this long period has been to produce milk in the greatest abundance and cream of marvellous richness, and butter which in grain, flavour, and golden colour which should excel that produced from any other race of cattle.

Mr. W. Ledyard, in a lecture taken from the *Guernsey Star* and quoted in the *Chicago Times* of January 18th, 1882, observes—"The most remarkable characteristics of the Guernsey is the richness of the animal. It is seen in every point; the horn is soft and full of colour, the hoofs are usually like tortoiseshell, the skin is soft and of a golden-yellow tint, and the inside of the ears is still more highly coloured, while the same orange hue seems to glow from the bag, as if there was light under the soft skin. In the mature well-bred animal both eye and hand find evidence that all the secretions are rich and of high quality, and a careful examination prepares the mind for understanding why the butter made from Guernsey cream possesses qualities that are not obtainable from the milk of any other animal." The temper of these cattle we have always found to be affectionate and docile in the extreme, and we know that on the island their care is usually confided to women and children, whose gentle ways are reflected in the docile character of their family favourites. As specimens of the latest illustrations of some of the most valuable Guernsey cattle we refer our readers to Mr. James' Guernsey cow, "Lady Emily Foley," first in her class at Reading; also to a Guernsey bull shown at the Tunbridge Wells meeting, both of which will be found well portrayed in the *Agricultural Gazette* of August 8th, 1881. A Guernsey Herd Book was published under the auspices of the Royal Guernsey Agricultural Society, vol. i. compiled by M. Theophile de Moulpied in 1882—the second volume is now published. This well-intentioned publication meets a real want, and suggests questions which the owners of other herds would do wisely in considering. It is stated that some difficulties have occurred, as it has not been the habit to give names to all their stock, but often only to designate them as "the red cow," "the brindled cow," and so on. Even the Agricultural Society began to give prizes by name only in 1879. Prior to that date they were given to the owners' names.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horse labour will soon be completed on many farms with the exception of land where Turnips and Rape are being fed off by the sheep. It is, however, best to keep the land ploughed and sown simultaneously, for with a freshly ploughed furrow it will be sure to take the seed well when the weather is dry, although slight frosts may occur at night. Still, the usual weather of the month of November is frost or rain, therefore the land to be ploughed from this time should be sown as fast as ploughed, and this is the only way to be safe in our seed time after we have entered on the November month. On all strong flat lands the last few days of October were very favourable for seeding with Wheat, quite in contrast with the same period of last year. Where these strong soils are given to, as they often are, the growth of weeds injurious, such as black bents and yellow cress, the land should be

drilled with Wheat at 10 or 12 inches apart between the rows of plants for when this is done not only can the horse hoes be used freely in March to destroy the weeds, but also to break the surface where the Wheat may be looking yellow and sickly from the effects of adverse weather during the winter months. Without this wide drilling no farmer can be master of his position, and secure the beneficial results of former good tillage or liberal manuring, as the weeds if not destroyed will grow and overwhelm the corn, in the same proportion as it has been cultivated and manured unless the corn is drilled wide apart. Hundreds of acres every year are entirely ruined, because when sown broadcast these weeds before spoken of cannot be destroyed either by hand labour or the machine used for destroying the early weeds like charlock and redweed, because those before named do not appear soon enough to be destroyed by machine, and which can only be done in their infancy by the horse and hand hoes. The odd horse will be daily at work upon the steam-cultivated fallows carting away the couch, in readiness for rafter-ploughing for the winter. Potato-lifting is now going on, the sooner it is done the better, and we must here call the attention of the home farmer to the excellent machine for lifting Potatoes of which a plate was given last week. There is no doubt but that it is quite superior in operation to any other machine previously used for the purpose in every respect. In noticing the working principles of the machine, it not only lifts the Potatoes, but has a peculiar action useful for lifting the couch and weeds out of the land, and leaving them on the surface; and we think that in the spring of the year this machine may be made good use of on the foul fallows, for where the land has laid during winter on the stretch it may be used with benefit in passing along the stretches, by opening the land and casting the couch and weeds on the surface, to be afterwards dealt with by the harrow designed by Messrs. Howard, called the self-lifting drag harrow.

Hand Labour.—As fast as the leaves of Swedish and other Turnips give way, men and women too may be employed in forking out any bunches of couch; and in the same way, as fast as the Mangolds are removed, especially if the land is intended for seeding with Wheat, the lumps of couch may be removed in advance of the ploughs. Unfortunately these matters are often neglected, the farmer feeling satisfied that there is not couch or weeds enough to injure the next crop; but such management may be termed "penny wise and pound foolish."

Live Stock.—The weather in the latter part of October has been very favourable for all animals living now feeding in the open fields upon roots, or on the pastures while feeding on grass, and we notice that a healthy fall of lambs are now being yeanned by the horned Dorset and Somerset ewes. This stock above all others are the most prolific, for it is not uncommon to obtain 150 per cent. of lambs from them, while their general average fall may be called 125 to 130 per cent. It must also be borne in mind that these ewes above all other sorts give the most milk, and are better able to rear a large number of twin lambs than any other breed, especially when they lamb early in October and the first half of November, the ewes having lived upon the best autumn grass up to the time of lambing, and it is also notorious that these ewes will bear higher feeding on luxuriant grass during pregnancy than any other breed of sheep without injury to themselves or the health of the young lambs. Some farmers have fed them with cake before they lambed, but we do not approve of this, for we never begin cake-feeding until the lambs are a fortnight old, unless it is ewes having twins, for these may get the best of food a few days after having yeanned their lambs. The present is the time for the farmer who does not breed all the cattle he requires for winter feeding in the boxes to purchase what he requires, not of poor cattle, but those just beneath the butcher's requirements, and as these will now be clearing out in the grazing districts, they may be bought to pay a full profit.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
Oct. & Nov.											
Sunday	28	30.252	50.7	50.7	Calm	51.4	58.8	46.3	75.5	38.0	—
Monday	29	30.231	52.0	52.0	E.	51.2	59.2	47.4	74.0	37.1	—
Tuesday	30	30.445	49.8	49.3	N.	50.9	54.7	44.4	59.7	34.2	—
Wednesday ..	31	30.346	50.5	48.3	Calm	50.8	52.6	48.3	55.5	36.4	—
Thursday	1	30.276	48.0	46.0	N.E.	50.3	52.2	46.5	52.4	44.7	—
Friday	2	30.192	44.8	44.5	Calm	49.9	47.4	44.2	54.3	44.8	—
Saturday	3	30.042	45.6	44.8	N.	49.1	48.9	44.3	53.9	44.4	0.018.
		30.255	48.8	47.9		50.5	53.4	45.9	60.8	41.4	0.018

REMARKS.

28th.—Dense fog until 11 A.M., afterwards fine, bright, and pleasant.

29th.—Foggy morning, afterwards fine, bright, and pleasant.

30th.—Fair day and colder.

31st.—Dull and calm.

1st.—Dark misty morning, dull calm day.

2nd.—Foggy dark morning, slight fog all day.

3rd.—Dull generally, slight rain in evening.

Very little sunshine except on the first two days, and owing to overcast skies very uniform temperature. High barometer, and scarcely any rain.—G. S. SYMONS.



15	TH	Kingston (two days), Staines Shows.
16	F	
17	S	
18	SUN	26TH SUNDAY AFTER TRINITY.
19	M	Winchester Show (two days).
20	TU	Hampstead, Lincoln, Chesterfield, Manchester, Twickenham, and Oxford
21	W	Birmingham, Bristol, Northampton, Ealing, and Nottingham Shows.

APPLES AND PEARS FOR SMALL GARDENS.

NOT many years ago small gardens were considered unsuitable for fruit trees, for the sufficient reason that, grown as standards on the Crab stock, the trees occupied too much space; but since dwarfing stocks have become popular and their great merits have been recognised, fruit trees are grown in thousands of gardens that were before practically fruitless, and they might be grown in thousands more. Nothing adds more to the interest of small gardens than fruit trees in appropriate positions, and well managed they are both beautiful and profitable.

In or around most gardens there are walls or fences, and these might be covered with fruit. Then arches of fruit may be formed over walks, thus turning space to account that is usually wasted. These tunnels of fruit trees are very beautiful in spring when covered with blossom, and again in the autumn when studded with fruit, while through the summer the shade they afford is always enjoyable. In Mr. Baring's garden at Coombe Cottage a leader has been taken from each pyramid that is growing in the borders on each side of the central walk and trained to iron rods formed over it. These are about 5 feet apart, and the series forms a fruit bower attractive and profitable. These arched cordons bear abundantly without in the slightest degree limiting the productiveness of the lower parts of the tree—that is to say, the bush or pyramid portion would not bear one more fruit if the tops which bear so well were cut off, while the walk there would not be half so agreeable. This is a distinct gain, and why cannot arcades of fruit be formed over walks as well as bowers of Roses, Clematises, and Honeysuckles?

At Moray Lodge, Kensington, I am informed on good authority that Mr. McElroy has a beautiful arch of Apples, the trellis having been formed of three-quarter-inch iron, five bars of which about a foot apart are fixed longitudinally to stays which arch over at intervals of about 6 feet. Standard trees are planted, the stems being secured to these uprights, and the branches of the trees trained right and left espalier fashion. By this plan the side borders are not shaded at all, while a quantity of fruit will be had when the trees arrive at a bearing state from the space above the walk. In this way fruit may be had in small gardens without reducing the extent of ground for vegetable or flower culture. This is a decided advantage, while the appearance of the garden is greatly improved. Thus fruit trees may be increased in number in small gardens, and the present is the time for amateurs to select the most suitable varieties. This is easy to the expert, but for the inexperienced amateur it is very difficult. These persons require small trees and desire them to bear abundance of fruit yearly, though of course this cannot be insured; but an amateur thinks more of a dozen fruit gathered from trees grown in his own garden than of a bushel bought in the market.

For these small gardens it is no use having trees that have been grafted on strong-growing stocks. Pears should be

grafted on the Quince, and Apples on the English Paradise stock. There are generally positions on walls where a few trees may be planted, and if the aspect is either south, west, or east Pears can be grown. If all three aspects are at command a few Plums may be planted against the east wall.

Of Pears cordon-trained trees will be found the best for amateurs, as several varieties can be had on a comparatively small space of wall; consequently a succession over a lengthened period is secured. Cordons may be procured from any nursery making a speciality in fruit trees. One-year maidens are the best, and care should be taken to have those that are budded close to the ground, so that when planted the union of the stock and scion is about an inch below the surface.

The ground should be properly prepared before the trees are procured. If the soil is in fairly good condition it should be well trenched about 2 feet 6 inches deep. If the subsoil is not very good it should not be brought to the surface, but be well broken up with a fork. At planting time place some good loam around the roots. If the soil is not very suitable for fruit trees it should be prepared as well as means will allow, adding some loam or road scrapings with a little manure. The trees will keep in good condition for many years if they are properly attended, supplying fresh compost to the roots when needed, and giving a surface dressing of manure when the fruit commences swelling freely. Care should be taken that the trees be not over-cropped, a great mistake with amateurs.

The trees should be planted 20 inches apart. The first year train at an angle of 60°, the next year bring them down to 45°, their permanent position. They should not be allowed to bear too freely at first, and especially at the point of the leading shoot, as every encouragement should be given to get the wall furnished.

The following varieties will form a succession:—Beurré d'Amanlis, Beurré Hardy, Beurré Superfin, Marie Louise, Doyenné du Comice, Beurré d'Arenberg, Josephine de Malines, Nouvelle Fulvie, Glou Morceau, Passe Crassane, Bergamotte d'Esperen, and Olivier de Serres.

Apples.—Apple trees on the English Paradise stock may be grown in very small gardens as pyramids or bush trees, and if a system of summer pruning is carried on they do not grow to a large size. In preparing the ground it should be trenched as advised for Pears, and if it can be trenched to the width of 6 or 8 feet so much the better. They may be planted 5 feet apart the first year; as they increase in size every alternate tree should be taken out and planted elsewhere, and if carefully done these will bear a full crop of fruit the next season. Cordons trained diagonally to a trellis are very interesting for an amateur, as the fruit grows to a large size. Horizontally-trained cordons along the margins of walks impart a neat finish to a garden, and often bear excellent crops of fine fruit; they should be trained to a wire stretched 15 inches above the soil.

Planting should always be done if possible during dry weather. Place a little good soil around the roots, which will help to give them a start, firm the soil, and place a covering litter on the surface to protect from frost and drying winds. Amateurs should bear in mind that early planting is the safest and best. I do not think I can do better than repeat the advice which I have previously given—viz., one thing must be borne in mind, that is to procure trees that have been budded or grafted close to the ground, so that when planted the union may be covered with soil. If the trees are lifted once or twice annually after being planted, and the soil well stirred, it will help to make them handsome and fruitful specimens.

The following twelve varieties, culinary and dessert, will be found a good selection for succession:—

Dessert.—Irish Peach, Kerry Pippin, Margil, King of the Pippins, Cox's Orange Pippin, Ribston Pippin, Ashmead's Kernel, Duke of Devonshire, Northern Spy, Mannington's Pearmain, Lodgemore Nonpareil, and Sturmer Pippin.
Culinary.—Lord Suffield, Ecklinville Seedling, Gravenstein,

Small's Admirable, Blenheim Pippin, Warner's King, Lodgington, Peasgood's Nonesuch, Rymer, Wormsley Pippin, Dumelow's Seedling, and Northern Greening.

I might have named a greater number of good varieties, but a short list is often of greater service than a long to that great number of persons who only want a "few trees."—A. YOUNG.

LILIUMS.

(Continued from page 397.)

L. davuricum, Gawl.—A very showy Lily, growing from 2 to 3 feet high, with slender stems bearing numerous narrow shining leaves, and terminating with few-flowered umbels of bright red slightly dotted flowers. Native of Central and Eastern Siberia, from the Altai Mountains to Kamtschatka; flowering in this country with *L. croceum*. It is a very variable species, and usually a large number of varietal forms are placed with it, which, however, is a rather difficult matter to decide. It is questionable whether these so-called varieties of *L. davuricum* may not be as closely related to *L. bulbiferum*, and I am not sure that *L. Thunbergianum* may not have been employed in their production. Amongst the best of these forms are *grandiflorum*, *incomparabile*, *Sappho*, *rubens*, and *atrosanguinea*, all of which are grand border kinds; indeed, are some of the best and showiest Lilies for outdoor culture.

L. Hansonii, Leicht.—A very charming Japanese Lily, growing from 3 to 4 feet high, with rather large leaves in whorls. Flowers several in a lax raceme, with the perianths of a rich bright orange colour dotted with purple upon the lower half of the segments, which are revolute. This very handsome species flowers in June and July, and enjoys a damp partially shaded position. One of the brightest of the genus.

L. Humboldtii, Roez. et Leicht.—Another splendid species, growing in good soil from 4 to 6 feet high, with stout stems of whorled leaves. Flowers usually numerous, but varying from six to thirty, arranged in a deltoid panicle; perianth bright orange-red, copiously spotted with claret-coloured dots, with the segments sharply reflexed. Native of California, occurring on the Sierra Nevada, flowering in our gardens in July and August. It is synonymous with *L. Bloomerianum*, and there is a variety named *ocellatum* which is similar to the type, but worth having.

L. Leichtlinii, Hook, fil.—A very elegant Lily from Japan, named in honour of a very enthusiastic cultivator; growing from 2 to 3 feet high, with slender stems clothed with narrow leaves. Flowers usually few in number, with the perianth divisions sharply reflexed, of a bright lemon colour, thick dotted with crimson from the base nearly to the apices. It flowers in July and August, sometimes lasting on into September, enjoying a damp position in peaty soil. I have a nice patch in the bog bed, and have found it do better there than elsewhere. It is very erratic in its method of growth, coming up where you do not expect it, the stems running a good bit beneath the surface.

L. longiflorum, Thunb.—The white Trumpet Lily, one of the most beautiful of all Lilies, and extremely useful, varying considerably in the form and size of the flower as well as the time of flowering. The type is too well known to require description in these pages, with its large pure white trumpet-shaped flowers. I will mention varieties of it which are very desirable in addition to the normal form *eximium*, perhaps the most useful of all, with very fine flowers, coming a month later than the type. *Albomarginatum* has the foliage margined with silvery white. *Harrisii* is very valuable because of its freeness in flowering; after one stem dies down another is sent up. I did not believe it possessed this characteristic, but have abundant proof of it now, having some bulbs which are now sending up the third set of stems for this season, and are evidently producing good flowers. *Wilsonii* is also a good form, with large flowers. By using all these varieties I have had these beautiful Trumpet Lilies in excellent order from the end of May to the present time (Oct. 17th).

L. Martagon, Linn.—The Turk's-cap Lily, a well-known old-fashioned species, one of the earliest known of all Lilies, producing stems from 3 to 6 feet high, with whorls of broadish leaves, and terminated with loose racemes of dark claret-coloured flowers with sharply revolute segments. Native of Southern Europe, extending through modern and eastern Europe, Siberia to Japan. There are some varieties under cultivation, which for garden decoration are much superior to the normal form, two of which I will mention. The white-flowered variety, *album*, is one of the most charming of all Lilies, with racemes of pure white flowers, and it is happily becoming more plentiful. Like all

the *Martagons* it detests being disturbed; you see grand masses of it in some old-fashioned places which have remained undisturbed for very many years. I know of one such batch in particular which was broken up two years since with the idea of improving them, but the result is far from satisfactory. Then there is the very handsome variety named *dalmaticum*, which perhaps is difficult to distinguish from *Cattanea*, which is more vigorous than the type, with very long racemes of flowers, varying in colour from a light purple to a deep blood red, with or without spots. All the *Martagons* are well worth growing, being but little trouble, and flowering from the end of June to August.

L. pardalinum, Kellogg.—A very showy species from the Western States of America, exhibiting a considerable amount of differentiation, so much so that several of its varieties have been placed in specific rank by some authorities. The typical form grows about 3 or 4 feet high, with smooth stems clothed especially in the middle with whorls of shining lightish green leaves. Flowers several, in a loose umbel; perianth about 2½ or 3 inches across, bright red, orange at the base and copiously spotted with deep purplish brown spots, appearing at the end of July and August. Of the varieties under cultivation *californicum* is undoubtedly the best, having rather larger and much brighter-coloured flowers, being rich scarlet shaded orange with very conspicuous spots. Then there are *Bourgæi* and *pallidifolium*, both of which are very desirable. All these grand Lilies should be planted much more extensively than they ever have been yet; and indeed they will be when better known. So graceful in the border or the vase, they simply require to be brought more prominently before the plant-loving community to be vastly appreciated. They grow most freely in ordinary soil, and as regards price are getting within reach of all.

L. Parryi, Watson.—A charming but comparatively rare Lily from California, occurring in San Geronimo Pass and San Bernardino county. It grows from 3 to 6 feet high, with stout stems furnished with narrow lanceolate leaves, terminated with a corymb of flowers of a rich lemon colour sparingly dotted with tiny claret-coloured spots, appearing at the end of July and August. This is a very lovely species, growing very freely in the bog bed, evidently having a preference for peaty soil with leaf mould and sand, although some of my bulbs flowered right well in ordinary soil.

L. spiciosum, Thunb.—This is, perhaps, more frequently called *L. lancifolium*, which is, however, quite a distinct plant. Gardeners especially cling to this erroneous appellation, and by one name or the other it is very generally known and largely cultivated, so that description is unnecessary. There are a large number of varieties under cultivation, but a selection is quite sufficient for general purposes. The following are the best—*album Kretzeri*, white; and *rubrum punctatum*, and *macranthum* shaded and spotted crimson. All are free bloomers and vigorous growers, enjoying a well-drained position with plenty of thoroughly rotten manure. They are among the most useful of all Lilies for pot culture, but rather late for outdoor cultivation unless planted in very sheltered positions, where they are likely to bloom earlier than is usual, and the flowers stand a chance of partial protection from early frosts. Of course the flowers coming in so late are most desirable when but little else is gay outside.—T.

ECONOMY IN STOKING.

I THINK the subject discussed by Mr. Inglis (page 370) is second to none in importance, and one which may be profitably considered, although much has been said and written about it already. Even with the best of boilers anyone can see that a considerable part of the heat is lost, and with the incomplete and badly designed heating apparatus the waste of fuel is often shameful. Boilers of all shapes and forms are made now, but I think the saddle and its near relations the cannon and the Cruciform, are still the best. The worst fault I find with them is that the furnace is generally so long and narrow that it is difficult to keep the neck as clear from ashes and clinkers as it ought to be, and a long boiler seems to me to be most effective. To obviate the difficulty I have just mentioned I have thought of the following plan, and would like to have the opinion of someone more able to judge than I am of its merits.

This is to have a furnace door at each end of the boiler, and to feed from either end alternately, reversing the draught each time by means of dampers. When the fire needed fuel the last put on would be glowing red to burn the smoke from the new coal, and all the cleaning it would require would be to take out the clinker or ashes with the shovel. The door at the back, as I may call it, would come in for a good share of the heat, but the flame might be diverted before directly striking on it. I think the best door would be a heavy plate of iron working up and down like a window sash, and with a chain and weight hung over a pulley to counterbalance it. I would have no ashpit doors, but large outside doors right over the front of the fireplace, with ventilators in the centre opposite the furnace doors, so that by using the ventilator in front of

the hot door the air drawn in would be heated before passing through the fire.

It is surely a mistake to have so little brickwork and so much cool boiler surface in a furnace. To retard the thorough combustion of the coal and to send it up the chimney in volumes of thick black smoke, so much heat is worse than wasted. There are few structures where the smoke after leaving the boiler could not be taken in a flue round a plant stove beneath the stage or some similar place, and the heat be thus all utilised. With the very best boiler if the water is, say, 180°, the air must pass up the chimney at that temperature; and if the fire gets very low with a full draught on, the better the boiler is constructed to extract the heat the sooner the cold draught will cool it.—DUGALD.

SEAKALE AND RHUBARB.

SEAKALE is such a distinct and good vegetable that it is worth some trouble trying to command an unbroken supply throughout the six months or so it is in season. Gardeners who have this to compass as part of their duties are sometimes obliged to make efforts to do so, which are perhaps suitable for their own individual wants but not to be generally recommended. Thus I found it necessary before a sufficient number of plants were raised for our consumption to take a double cutting from the strongest crowns. As a matter of course the second crop thus forced was not nearly so fine as the first cutting from the central crown, but for a few seasons I was glad of it, and mention it now that those in a like position may try a double cutting.

Though it is an impossibility to cut large produce if the summer growth has not been carefully provided for, this is not the time to enter into the preparation of the plants. At the same time it must be understood that much may be done by treatment whilst the plants are being forced to improve the produce, and I will shortly state the system we pursue to produce a continued supply of Seakale.

The first season I entered on my present charge the old system of covering and forcing with leaves was pursued, but the labour of carting the leaves on to the beds in winter, and in spring carting them back to the rubbish quarter, with the continued labour of uncovering the pots and boxes to get at the produce, once and for all set me against ever forcing Seakale in that way again. Accordingly when spring arrived a good breadth of seed was sown, and with plants from this, supplemented with those from the old beds, I made the best of it by contriving places in the hothouses. Afterwards a forcing pit was crected and provision was made for bringing on a supply of early Seakale and Rhubarb in this structure; a Mushroom house was also set going, and a portion of that building has been devoted to Seakale, while a shed erected to prepare the manure for the Mushrooms came in useful for the later batches of Seakale. Thus the two earliest batches are started in the pit. Then from January to April the Mushroom house is depended on, and in April and May we cut from the shed-grown plants. The entire crop, it will be seen, is lifted and forced. In our circumstances this is the cheapest and best mode, and the Seakale is grown year after year by rotation like other crops.

In one of the late winters which frost-bound the earth for so many weeks it was impossible to have a supply lifted. Since then I have had the whole crop lifted when growth was fully finished, and the roots put away for use as required in a cool shed. The crowns are selected at this time, any weakly growths being thrown aside to be planted out. These make the strongest crowns for the following season. The best material I have yet tried for planting the roots to be forced in is one of leaf soil and Mushroom-bed refuse in equal proportions. The latter used alone does very well. It is not well to give much water; in fact, as a rule water is not much required, as there is so little evaporation, owing to the plants being kept isolated from the rest of the house; nevertheless,

the soil is dry a moderate application of lukewarm water is very necessary. A batch is put in to force every three weeks. However, the latest may be a large one, and as they will come on slowly and irregularly the supply from it is kept up for a long time. A higher temperature than 55° should not be given. The crowns should be cut when the growth is about 7 inches in length. When the supply is at any time greater than the demand, all that is ready should be cut and kept till wanted in a cool room. As one batch is cut the roots are removed to a cool shed and covered with sand until wanted to plant out, and another batch is introduced, not using the same soil. For the produce brought on in the shed a few loads of sweetened horse droppings are placed round it, and the whole covered up with bundles of straw. The very latest lot requires merely to be protected from light, and comes on naturally.

Rhubarb is grown in a pit. The same material for rooting in is used as stated for Seakale. Rhubarb intended to be forced should not be gathered from in summer. Both light and air are required in order to give firmness and flavour. A temperature of 55° should not be exceeded, and plenty of water at the root is very necessary for Rhubarb.—B.

MICHAELMAS DAISIES.—These have bloomed well this autumn, the fine open weather we have had being very suitable for the expansion of the flowers. There are two or three kinds very suitable for a rock garden—*Aster alpinum*, *A. ericoides*, and *A. discolor minor*. The last named came under my notice on a recent visit to Kew, and was one of the prettiest and most attractive flowering plants then in bloom on the rockery. It is about 6 inches in height, and deserves a place in every collection. *Aster Amellus* and *A. hyssopifolius* are two good flowering

plants for the herbaceous border in August and September. *A. Amellus* in particular should be planted freely, as it gives very little trouble in staking, and does not encroach too much on other plants. Its height varies from 18 inches to 2 feet. The flowers are large, dark lilac shaded with purple, and with a yellow disc; and of several kinds that I cultivate in my opinion it is the best. *A. Novæ-Angliæ* and some others are now blooming, ranging from 5 to 7 feet in height.—A. HARDING.

DIPLADENIA BREARLEYANA.

THERE are few plants so beautiful, and few that are more useful in the stove than this. Whether trained on a balloon trellis for a drawing-room or warm conservatory decoration, or on a trellis close to the roof for the purpose of cut flowers, its soft pink trumpet-shaped flowers changing to the deepest crimson are invaluable. If in the latter position it is associated with either *Allamanda* or *Stephanotis* the contrast is very striking. When cut the blooms will last some time, and if placed in flat glasses either alone or mixed with those mentioned, with a few sprays of Fern as a thin veil over them, they are exceedingly effective. Being evergreen they must not be allowed to get too dry in the resting season, otherwise they suffer considerably and start into growth in spring very weakly. In February they should be potted in a mixture of three parts peat, one part loam, one part leaf soil, and one of sand. They should be grown freely in a good stove temperature, with an occasional supply of mild liquid manure when in full growth. They must be kept clean by frequent syringing. By this treatment they bloom freely and continuously.—C. W.

THE PHYLLOXERA.

It may throw some light on the case of phylloxera referred to by your correspondent (Mr. Gray, page 401), if I state that several years since I had some correspondence with a gardener in the north of Scotland, who sent me a sample of his Vine roots covered with this destructive pest. He was at a loss to conceive how it could possibly be introduced to his vinery, not having received Vines from anywhere. After urging him to think of everything that occurred in connection with these Vines, he recollected that his employer bought some Roses in France, and that when they were received the ground was so hard frozen that they could not be "heeled in" outdoors; and having a bench full of soil prepared for potting the Vines, the Roses were laid in this soil, and so remained for a time, after which the young Vines were potted in the said soil. No doubt the eggs of the phylloxera had been imported with the Roses, and though the insect lives only on Vines it is quite likely that its eggs might be imported in the soil attached to Lilacs imported from France.—D. THOMSON, *Drumlanrig*.

I BEG to send you a few more particulars about the phylloxera-infested Vines at Chevening. In the first place the Vines were temporary, and therefore there was no need for hesitation to destroy them. They had been planted in what was an old Pine pit, deep and narrow; drainage to the depth of 18 inches had been put in, and the remaining space filled with soil, in which the Vines were doing well. We were in the act of giving more accommodation to the roots of the younger and permanent Vines, which led to the discovery of the pest. I had no doubt what it was, but was glad to have your confirmation of the fact. When digging out the soil I was enabled to make a more minute examination, and found phylloxera on all the main roots, down even to the drainage, a depth of nearly 5 feet; there were none on the rootlets nor small roots. Doubtless this circumstance accounts for the health and vigour of the Vines. Two of the Vines had not many insects on them, which puzzles me. The Black Hamburgh and the three next were very bad.

The question of its introduction to the different places is a very important one indeed, as, if that could be ascertained with any degree of certainty, gardeners would then be able to avoid it or stamp it out. At present I do not believe in the "mysterious theory" of introduction. Little doubt exists in my mind that if no Vines had been bought in there would have been no phylloxera here.

I quite agree with you that keeping its presence secret will do no good; on the contrary, much harm. My employer, as soon as it was made known to him, at once suggested the destruction of the Vines, and is agreeable to let his neighbours know and see the pest if they wish, with a view to its extirpation. Everyone who has the misfortune to have it ought to do the same.—R. GRAY.

BURNING REFUSE.

WHAT with autumn cleanings and winter prunings refuse will now be plentiful in all gardens, and it is to be hoped that the advantage of the crops and the benefit of cultivators that every particle of such material will be collected, saved, and converted into manure. Leaves and anything which will decompose readily may be partially decayed and be used as manure; but prunings and anything in the form of wood cannot be treated in this way, and it is not safe to make manure of weeds until they are burned, as this is the only way of killing the seeds, but it is a simple way of destroying them and should be generally adopted. Prunings from evergreens, fruit trees, hedge-clippings, and everything of this kind should be placed in a large heap and burned. When they are very dry they will soon be consumed, but this destroys them, as little

ashes are left and much good manure lost. It is not merely to get refuse out of the way that we advise burning, but the main object to be kept in view is to secure as many ashes as possible, as for many crops these are most valuable as a manure. In burning a heap of rubbish the flames should never be allowed to ascend, but the whole should smoulder until everything is charred. When we make up our heaps we put all the prunings in the centre, and weeds, edgings of walks, and all short rubbish are thrown over the top, and after this has been submitted to the action of a slow fire there is a large quantity of ashes, which we value above everything for vegetable-growing.—A KITCHEN GARDENER.

SIX MONTHS IN A VINERY.

FEB. 12TH.—We have not had occasion to give air a second time yet, as there has been no continued sunshine since the 8th, but the shoots have strengthened wonderfully, and as our space between the trellis and the glass is limited to about 10 inches we have thought it well to commence tying down the forwardest shoots. About one-third of them have been thus tied to-day and the point of the shoot pinched out at the same time, leaving generally three leaves beyond the bunch besides the one exactly opposite to it. Were there less than 3 feet between the rods we would only allow two leaves beyond the bunch to remain. Of course these leaves are very small at present, and the operation of pinching out the point requires some care, but the sooner it can be done the less will be the loss.

Tying down the shoots is a very delicate work, and can only be done by degrees. A piece of matting a quarter of an inch broad is placed over the shoot beyond the bunch, and a loose loop two or three times as large as the stem is tied. The other end of the matting is brought down to the trellis, and merely pulled and fastened sufficiently tight to bring the head of the shoot down 2 or 3 inches without putting any pressure on the union of the old and young wood. It does not signify at all about the shoot being bow-shaped now, when it becomes tough later on it can be bent to anything, but at present the least little pull too much will snap it off, and there is a risk of disfiguring the Vine for life. I have seen many shoots tied down, apparently safe during a bright day, and the operator congratulated himself about the neat way in which he had done it; but the next morning told a different tale, for during the night while the house was damp and there was less evaporation, the young growth had more than regained its former rigidity, and as the tie would not give way the shoot did.

Feb. 24th.—Since the 12th we have had four bright days—viz. 16th, 18th, 19th and 23rd, and on each of these occasions we have given a little air between 8.30 and 8.45, closing again between 12.30 and 1 P.M. On all other occasions the house was kept close. As the effects of the watering were plainly visible for a fortnight on the surface we have only had occasion to damp down twice since the watering was finished on the 6th. The shoots have been brought further down by placing a shorter tie on them than was given at first, and some of the forwardest are now nearly in a horizontal position; others have only had a first tie, inclining them only slightly as previously mentioned. All have now been stopped with the exception of a few of the very weakest and a few sublaterals—*i.e.*, branchlets springing from the axils of the fruit-bearing shoots (or laterals) have pushed sufficiently to be also stopped to one leaf.

The oldest of the main leaves are enlarged so as to measure 7 to 7½ inches across and about an inch more in length. The green colouring matter is now spread throughout, and the oldest of the leafstalks and veins of the leaves are assuming a brownish red colouring. This colouring is also seen slightly on the stems of the laterals where they are most exposed to the sun, which gives a hardy look, and causes one to think they are getting all they want, and are making good use of the same.

The bunches have been reduced to one on each lateral, the tendrils removed with the finger and thumb, and the ugly-looking or badly balanced shoulders as well.

Written instructions on temperature given on the 15th inst., and still in force, are "55° night and 60° day by fire heat, 80° to 95° with sun."—WM. TAYLOR.

(To be continued.)

CATS *v.* RATS AND MICE.

ON page 374 your correspondent "B. S." asks for information as to the best method of destroying field mice without endangering dogs. I say, writing after rather unpleasant experience, that cats are the only remedy. On taking charge of these gardens I found they were overrun with field mice or voles, and rats, these coming in the first instance from the park and preserves surrounding us. The mice gnawed the bark off the fruit trees under glass and in the open, cut down the Roses in pots, cleared off whole breadths of Carrots, spoilt great quantities of Strawberries for the sake of the seeds, ate all seed peas not

soaked in paraffin, besides doing much damage among Carnations, Pinks, and other flowers. They burrowed in the ground, grew fat, and increased in all directions. Endeavouring to trap them when thus well established was simply waste of time, and although we succeeded in poisoning some, this was both a dangerous—in fact, we killed more birds than mice—and an ineffective remedy. They will not take bait, either in traps or poisoned, similar to the house mice, but must be tempted with the same kind of food they are feeding on, even if this be Rose shoots.

The rats established themselves in the forcing pits, and having a long run through the courses of the hot-heat hot-water pipes, could not be dislodged. They cut down numbers of *Dracænas*, and formed nests with the leaves of these, *Panicum*, Ferns, and other valuable material. Others established themselves in a protected Vine border, and formed a large nest with various materials, and did not forget to destroy the greater portion of our first hatching of ducks. In the houses and pits we trapped and poisoned a few, but the latter, being difficult to get at, nearly poisoned us with the stench arising from their decomposition. Two cats soon changed the whole state of affairs. The mice they gradually cleared out, and the rats soon disappeared, as is their wont when they see danger. Cats, to be serviceable, should be kept entirely in the gardens, as they are of no service in the garden when encouraged in a living-house, especially where there are children, and overfed. A little bread and milk is all ours have, and the rest they must catch for themselves. When our first pair took to poaching in the surrounding game preserves they, after one promised "let off," had to go the way of all poaching cats. This, no doubt, will be the case if "B. S." tries my remedy, but he, like us, will have fully realised their value, and will quickly procure two more strong kittens.—W. IGGULDEN.

ON page 374 a correspondent, "B. S.," complains of the trouble field mice cause him. A few years ago I was troubled in the same way, also with rats, their runs often being at the foot of a south wall; but the rats were generally in the hank of a pond situated in the middle of the kitchen garden, some parts of which were completely honeycombed with their runs. A good cat was on the premises, and used to catch many, but failed to keep them down enough. Placing poison about was not to be thought of, and they are usually wary of traps. One day, however, about two years ago, my attention was attracted at the pond hank to a little animal that I thought at first was a rat, but which proved to be a stoat. On its being pursued it started into one of the many runs the rats had made, and all attempts to catch it were unsuccessful; but I have never seen but one rat in the garden since that time, and only a few mice, as I quite believe the stoat has destroyed them. Afterwards I saw on two occasions the stoat at the runs at the south wall where the mice were so plentiful, and I have been troubled very little with mice since. I have also seen a weasel in the garden, and if either of these little animals cannot be procured, plenty of traps and cats must be provided.—A. HARDING.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE admirable article under this heading, which appeared on page 349 of your issue for October 25th, is so seasonable and so kindly appreciative as to deserve the thanks of all gardeners interested in the question. There is no antagonism between the above and the Gardeners' Royal Benevolent Institution. The United Horticultural Benefit Society seeks to assist a class of gardeners that it is very unlikely will ever be in a position to be benefited by the latter, and I trust the publicity you have so generously given to the Society will result in a large accession of members.

I can bear personal testimony to the business-like way in which the affairs of the Society are conducted. As one of the honorary members it has fallen to my lot for two years past to preside at the annual meetings of the Society, and I have been greatly pleased to see the earnest attention given to the affairs of the Society by the numerous body of members that are then brought together. The Committee of Management is openly selected from the members, and there is no previous manipulation of that body by the Secretary or any little clique of members.

Suffer me to take this opportunity of appealing to the trade to support this deserving Society by becoming honorary members. They will be assisting a deserving body of men, as one of the objects of the Society is to create thrifty habits on the part of many gardeners in subordinate positions in the gardening world.—RICHARD DEAN, *Ranclagh Road, Ealing.*

REFERRING to several articles that have appeared recently in your valuable paper respecting the above, allow me to state my experience exactly coincides with Mr. Heales'—viz., the coolness hitherto shown by many gardeners in reference to the Society. No doubt Mr. Divers' assertion, if authentic, respecting gardeners being so favourably recognised by insurance societies will be a welcome surprise to many; till now I have been under the impression such a favour was only allowed to abstainers from intoxicants. If "Sussex Gardener" joins this Society and induces others, and I earnestly hope he will, he will do exactly what most of the members have already done, which has lifted the Society into its present flourishing condition. As to "J.B.'s" concurrence with the addition of the word "hlot," such an expression is uncalled for. After the publication of the article at page 349 surely the allegory, "hiding its light under a bushel," is misapplied; and allow me to respectfully

inform "J. B." the annual meeting of the above Society, the funds invested, &c., have been announced in the *Journal of Horticulture* for years, as well as the *Gardener's Chronicle*.—T. COATES.

[Our correspondent "J. B.," as is obvious, was animated with the best intentions towards the Society, and his letter is at the least as likely to aid it as the one now published. The article on page 349 did not emanate from any member of the Society, and until its appearance, notwithstanding the casual notices alluded to, the real position of the Society was unknown to the great majority of gardeners. We have excellent authority for stating that the Society, and the advantages it offers, would have been made widely known had there been a surplus for that purpose from the management fund. With an accretion of members this fund will increase, and we venture to think that "J. B." deserves the thanks of the directorate rather than otherwise for his letter on this subject.]

TEA ROSES.

GROWING Roses only in a very limited area we are naturally diffident in offering experiences, and yet gardening is such an inestimable, such a health-giving delight, that I cannot refrain from making some observations suggested by the article "The Past Rose Season," from the pen of a very high authority, in the *Journal* of November 1st. I entirely agree with that authority "D., Deal," that the Tea Rose is not anything like so tender as it used to be represented. It is, in my opinion, as hardy as the Hybrid Perpetual. It is more graceful, more delicate in tint, and it is besides invariably perpetual. The Tea Rose may be grown either in the open or under shelter of a wall, and in either situation with me it succeeds. By the wall being at the bottom of a slope I keep the ground open by an application of ashes and fine cinders, laid on in November, and followed by a liberal mulching of manure. In the open, where the soil is lighter and apt to become dry, I seldom use ashes, only the usual mulching. But where Tea, or indeed Hybrid Perpetual, Roses are grown in an exposed situation as dwarfs—and in both cases dwarfs only are in question—I strongly recommend protection by screening with Yew cuttings on the north and east side from February or March up to the middle of May or June. In small gardens this is quite practicable, and the results thoroughly repay the cultivator.

Nothing is more beautiful than the Rose. No flower is more universally admired, and let me add, that no flower really costs as little as the Rose. The first outlay is small, the after expense nominal, the returns certain and satisfying.

I append a list of some Tea Roses whose hardiness I have proved for years—Madame Falcot, Souvenir d'un Ami, Souvenir d'Elise Vardon, Niphotos, Rêve d'Or, Marie Van Houtte, Madame Bravy, Madame Willermoz, Innocente Pirola, Perle des Jardins, Caroline Kuster, Old Devoniensis, Climbing Devoniensis, and Reine Marie Henriette. This last, however, does not appear very perpetual. All the others are thoroughly so.—A. M. B., *Mid-Lincoln*.

[We quite concur in the remarks of our correspondent. All the varieties named, and several others, may be successfully grown in most districts with the aid of a little protection, which they eminently deserve. No flowers are more charming than these, and one of the most useful of all, Niphotos, is admirably represented in the annexed engraving, supplied by Messrs. George Cooling and Son, Bath, and described in their catalogue as the "finest white Rose in cultivation." It should be grown in all gardens, established in pots for greenhouse or conservatory decoration, also for affording cut flowers of the most charming and admired character. This Rose is perhaps grown more largely than any other for supplying blooms for sale, and they appear to be always in demand for personal adornment, bouquets, vases, and wreaths.]

FIGS IN THE OPEN AIR.

THAT Brown Turkey is the best Fig for culture in the open air either against walls or as bushes is a fact too well known to require any special statement to that effect, nor are details of its culture called for either; for whether it is pruned and trained to the greatest nicety, or left to grow with all the freedom of a wilding, it continues bearing excellent fruit annually, alike good in quality and with such uniform abundance in proportion to the number of shoots—whether laterals or leaders—matured during the preceding season of growth, that the size of each tree may fairly be said to be the only limit to the quantity of fruit it bears. Brunswick, too, is eminently worthy of the good character given it by Dr. Hogg in the "Fruit Manual," as "one of the best for outdoor

cultivation against walls." It is true that if taken tree for tree its crop is barely half that of Brown Turkey, but then the large size of its magnificent fruit well atones for the deficiency; and here at any rate we do not gain size at the expense of flavour, for I suppose we have nothing more delicious among our choicest fruits than a Brunswick Fig fully ripe, with its luscious interior temptingly revealed through the bursting skin.

Have we any other Fig worthy to rank with these two for open air culture? I think not; and yet varieties are numerous enough, one of our leading nurserymen enumerating thirty-three, and another twenty-one, which they offer for sale as worthy of cultivation, but not out of doors. White Marseilles is usually said to answer well against open walls, but I cannot say that I have often found it do so. Grizzly Bourjassotte does bear a few perfect fruits every year on a south wall, but it is much too shy a bearer to occupy much wall space, and for all practical purposes I fear we must confine ourselves to Brown Turkey and Brunswick. Now what is the cause of this somewhat singularly restricted culture of Figs in the open air? In an examination of the trees growing here against walls on the last day of October I found Brown Turkey,



Fig. 79.—TEA ROSE NIPHOTOS.

Brunswick, and Grizzly Bourjassotte bare of leaves, with the season's wood growth firm and well ripened; but White Marseilles, Black Ischia and Early Violet had shed hardly any leaves, and White Ischia was not only still in full leaf, but its leaves were as green as they were at mid-summer. Nothing can be more explicit than this. The three sorts which come to early maturity bear ripe fruit every year, and are therefore suitable for our climate; the four sorts, with foliage and wood still immature, are almost barren of ripe fruit, most of the fruit falling prematurely before it is half grown, and they are therefore unsuitable for our climate, requiring a few more degrees of heat than the average temperature of an English summer affords even here in the sunny south.—EDWARD LUCKHURST.

PLEIONES.

THESE are, as Mr. Plant justly observes, very charming little Orchids, and well deserve a place in every warm greenhouse or intermediate

stove. There is no doubt, however, that they are greatly benefited if transferred to a shelf near the glass in the warmest stove from the time their pseudo-bulbs are half swelled until they are fully developed, after which they should be gradually inured to a cooler temperature until their blooms begin to develop, still keeping them close to the glass, as these bright little gems appear to revel in the full sunshine if they receive plenty of water. When the bloom buds appear I find they open more regularly if they are again transferred to a rather warmer house than the one they have been resting in. As cut flowers they are very useful. I would also claim a place for them in the drawing-room as small vase plants. By pricking into the pans or pots a few pieces of variegated *Panicum* and *Adiantum gracillimum* as a substitute for their own absent foliage at this period, they have a very delicate and chaste appearance, and will not suffer the least injury in a dry room for a few days. I find *P. humilis*, although later to bloom, succeeds well by potting precisely as recommended by Mr. Plant, save the cowdung and the addition of a little more sphagnum. I also water it even more freely while growing than the others, and keep it in a more even temperature.—C. W.



THE first meeting of the ROYAL BOTANIC SOCIETY, Regent's Park, since the recess, was held at the Gardens on Saturday last, the Hon. H. M. Best in the chair. The Secretary called the attention of the Fellows to a large plant of *Aralia papyrifera* (Chinese rice paper) now in flower in the conservatory, and to the very flourishing condition of the Mangrove trees presented to the Gardens by the Duke of Buckingham, Vice-President. For many years past they had endeavoured to cultivate them, but without success, the plants invariably dying after a year or two. At the suggestion of the Duke of Buckingham these plants are now watered with sea water, the change proving most beneficial.

— THE TRADE EXHIBITIONS OF CHRYSANTHEMUMS are now very attractive. Messrs. Mahood & Son, and Mr. Stevens, Putney, have large and choice collections, including several novelties. Messrs. H. Cannell and Sons, Swanley, also have an extensive display, and Messrs. Carter & Co have a large number of plants in flower at their Forest Hill nurseries. Messrs. Laing and Co., Forest Hill, and E. G. Henderson, Maida Vale have similar displays.

— THE first meeting of the MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY was held on the 8th inst., when Mr. Leo H. Grindon read an interesting paper on medicinal and poisonous plants. This Society has been formed under the presidentship of Mr. Bruce Findlay for the mutual improvement of gardeners in the district, and the terms of membership are 2s. 6d. per season. The meetings will be held fortnightly during the months of November, December, January, and February in the Old Town Hall, King Street, Manchester, at 7.30 each evening, at which meetings papers will be read and discussions held. Mr. R. Tait is Treasurer, and Mr. W. Swan of Oakley, Fallowfield, Honorary Secretary.

— WE learn from the *Jersey Gardener* that at the recent Fruit Show held in that island the following were the HEAVIEST PEARS, with their weights:—Belle de Jersey, 30 ozs.; Beurré Diel, 16 ozs.; Beurré Bachelier, 15½ ozs.; Calebasse Grosse, 22 ozs.; Catillac, 22½ ozs.; Doyenné du Comice, 17 ozs.; Duchesse d'Angoulême, 18 ozs.; General Todleben, 17½ ozs.; King Edward, 20 ozs.; and Van Mons Léon le Clerc, 15½ ozs.

— MR. N. CAMPANY, Thedden Grange, Alton, Hants, writes:—"With me *Lilium longiflorum* has flowered very freely twice this year. The plants flowered the first time in April and May. After flowering they were gradually hardened off and placed outside with the Chrysanthemums, and they were not dried, but kept supplied with water the same as the Chrysanthemums, and by the middle of July they commenced producing strong growths, and when they had attained the height of 3 or 4 inches were repotted into two sizes larger pots and placed in cold pits kept rather close, and by the end of September they commenced opening their lovely white flowers, and will continue attractive for some time to come yet. The last batch I have placed in a plant stove. Some of the strongest growths had from three to five large flowers on one

stem, and I find them very useful associated with other plants in jardinettes and vases, and they have been much admired here by visitors."

— THERE is a possibility of large fortunes being made in New Guinea (remarks the *Pioneer Mail*) by the cultivation of the NUTMEG. The Nutmeg tree is found in great abundance in that island, and gives its name to one of the finest pigeons in the world, a bird as large as the hen turkey. Since the collapse of the Nutmeg at Singapore we have been indebted for the most part to our old rivals, the Dutch, for Nutmeg and Mace. But the Nutmeg trees of Singapore were importations; the tree was not so indigenous to the place in New Guinea. The cultivation is, or was, the most profitable of anything we know of, surpassing Cinchona and Coffee in their best days. Singapore owners of Nutmeg plantations—mere compounds planted with the handsome tree—used to realise their £4000 or £5000 a year; but in one dark and memorable year the trees were all stricken with a blight, and numbers of planters enjoying large incomes were reduced to poverty. The tree became white and leafless, a vegetable skeleton; and no attempt to revive the cultivation of the Nutmeg at Singapore has ever proved successful.

— MR. GEORGE MURRAY, of the Natural History department of the British Museum, will deliver a lecture ON THE POTATO DISEASE at the Parkes Museum of Hygiene, 74A, Margaret Street, Regent Street, on Thursday, the 22nd inst., at 8 P.M. Price of admission, 6d.

— THE BOROUGH OF HACKNEY'S THIRTY-SEVENTH ANNUAL EXHIBITION OF CHRYSANTHEMUMS, FRUIT, AND VEGETABLES was held as usual in the Royal Aquarium, Westminster, on the 14th and 15th inst., and proved a great success, exhibits in all the classes being very numerous. The brief time elapsing between the notification of the awards and our going to press permits only a brief note of the winners in the leading classes. Blooms were exceedingly well shown, the competition being most keen in all the classes. With incurved the premier exhibitor was, for twenty-four and eighteen, E. Sanderson, Esq., St. Mary's Road, Harlesden, who won the silver cup, being first in both classes. For twelve seventeen collections were staged, Mr. J. Udale, Shirecliffe Hall, Sheffield, taking the lead with handsome blooms. The best twenty-four Japanese were from Mr. J. Ridout, gardener to T. B. Haywood, Esq., Reigate—a grand collection, Anemone varieties being well shown by Mr. Butcher, Barnet, and Mr. Berry, Roehampton. In the principal class, however, that for forty-eight blooms, twenty-four Japanese and twenty-four incurved, only three collections were staged; the first and second from Messrs. S. Dixon & Co., Hackney, and Mr. C. Herrin, Chalfort Park Gardens, Gerrard's Cross, respectively, being very close in quality, including grand blooms of the best varieties. The smaller classes were all well filled, and presented a fine display. Three collections of twelve new Japanese varieties were entered for Messrs. Dixon's silver cup, Mr. J. J. Hillier, Bow, taking the first place with a good collection. Specimen plants and groups were not very numerous, but fairly good. The principal class for the latter was that in which the Royal Aquarium Company offered a silver cup value £5 as the first prize. Messrs. Mahood & Sons, Putney, obtained this honour with an effective group, closely followed by Mr. G. Stevens.

— FRUIT at the same Show was also largely and well represented, the Grapes being particularly fine. The leading class was for twelve bunches, the first prize, value £10, being won by Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, with handsome even bunches of eight varieties; the majority being well ripened and coloured. The second prize was secured by Mr. Austen, The Gardens, Ashton Court, Bristol, with fine bunches of fewer varieties. In several classes for Grapes the exhibits were very good. Apples and Pears were a show in themselves, about 300 dishes being staged; the majority of the specimens extremely fine. Vegetables were extensively shown, the collection in competition for the special prizes being of admirable quality. Potatoes were strongly represented.

— THE FIRST SHARP FROST of the season in the metropolitan district occurred on the morning of the 13th inst., when Dahlias and similar tender plants were blackened; until that date they had been growing and flowering freely.

— MR. WM. DEAN writes:—"FANCY PANSY BUCCLEUCH is one of the finest and most distinct we have yet seen, flowers of which have been sent at various times for our opinion by Messrs. Thos. McDougal and

Son, Florists, Musselburgh. It bears some resemblance to Mrs. Crawley in colours, and is of large size, very fine form and substance, and is a grand flower to be sent out in the spring."

— IN an account of a tour by Governor Weld in Selangor, CAMPHOR TREES IN THE MALAY PENINSULA are thus noticed:—"At Kanching, about fifteen miles north of Kuala Lumpur, His Excellency passed through a large forest of Camphor trees, many of which were over 200 feet high. As this forest must become of enormous value, the Governor gave directions that it should be reserved to the State and preserved, single trees only being permitted to be sold when required."—(*Ceylon Observer*.)

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held by kind permission of the Council of the Institution of Civil Engineers at 25, Great George Street, Westminster, on Wednesday, the 21st instant, at 7 P.M., the following papers will be read:—"Report on Temperatures in different patterns of Stevenson Screens," by Edward Mawley, F.R.Met.Soc., F.R.H.S. "On the Storm which crossed the British Islands between September 1st and 3rd, 1883, and its track over the North Atlantic," by Charles Harding, F.R.Met.Soc. "On the Influence of the Moon on the height of the Barometer within the Tropics," by Robert Lawson, Inspector General of Hospitals. "The Ice Storm of July 3rd, 1883, in North Lincolnshire," by John Gordeaux.

— MR. J. LANSDELL writes:—"The plan of CUTTING DOWN CHRYSANTHEMUMS, recommended in your Journal of June 28th, has proved a failure in this neighbourhood as regards exhibition blooms. Those that have bloomed are inferior to those not cut down, and most of them are too late for any of the shows. The plants are much dwarfed, and are more useful for decorative purposes; but I think now, as I thought then, that it was a little too late at least for this district (Leicestershire). The first week in June would be a more suitable time for the late-flowering kinds here."

— "W. L." writes:—"I have been informed that large numbers of TOADS are now being 'raised' in Australia for exportation to England, where they are sold at £3 to £4 per hundred to farmers and gardeners. Can any of your correspondents corroborate this statement, and give any particulars as to where the toads are obtainable?"

— JUST on the eve of going to press we learn that the prizewinners in the chief classes at the BRIGHTON CHRYSANTHEMUM SHOW were as follows—For plants, Mr. Miles, West Brighton; Mr. Spottiswoode, gardener to G. Duddell, Esq.; Mr. J. Bunney; Mr. Hyde, gardener to R. Bacon, Esq., and Mr. E. Meachen, gardener to C. Armstrong, Esq., Woodside, Witheane. For incurved blooms, Mr. C. Gibson, gardener to J. Wormald, Esq., Mitcham; Mr. J. Ridout, gardener to J. B. Haywood, Esq., Woodhatch, Reigate; Mr. Elphinstone, gardener to J. Chalton, Esq., The Orchard, Reigate. For Japanese blooms, Messrs. Gibson, Ridout, Dixon and Co., Hackney, and W. Jupp, gardener to G. Boulton, Esq., Eastbourne. The best Anemones were from Mr. Duncan, gardener to J. Lucas, Esq., Warnham Court, Horsham. Groups of miscellaneous plants and fruit were also well shown, Mr. Balchin having a fine group not for competition.

— "A. M." writes:—"On calling at Hopewood Hall in Lancashire a few days ago I was much struck with a young GROS COLMAN VINE, planted in February, 1882, bearing six bunches, averaging 3 lbs. each, with splendid berries, some of which measured within a tenth of 4 inches in circumference. They were beautifully finished with one exception—the undermost bunch being scarcely up; but I thought considering the season and that they are grown in the neighbourhood of Manchester they reflected very great credit on Mr. Strickland, who grows other things in the gardens so well that I may trouble you with a few more notes about them by-and-by."

— MR. J. NUNNS writes:—"In the Orchid house at Penllergare VANDA CÆRULEA is most beautifully in flower. The plant is bearing four spikes of flower—two spikes with seventeen flowers each, and two smaller spikes with fifteen blooms each. The largest spike measures 2 feet long. Most of the flowers are 3½ inches in diameter."

— THE *Medical Record* furnishes the following particulars, setting forth the MEDICINAL PROPERTIES OF CULINARY VEGETABLES. Asparagus is a strong diuretic, and forms part of the cure for rheumatic patients at

such health resorts as Aix-les-Bains. Sorrel is cooling, and forms the staple of that soupe aux herbes which a French lady will order for herself after a long and tiring journey. Carrots, as containing a quantity of sugar, are avoided by some people, while others complain of them as indigestible; it may be remarked, in passing, that it is the yellow core of the Carrot that is difficult of digestion, the outer, a red layer, is tender enough; in Savoy the peasants have recourse to an infusion of Carrots as a specific for jaundice. The large sweet Onion is very rich in those alkaline elements which counteract the poison of rheumatic gout; if slowly stewed in weak broth, and eaten with a little Nepal pepper, it will be found to be an admirable article of diet for patients of studious and sedentary habits. The stalks of Cauliflower have the same sort of value, only too often the stalk of a Cauliflower is so ill boiled and unpalatable that few persons would thank you for proposing to them to make part of their meal consist of so uninviting an article. Turnips, in the same way, are often thought to be indigestible, and better suited for cows and sheep than for delicate people. But here the fault lies with the cook quite as much as with the root; the cook boils the Turnip badly, and then pours butter over it, and the eater of such dish is sure to be the worse for it. Try a better way.

— AN exceedingly rare and useful plant is GILIA BRANDEGLI, which adds much to the effect of rockwork at this dull season. It is found growing along the face of perpendicular rocks in south-west of Colorado. The flower stalk, which is nearly a foot high, produces from fifteen to twenty long Primrose-looking tubular flowers, upwards of an inch across, and half as broad. The leaves are small, produced nearly always in a whorl, brittle, and not unlike the common Galium erectum, quite hairy, and glandular all over. It is now flowering for the second time this season on the new rockery at Kew, and although many cultivators have quite failed to grow it in the open, it has, we believe, stood there without protection for two years. The failures may be due to the sudden change when planted in a too exposed situation, and might be considerably lessened by selecting a dry and rather sheltered position.

NEW CHRYSANTHEMUMS AT PUTNEY.

AT two establishments in Putney Chrysanthemums are very largely grown, not only the most approved exhibition and decorative varieties, but also a selection of the newest as they are obtained each year from the Continent. Seedlings, too, are occasionally raised, and though necessarily many are found to be inferior to the older varieties, it gives an opportunity of sometimes selecting a striking or useful departure from the ordinary types. The two nurseries in question are both well known in the Chrysanthemum-growing world—namely, Messrs. Mahood & Sons, and Mr. J. Stevens, the former in the Lower and the latter in the Upper Richmond Roads, and both firms have gained considerable fame at the local and other shows, but especially at the Royal Aquarium, for the handsome groups of plants they invariably exhibit. It will, therefore, be interesting to many to learn what are the chief specialities at each place.

MESSRS. MAHOOD & SONS.

The space being somewhat limited in their present nursery, the principal object pursued by this firm has been to secure a collection of only the best and most reliable varieties in the different sections. Numbers of varieties that were found to be insufficiently distinct or comparatively worthless have been expelled, and the collection now comprises about 200 of the leading forms, incurved, Japanese, Pompons, reflexed, and Anemones. The incurved and Japanese are remarkably well grown. The blooms in the former case being notable for their neatness and substance, while the others are mostly very full and rich in colours. Amongst the incurved the following well-known varieties are especially good—Jardin des Plantes, Prince Alfred, Barbara, Empress Eugénie, Alfred Salter, Queen of England, Mrs. Shipman, and Cherub. No novelty of special merit, however, demands notice in this group.

The Japanese are a strong feature, and amongst them we have some new additions of sterling merit. The best are the following:—

Joseph Mahood.—A seedling raised at Putney, and recently certificated at a meeting of the Hackney Society. The bloom is full, with narrow florets, yellow, curiously dotted and striped with a reddish hue. Very distinct, and sometimes highly coloured.

Mrs. Townsend.—This is also a Putney seedling. Very full handsome bloom, of a rich claret-crimson colour, yellow on the under side of the flat florets.

M. Marouch.—Very handsome, substantial flower, deep warm crimson, flat florets, golden on the under surface. An effective variety.

Thomas Todman.—This is likely to make a fine exhibition variety the blooms being of great substance and distinct in colouring, yellowish with red streaks, florets rather flat.

Triomphe de Chatelet.—A handsome variety, salmon-red, with large

wonderfully substantial blooms. The florets are flat, and at the lower part of the bloom strangely reflexed or drooping, imparting a distinct appearance to the bloom.

M. Burnet.—This, though about two years old, is yet but little known. It is a fine variety, the full blooms having jagged, delicate pink-tinted flat florets. A charming shade of colour.

Many more of the last three or four years' novelties are grown, but the above will suffice to indicate that the Japanese group is receiving much attention at the hands of continental raisers, to whom we are indebted for most of the varieties.

MR. J. STEVENS.

In this nursery a good general collection is grown, over 200 varieties being represented, and the plants generally are in admirable condition, strong in growth, with substantial, handsome, well-furnished blooms that scarcely require the exercise of the dresser's art to fit them for the exhibition board. All the standard varieties are grown, and grown well, but the useful *Elaine* is a feature of great interest. A large house has been filled with plants of these, and blooms were obtained early in October in considerable numbers, while now a second crop of smaller blooms promises another profitable supply for a week or two. *Princess Teck* is another variety grown in large numbers, and is especially valued for its late-flowering habit and the delicate tint of the blooms. It is also very free, and is undoubtedly of great decorative value. Numerous seedlings are being tried, and more will be heard of them in the future; but one that has been well tested deserves notice here, as it is likely to become a general favourite when Mr. Stevens places it in commerce. This is named

Stevens' No. 1.—It is a reflexed flower of a rich crimson maroon or chocolate colour, somewhat like the handsome Japanese *Père Delaux*. The blooms are about 2½ to 3 inches in diameter, the florets flat and slightly incurving in the centre, showing the golden under side. It is very full, and the plant is surprisingly floriferous. This was certificated at Kensington on Tuesday and the name altered by the Committee to "George Stevens."

Chrysanthemums are not the only specialty at St. John's Nursery, as Mr. George's seedling *Abutilons* occupy considerable space, Mr. Stevens having the whole stock of the latest batch. *Clove Carnations* are also grown in great quantities, no less than forty thousand plants being included in the stock.—L. CASTLE.

WINTERING STRAWBERRIES IN POTS.

THE best and most natural way of wintering Strawberries in pots is to plunge them a little below the rims in sifted coal ashes out of doors. In every garden a gravelled space sufficiently high to prevent the lodgement of water should be set apart for this and other purposes, and be enclosed by rough boards 8 or 9 inches deep nailed to short piles (the inner side of the latter) driven into the ground at short intervals, so as to make a sort of shallow frame. A little coal ashes should then be spread over the gravel, and the pots, as already stated, plunged below the rims closely together in the same material, a little of which should be spread over the balls of earth and roots as the work proceeds, thus securing both roots and pots from the frost. But in the event of severe weather it will be advisable to slightly cover the plants with dry fern. This, however, should be removed on every favourable opportunity. The "drying-off system" of wintering Strawberries in pots cannot be too strongly condemned, seeing that it is so thoroughly antagonistic to the condition under which the plant lives and flourishes in its natural state. Those not having the gravel space and boards at command can effectively winter their Strawberry plants on a dry south border by spreading the ashes over the necessary space, standing the pots thereon in a straight line at a certain distance—say 32 feet from the wall, filling in the space between the pots with coal ashes as set forth above, and enclosing them with a bank of the same dust. No time should be lost in attending to this simple though important operation.—H. W. W.

ROSE CUTTINGS—TEA ROSES.

I SEE that Mr. W. Boyes is hardy enough to say that Roses on their own roots do not bloom as freely as when budded on the *Manetti*, *Briar* cuttings, or seedling *Briars*; forgetting, perhaps, how I was "sat upon" by my friendly opponents "A Judge," and Mr. Sanders, some six months ago, for asserting the same.

I was obstinate enough to say I was still unconvinced; but still I could not help thinking, during certain sultry days last August, that if I could have set "A Judge" and Mr. Sanders each in a comfortable chair in the shade, with "something soothing" handy on a neat table, in full view of my struggles and grovelling and perspirings in budding a very thick patch of *Briar* cuttings, their revenge would have been ample, and even tinged with compassion.

Thorns I do not mind, what rosarian does? I am afraid I looked no further into a certain treatise on Roses when I saw a recommendation to provide a pair of thick gloves before budding; and I do not grumble much at the position required in budding dwarfs. Luckily my waist is unchanged during the last twenty years, though that 1½ inch over 6 feet is hard to stow away in a horizontal position without inconvenience or doing damage to something. No; it was the flies which so nearly converted me, and constantly dinned in my ears the weariness and unprofitableness of budding, and the coolness, comfort, and delight of cuttings. No creature, I verily believe, has a keener instinct as to when both a

man's hands are irretrievably engaged than the common summer fly; and whenever an unusually active and pertinacious swarm of them, which flourished at that time, saw me curled and twisted up in thorns in that sunny spot, in the agony of getting the bud in, and not a chance of defence, then into my ear they would get. For some time I wondered, with as much calmness as possible, what on earth should make flies so anxious to get into my ear; but at last I recognised that it was only to din into my brain, "Try cuttings: no flies in October."

I am trying them; and come in, from sticking them in by the score, to read how a gentleman who recommends cuttings admits they do not bloom as freely as budded plants. Well, I have tried both. My cuttings are in, and all the flies of August did not prevent me from finishing my budding. If success is commensurate with toil, I know which will turn out the best.

Unlike "A. M. B.," I find that *Madame Falcot* does stick and damp in wet weather, as does certainly *Marie Van Houtte*. *Madame Falcot* is generally represented as an improved *Safrano*—that is, it is fuller; but *Madame Falcot* is, to my mind, not full enough for a summer *Rose*, and too full for a late autumn one. *Safrano* is very thin, and for that reason is, I think, the best of late autumn yellow *Roses*, because it will open when no other *Rose* will. If, during the first fortnight in November, you want a good yellow bud, you may be thankful if you have a plant of *Safrano* on a wall to go to. Mine never fails me at that season, and for that purpose alone I grow and value it.

I wish our respected Secretary had given a fuller criticism of the new *Rose*, *Her Majesty*, in his review of the past season. I think many would have been glad to know if he considered it might justly be called "coarse."

Will someone be kind enough to give a character to *Madame Cusin*, (*Tea*), a fine bloom of which was exhibited by Mr. G. Paul at South Kensington?

I am sorry no one has set my mind at rest on the subject of *Beech* leaves, on which I wrote a few weeks ago.—A. F. M.

THE DAIRYMAN'S ORCHARD.

NEAR the top of the long straight road that leads to *Uxbridge* there is a small Ivy-covered cottage. The door, painted in two tones of green, has a bright brass knocker; the jambs, window frames, and doorsteps are a spotless white, and on each of the four window-sills in front there is a charming little group of *Fuchsias* and *Geraniums*. A strip of flower garden engirdles the front, and on each side the clean asphalted path there is a large *Hydrangea* in a pot. The cottage itself is a plain little Noah's ark-like structure, but the Ivy is always neatly trimmed, and Ivy is the horticultural charity which cover sometimes a multitude of builders' sins. The little house is always bright and cheerful to look at, comfortable and cozy as a chaffinch's nest among the budding *Hawthorns*.

The dairyman is perhaps sixty, but hale and hearty, and in addition to his milk business he found time to plant and cultivate the acre and a quarter of garden ground adjoining the cottage. It is chiefly on this account that I wish to speak. His special hobby is fruit-growing—orchard fruits. About ten years ago the little estate came into the market, and as the dairyman's family had lived thereon for more than twenty years he was naturally anxious about his business and his trees. "They'll help to keep us, missus," he used to say, "if we can keep the cottage." Honest, industrious, thrifty, however, he hoarded every penny in order to purchase the cottage and garden. A friend who accompanied him to *Tokenhouse Yard* on the day of the sale describes his anxiety when, glancing from one to another with up-lifted hammer, the auctioneer repeated, with what appeared to the dairyman, unnecessary emphasis, "For the third and last time, gentlemen, £375 only! A five-roomed cottage, sheds, and an acre and a quarter of orcharding planted with thriving fruit trees. Why, gentlemen, the crop of fruit is an independence. £375, gentlemen. Have you all done?" The dairyman's heart beat quick and audibly as he thought for a moment on the "thriving fruit trees," every one of them worked by his own hands, and tended almost as carefully as his family of rosy girls and boys. At last the ivory hammer tapped the desk and the torturing suspense was at an end. "It's yours, sir," said the auctioneer. "What name, please?" "William Templer," was the reply. "Are you prepared to pay the deposit?" said the salesman, glancing furtively at the homely corduroys and polished bluchers. "Pay it all," said the dairyman; "here, sir, tek it out of that," and he put into the clerk's hands a roll of notes. "There's £400 there." And then he looked across at his friend, and his honest face came all undone, and something dimmed his eyes for a moment, as he said, with feelings which none but he and his could fathom—"I've saved my trees, Naylor, thank God, I've saved my trees."

"Yes, sir," said he, as I walked round with him the other day under the drooping boughs loaded with clusters of ripening fruit—lemon and russet, green and crimson and gold—a charming feature in the autumn landscape, "I worked 'em all myself." It is more than probable that the impetus given to orchard-fruit culture by the present fruitful season, and the quite wonderful and charming display of Apples brought together at *Chiswick* recently, will result in a considerable extension and increase of orchards. It is to be hoped that it will ere long be no longer necessary to send to the continent and America for over three millions sterling worth of fruit that might be grown at home. "I worked 'em all myself," the dairyman repeated, "but I made a mistake in not buying ready-made trees from the nurseries. I lost, I reckon, ten years by that."

But the orchard itself. Perhaps a few entries from the dairyman's mental note-book may be of service to intending planters. The orchard,

as was said, is an acre and a quarter in area, nearly square in shape, and shaded, unfortunately, on the west by a row of tall Elms. There is a deep ditch by the Elms, cut with a view to intercept the roots, but it has been found impossible to check the incursions of the invaders. They descend the slope, cross the ditch at the bottom, and appear on the other side, sending up, if unchecked, scores of wiry suckers. Some of the roots have been discovered 35 yards from the Elms themselves. The eastern half is comparatively free from Elm roots, and the orchard trees have made, of course, a much more vigorous growth in consequence. The subsoil is London clay, but the surface has been regularly dressed twice a year with stable manure, and at least three times yearly also with liquid manure from the cowsheds. It is mainly owing to this systematic dressing and a careful selection of kinds that Mr. Templer owes his success. The ground under the eastern side has been under regular tillage until a year ago, and crops of vegetables and soft fruit have been grown. It is the owner's intention, however, to lay it down and eat off with sheep. Pigs he believes furnish the best manure, but they are less tidy and more troublesome to manage. His single experiment in the way of root-pruning orchard trees was to his mind conclusive. One tree, a Lemon Pippin, was pruned by opening a trench on one side of it two years ago; the pruned side had not a single fruit, the unpruned half was literally loaded with fruit. There are 160 trees in all, about half of them Apples; a third Plums, chiefly the Victoria and the Purple Gage, the latter a great favourite, bearing handsome medium-sized fruit having a delicious flavour. The only Pear carrying a crop this year is the Winter Nelis; as a rule, however, he has found Pear-growing unprofitable.

The Apples are all grafted on suckers from an old tree which stood at the time in a neighbour's garden. They are planted 7 yards apart in the rows and 6 yards from row to row. This distance is now too close for most of the Apple trees, and careful and systematic pruning is necessary to keep the branches from interlacing. The varieties grown consist of Blenheim Pippin, Cox's Orange Pippin, Fearn's Pippin, Ribston Pippin, which cankers badly, as usual, on a clay soil, and is to be discarded, and Devonshire Quarrenden and Lemon Pippin. Culiary sorts in order of importance are Round Winter Nonesuch, Norfolk Beaufin, Keswick Codlin, Northern Greening, and the Minchall Crab. The Nonesuch produced eleven bushels of fine fruit. "Ye see, sir," said the dairyman, swelling with evident satisfaction as he eyed his trees, "I likes a tree with a good spreading growth—a framework like. Why, measure that tree with your tape." It was a Blenheim Pippin, planted twenty-eight years ago. The girth at 3 feet 6 from the ground was 2 feet 8 inches, and the spread of branches 30 feet 6 inches in diameter. The round Winter Nonesuch was 3 feet 1 inch in girth and 31 feet through; it had borne eleven bushels. Another, Blenheim, was 2 feet 6 inches in girth, with a crop of seven bushels. A Fearn's Pippin, bearing six bushels of handsome fruit highly coloured, was 2 feet in girth and 21 feet through, and next to this a small yellow Apple, much like the old Whiting Pippin. The tree, although of the same age, was only 1 foot 4 inches in girth, and bore a comparatively light crop. This question of girth of boll and spread of branches of Apple trees is an important matter to consider for those who, like my friend, grow for profit and look to their orchards as a source of income. At a moderate estimate this little orchard produces £45 worth of fruit yearly. Several of the trees, notably the Blenheim Pippin and Cox's Orange Pippin, were bearing crops, the value of which at a fair market price was as much as the ground they covered. "But which," I inquired, "is your most regular cropper?" "Well, sir, tek 'em altogether the Minchall Crab. It is a good keeper, a capital sauce Apple, and a good regular cropper. For a kitchen Apple it is most useful, and useable even when quite young or half grown."

I had forgotten to say that the dairyman has lately sold off his stock and employs himself in his orchard and garden. It is not only a source of interest and gratification to him from the time when the rosy petals float away on early summer airs till he climbs the ladder to pick the glowing fruit, but it is also a source of income, and altogether a profitable and delightful occupation for his leisure hours.—T. W., Harrow.

ROYAL HORTICULTURAL SOCIETY.

NOVEMBER 13TH.

A FULL and interesting meeting was held on Tuesday in the conservatory, many novelties being shown, and the Chrysanthemums were in especially strong force, Cyclamens and Carnations also being well represented.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Present—Messrs. H. J. Veitch, S. Lyon, Arthur W. Sutton, John Burnett, James Smith, E. D. Blackmore, and George Paul. Messrs. Veitch & Son, Chelsea, sent collections of Beets and Brussels Sprouts, self-blanching Celery, and Capsicums, the latter being very interesting, and representing nine varieties. Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich, was awarded a bronze medal for three magnificent bunches of Gros Colman Grapes, weighing together 15½ lbs., the largest one being 6¾ lbs. Mr. Allan also sent fruits of Improved Telegraph Cucumber 20 inches long, for which a cultural commendation was awarded. Mr. G. W. Cummins, The Grange, Wallington, showed three bunches of Mrs. Pince's Muscat, large and fairly coloured. Mr. B. S. Williams sent fruit of a new Grape named Winter King, which the Committee required to see again. It was said to have been produced by Gros Colman worked on Raisin de Calabre, but was very distinct from either. The berries are long and deep black. Mr. Thomas Woodford, Atherstone, showed fruits of a seedling Apple named Mrs. Stourton, which was not considered of special merit. Mr. G. R. Allis, gardener to Major Shuttleworth, Old Warden Park, Biggleswade, showed three good bunches of Pearson's Golden Queen Grapes, the berries large and well coloured. Mr. Allis also showed three bunches of Lady Downe's Grapes, large and well ripened. Mr. Horsefield, Heytesbury,

Wiltshire, showed three fine bunches of Chatsworth Seedling Grape, each weighing about 5 lbs., well coloured, and of good sweet flavour. Messrs. J. Dickson and Sons, Chester, showed a fine well-netted fruit of Master Charlie Melon, of which, however, the flavour was not very good.

First-class certificates were awarded for—

Apple, Tyler's Kernel (T. Parker, Moreton Cove, Hereford).—A firm heavy Apple, about 3 inches deep, slightly conical, with an open deep eye, freely streaked, and suffused with crimson on one side.

Apple, The Sandringham (C. Penny).—The certificate previously awarded for this Apple was confirmed.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. Present—Messrs. W. B. Kellock, James Hudson, Harry Turner, John Dominy, James Cutbush, H. Ballantine, G. Duffield, H. W. Ridley, John Wills, W. Bealby, H. Bennett, John Laing, and the Rev. G. Henslow. Messrs. J. Laing & Co., Forest Hill, exhibited a large and choice group of Chrysanthemums, incurved, Japanese, and Pompons, including several novelties, especially amongst the Japanese. L'Ordu Rhin, a golden-yellow Japanese, was very noteworthy for the number of its flowers, the large white M. Astory and the mauve Bouquet Fait were similarly notable. Messrs. James Veitch & Sons, Chelsea, showed a group of new Chrysanthemums, chiefly Japanese, including several excellent varieties. Particularly fine were Salterii and Comet, two of Mr. Salter's varieties, both certificated. Rosea superba, with fluted bright rosy florets, is a handsome variety, and Angèle, purplish mauve, is distinct, the florets being flat at the base, but twisted into a point at the apex. Messrs. J. Veitch also had several novelties, amongst them being Cyathea microphylla, a Peruvian Tree Fern, with finely divided fronds 3 to 4 feet long. Spathiphyllum Minahassæ, from Celebes, has a white broadly lanceolate spathe 6 inches long by 3 broad; the spadix is much shorter and white also; the leaves are elliptical, 8 to 9 inches long by 6 to 8 broad. Zygopetalum crinitum cæruleum was considered to be a variety near intermedium, with a dark violet-purple lip. Some others were shown and certificated. Mr. W. Bull, Chelsea, exhibited a collection of new Sarracenias and other plants, several of which were certificated. Cymbidium giganteum was shown with a spike of six fine chocolate-veined flowers. Adiantum Legrandi, with finely divided and curiously bunched fronds.

Mr. H. B. Smith, Ealing, exhibited a large group of Cyclamens, for which a silver Banksian medal was awarded, the plants being extremely vigorous, with large numbers of massive white and crimson flowers. A bronze Banksian medal was awarded to Messrs. Hooper & Co., Covent Garden, for a choice collection of Carnations, well grown and profusely flowered. The varieties were chiefly Irma, deep rose; Purity, white; Jean Sisley, salmon and red; Zouave, deep scarlet; and Alegatière, rich scarlet.

Messrs. H. Cannell & Sons, Swanley, Kent, had a collection of single Chrysanthemums, which attracted much admiration, the colours being diversified and clear. In each case the central florets are yellow, as in other single Compositæ. The best are Mrs. Wills, large mauve and white; Miss Lingard, white; Mrs. Santley, crimson-purple; Miss E. Terry, large rich crimson; G. A. Sala, small rich crimson; Mrs. Langtry, delicate blush; Arthur Sullivan, crimson and white; Gus Harris, rosy purple; Dr. Kellock, rose, large; Henry Irving, pale pink; and Mr. Toole, clear yellow. Flowers of the white Chrysanthemums Star of Wyke and La Vièrge, both good varieties. Plants of a variegated Libonia floribunda and a gold-variegated Heliotrope named Albert Delaux were also represented. A. R. Kesterton, Esq., Dudley House, Nightingale Lane, Balham, exhibited a plant of Oncidium Schillerianum, with a large panicle of small yellow flowers. A vote of thanks was accorded to Mr. Hudson, The Gardens, Gunnersbury House, for a plant of Celsia cretica, bearing three fine spikes of flowers. Mr. Fry, Virginia Water, showed a sport from Chrysanthemum Golden Empress, which was considered to be Empress. Mr. May, The Gardens, Northau House, Barnet, Hants, showed blooms of Chrysanthemum Wm. Robinson, a buff-coloured Japanese, and Bouquet Fait, unusually fine. A vote of thanks was accorded to H. J. Buehan, Esq., Wilton House, Southampton, for a double spathe of Anthurium Andreanum, the outer spathe 6 inches long, with smaller one growing from the base of the spadix. Mr. B. S. Williams, Upper Holloway, showed a plant of Begonia Madame Henri Guehe as an ornamental-foilage variety, with handsome shining leaves, crimson, green, and silver. A vote of thanks was accorded to Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, for a large-flowered and deeply coloured variety of Oncidium Weltoni. Mr. Ward, gardener to G. Waddell, Esq., Stony Stratford, showed a plant of Dendrobium album with two flowers. A vote of thanks was accorded to Mr. G. Allen, Horthenden Road, Sale, for a plant of Nephrolepis exaltata, which was shown as a seedling. Votes of thanks were accorded to Mr. W. Smythe for a fine flower of Amaryllis reticulata; to Mr. Wallis, The Gardens, Keele Hall, for a flower of a double Eucharis with ten petals; to Mr. W. Parkinson, Birkenhead, for flowers of double white Primula; and to Mr. Odell, Gould Green, Hillingdon, for a group of deep crimson single Primulas. Messrs. T. Jackson & Son, Kingston, exhibited a stand of Chrysanthemums, several of which were certificated. A pretty group of Chrysanthemums was also shown from the Society's Gardens at Chiswick, and included many of the newer varieties, extremely well flowered.

Mr. G. F. Wilson exhibited specimens of the Wilson Digger, an instrument with a trowel-like handle and a long narrow steel blade for lifting plants.

First-class certificates were awarded for the following plants:—

Rhododendron Curtisi (Veitch).—A very distinct species from Sumatra, of compact habit, with lance-shaped thick leaves, 1½ to 2 inches long, quarter to half-inch broad. The flowers are bell-shaped, slightly pendulous, three-quarter inch long, deep shining crimson with a tinge of scarlet, and are borne in heads of three or four.

Zygopetalum Burkei (Veitch).—A pretty species from Guiana; flowers four to six in a spike. Sepals and petals 1 inch long, green, mottled and streaked with chocolate. The lip is white, the projection at the base being purple.

Cymbidium affine (G. N. Wyatt, Esq., Lake House, Cheltenham).—A fine plant with two spikes were shown of this beautiful Orchid. The larger spike contained thirteen flowers; the sepals and petals white, 2 inches long; the lip white stained with purple. It is very fragrant and of sturdy habit.

Sarracenia Swainiana (Bull).—A hybrid between *S. variolaris* and *S. purpurea*, with deep red pitchers, having broad heavily veined lids.

Sarracenia Wilsoniana (Bull).—A cross between *S. Drummondii rubra* and *S. purpurea*, similar in shape to the preceding, but with broad, distinctly marked crimson veins.

Trichosma suavis (Bull).—A pretty Orchid, with spikes of small white flowers, the lip streaked with claret and tipped with yellow. It is very fragrant.

Iresine formosa (Goldsmith).—A sport from *Iresine Lindeni*, with leaves similar in shape, but broader, green veined with yellow, the stems and petioles crimson. It has been tried for three seasons at Hollenden Park for bedding-out, and proved very constant.

Violet Comte Brazzi (Allan).—A double white Neapolitan Violet, with very large flowers, pure white, and shown in contrast with Marie Louise and the old Neapolitan, to both of which it was superior in size.

Chrysanthemum George Stevens (Mr. G. Stevens, Putney).—A charming reflexed variety, shown as Stevens' No. 1. It is a compact bloom, with flat florets, crimson-chocolate, slightly incurved in the centre, showing the gold under surface.

Chrysanthemum Mdle. Darnaud (Laing).—A neat Pompon, with small blooms, deep rosy purple, very free, and distinct.

Chrysanthemum roseum superbum (Laing).—A Japanese variety, with fluted recurving florets deep rosy purple. Very handsome in colour and form.

Chrysanthemum Salteri (Veitch).—Very compact Japanese variety, full bloom, rich scarlet-maroon, the golden under side of the fluted florets.

Chrysanthemum Comet (Veitch).—A Japanese variety, with flattish florets, orange-red, the centre incurving and showing the golden under surface. Very free and attractive.

Chrysanthemum Bendigo (J. Ridout, gardener to T. B. Haywood, Esq., Reigate).—This was shown as a fixed sport from Mrs. Heale, which it much resembles in petal and build of flower, but is of a clear pale yellow tint.

Chrysanthemum Mons. Henri Jacotot (Jackson).—A Japanese with flat florets, the centre incurving and orange-yellow, the outer drooping and deep red.

Chrysanthemum Mdle. Le Croix (Jackson).—A handsome Japanese, with flat irregularly cut florets, the blooms 6 inches in diameter and pure white.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Potatoes Protected from Fungus Spores.—The Secretary referred to communications received from Mr. Plowright and M. Jeuser on the subject, the experiments and the results obtained by the latter gentleman being given in the *Gardeners' Chronicle* for July 28th. Mr. G. Murray questioned the possibility of the tubers being infected by the spores directly, as the tuberous tissue would not allow them to germinate; the only method of attack being believed to be by the mycelium penetrating the stem and so reaching the tubers.

Sclerotia in Potato Leaves.—Mr. G. Murray read a report on these bodies, and pronounced them to be oxalate of lime—none of the phenomena of "plasmidiation" or "myceliation," &c., were to be seen. They are soluble in dilute nitric acid, and insoluble in acetic acid. The excess of nitric acid being neutralised by ammonia, crystals of oxalate of lime appeared.

Narcissus viridiflorus.—Specimens of this plant in flower were sent by Mr. G. Moore from Gibraltar, and exhibited by Dr. M. T. Masters.

Convolvulus tricolor.—Mr. G. S. Boulger exhibited an inflorescence of this plant, received from Mr. Gibbs, with a terminal flower bud.

Cephalotaxus Fortunei in Fruit.—Sir J. D. Hooker exhibited a branch with fruit of this plant, received from Rev. T. Goring of Wiston, Sussex.

Ear-cockle in Wheat.—Mr. W. G. Smith forwarded the following communication—"Whilst examining a number of galls of *Tyleuchus Tritici* in Wheat spikes, I observed one gall with both the transparent lodicules present at the base. The idea seems commonly accepted that the galls represent these two lodicules and no other part of the flower. Mr. Carruthers, in a paper recently published in the *Journal of the Royal Agricultural Society*, favours this idea. But no doubt Devaine was right when he said that any of the central parts of the flower were liable to an attack from the *Tyleuchus*, and that the gall might represent the pistil or stamens. Devaine states that he once found one of these galls growing from the base of a leaf."

Isaria fuciformis.—Mr. Smith also sent specimens of this fungus (from Australia) from the site of the model farm at Glasnevin. Mr. Smith described the fungus as British in the *Gardeners' Chronicle*, with illustrations, last year. The fungus is spreading over the country, and generally attacks *Festuca ovina*.

EARLY CHRYSANTHEMUMS.

CHRYSANTHEMUMS are grown for other purposes than publicly exhibiting their blooms; and although many persons who never stage their flowers have pride in growing them of exhibition quality, yet the vast majority of cultivators grow their plants for home-decorative purposes, and thousands who are never heard of grow them well. Some of the most useful varieties are practically not eligible for exhibition as cut blooms, as there is, in fact, no class for them; and doubtless their merits do not consist in the individual excellence of their flowers, but rather for the free-growing and profuse-blooming character of the plants. In this category are the floriferous and useful *Sœur Melanie*, *Julie Lagravère*, and some others that might be named; also varieties that flower naturally early and long before the date of even the earliest *Chrysanthemum* shows. Early *Chrysanthemums* are extremely useful and increasing in favour yearly; new varieties of merit are also being produced.

On page 311 Mr. Piercy of Forest Hill directed attention to several excellent varieties, of some of which he sent flowers. Two of these we have had engraved—Mrs. Cullingford (fig. 80); and Lyon (fig. 81). The former is not one of the earliest, but undoubtedly ranks amongst the best; indeed, it is not improbably the best white variety for flowering in September. It was in fine condition at the National Dahlia Show at the Crystal Palace on August 30th, where it was staged by Mr. Davis of Camberwell, who had also among others the useful Japanese variety *Madame Desgranges*. There also was the little gem, *Petite Marie*, for

which Mr. Ware was awarded a first-class certificate last year, and should be grown everywhere.

Mrs. Cullingford is much taller, larger, and later than the one just mentioned. It is a great improvement on *White Trevenna*, being larger, fuller, with broader florets than that variety, and is also earlier. It appears intermediate both in character of blooms and time of flowering between the small summer varieties and the larger and later reflexed autumn *Chrysanthemums*. Mrs. Cullingford is likely to be useful for early autumn decoration, hence is mentioned here.

Lyon is essentially different. It is evidently most floriferous, and its dark rosy purple clusters are highly effective. It was alluded to as follows by Mr. Piercy:—"One of the best new (early) Pompons is Lyon. It is of French origin; colour, rosy purple, much the tint of *Madame Piccol*, and makes the latter of little value, only that it is rather later. Lyon blooms in September from spring-struck cuttings, and is a superb Pompon in every respect; an admirable plant." The flowers that were sent to us justified that estimate, and were the finest of the colour we



Fig. 80.—Mrs. Cullingford.

have seen so early in the season. All who desire a profusion of rosy purple flowers at the period indicated may safely try this excellent variety.

GARDEN CHEMISTRY.—SOILS.

PEATS, VEGETABLE MOULDS, AND HUMUS.

LIKE the word "loam," peat has an exceedingly indefinite meaning in a gardener's mouth. It generally means anything turfy and black. There are any number of varieties, or rather we might say species were such allowable, of peat, each species including several varieties; but it will, perhaps, be more correct to make such a division as we did in the case of loam, when clay formed one end of the series and sand the other. In the present case we may make moss-peat one end of the series, and soil such as results from the decay of fallen leaves, dead ferns, and grasses the other. Outside this series we still have leaf and vegetable soils and humus, which are not in any sense peat.

First comes moss-peat. Of this there are square miles in our own country; but ignoring the fact, we have begun to buy, and largely too, the bogs of Germany, for peat moss is just the dead, half-decayed, half-preserved sphagnum moss which grows in bogs and is found

many feet thick wherever the circumstances have been favourable to its formation. It is this kind of peat which is used so largely in the cultivation of Orchids, and at one time was used fermented along with stable litter as manure. This kind of peat is to be found in all stages of decomposition from the state in which the moss seems only dead and no more (in which state it is best for Orchids) down to black greasy bog earth, which, when sweetened by exposure or after being long laid dry by draining, is good for mixing with light sandy or gravelly soil in the formation of Rhododendron beds.

Then, also formed in bogs, but either when artificially as by draining, or naturally when the outlet for the water has by any means been lowered, so that not enough moisture is present for maintaining the sphagnum in life, is the peat formed from bog grasses. This essentially differs from the moss-peat, and, though inferior to the former as a fuel, is much superior for cultivating plants in. For all outdoor work it is decidedly better than moss-peat, and when cut in turves from off bogs long laid dry, and the turf kept for a year or two till properly decayed it forms, when mixed with sand, sandstone, and charcoal, a really good soil for almost all Ericaceous plants in pots, though not, perhaps, the best to be got. Still, in such material Heaths, Azaleas, and similar hardwooded plants are often grown to perfection.

Next in order to this is a very similar kind, but which differs from it in so far as it never has been formed in bogs, is never of any great thickness, and is very often found covering the sheerest sands which have never been considered worth cultivating. Often this description is found covering the bare freestone rock, and in such positions it forms the best peat going for fine hair-rooted plants. As the surface generally consists of fibre and black soil mixed with more or less sand it is long in decaying, and requires to be cut a long time before it is wanted. Of course the best kind is that which has just the right proportion of the best sharp silver sand in it, and frequently such is to be found. It is, nevertheless, often of first-rate quality though containing no sand at all, and it is better thus than having a deal of very fine sand mixed with it. As a rule only the turf or upper 3 or 4 inches of such is taken when for pot plants, but for beds the whole depth may be taken. Peat of this kind is very often covered with *Calluna vulgaris*, and when this plant grows freely in it, it may be taken as proof that it is suitable for Heaths and hair-rooted plants in general. But this guide is only general, the *Calluna* often growing in very wet peat. In choosing peat for hardwooded plants the rule should invariably be observed to take it from where water never under any condition lodges if a choice is at all possible.

As no hard-drawn line can be drawn to distinguish one kind of loam or peat from another, so it is no easy task to draw the line between such peat as we have here named grass-peat and the light loam to be found in sandy soil. As a rule the peat is on the poorer bottom. White sand may support grasses that by-and-by will form peat, or rather we ought to call it moor earth. Brown sand is, though very far from rich, yet richer, and supports grasses of quite a different kind—grasses that rot more readily, and do not, therefore, so readily assume a peat-like form; grasses that will yield nourishment to animal life, and out of which what is often called humus is formed; grasses that collect nitrogen and phosphates, potash, lime, &c., and when decayed will grow a corn crop. The one becomes black, the other remains brown; and though the one merges into the other, yet the black is on the peat side of the line, the brown on the loam. Frequently the latter can be had off very poor sandy soils when the other cannot be had. For many purposes it is of great value, and when pretty well decayed and the loose soil shaken out and blended with proper leaf mould, it is perhaps better for strong growing members of peat-loving plants than pure peat. For *Lapagerias*, *Camellias*, and even *Azaleas* and *Rhododendrons* and hardy *Ericas*, we have found it decidedly better than peat proper, especially when the peat was not first-rate.

FERN-PEAT.—This may be said to be the connecting link between peat and vegetable mould. When found in woods, when Oak and other leaves have settled among the decaying fronds, and both have become soil together, bound in one web, of which they form the woof, by the warp of the roots the Ferns produce, it is more vegetable mould than peat. This fibre, from *Lastrea dilatata* or even *Pteris aquilina*, is the best peat by far for Orchid cultivation. Sweet, fresh, nourishing, open, porous, not liable to decay, it is far before the true moss-peat. The fine material shaken from it, half peaty, half leaf mould, is capital for Fern-growing in pots or out of them.

But great tracks of brake may be seen where no trees are, and where for many, many years the stems and fronds and roots have accumulated in decay till some inches of Fern-peat have been formed. This also is a capital article when taken from where no stagnant water sours it, for almost all the purposes named for which the Fern-peat of woods is mentioned, and, in addition, for many of those for which grass-peat is suitable.

LEAF SOIL.—One step further than Fern-peat brings us to leaf

soil. We do not mean vegetable soil made from leaves, but the flaky, peaty-looking, sweet mould which is found after years of accumulation, in woods, especially where Oak and Beech flourish, and add their annual contribution towards the sum total. There is hardly anything for which this is not suited. Peat proper is soil, only a rooting medium, and generally very poor soil. Leaf mould looks almost like peat, but has been formed from very different materials than the sphagnums, *Juncuses*, *Carexes*, and grasses that grow in bogs or moors. These yield very little ash when burned, and the little they do yield is not of the kind which higher plants use. Leaves of Beech and Oak are rich, not only in the ash constituents of the higher orders of plants, but in the matters which form the flesh and bones of animals. Such matters nourish swarms of the minutest creatures, and hence such decay rapidly—they are eaten up, and the resulting mould is rich in animal excreta; and supposing there were animals that could



Fig. 81.—Lyon.

live in peat their excreta would be of no great value. But peat is not thus eaten, does not decay, is permanent, is soil, is not food. Leaf soil is soil and food both.

Leaf soil when it has been made very slowly, where worms did not work it into puddle, nor rapid fermentation and much wet turn it sour, is certainly the leaf soil for use in the cultivation of plants in pots. Years ago we had proved its superiority to ordinary leaf mould. Ordinary soil made from huge heaps of leaves is generally full of acids which corrode young roots as if rusted, and fails to produce results equal to leaf mould. Those who wish to have a clearer insight into what constitutes proper and what improper leaf soil cannot better do than read a remarkable paper by Mr. Wright in the *Journal of Horticulture* for April 26th, 1883, if they do not get a clear idea from what is above.

The use of pure flaky soil cannot be entered into here. We are rather inquiring into the nature of the materials necessary than detailing their use. To do so would necessitate our travelling into the domain more of practice than of theory; and however desirable this might be, would swell these papers to a greater length than is intended.

VEGETABLE SOIL, or, as it is often termed, humus, differs from peat in many particulars. Peat is decidedly vegetable mould in the sense that peat is formed from vegetable matter, but not in the sense that is usually employed, nor as employed by Darwin. The word

"humus" is often employed to denote the soil to which we refer, but the word expresses no exact idea, nor is it, perhaps, possible to make it do so. Perhaps we might say it is the remains of animal and vegetable matter, in which, among other germs, bacteria swarm, and in which earthworms can exist. It may be doubted if bacteria exist in peat, and certainly pure peat sustains no worms; yet from the point where pure peat ends—where bacteria appear and worms live—to the richest garden mould, there is any amount of difference from a soil that is poor and yields little food either to animal germs or plants, to that which is rich and is capable of supplying much to both. It is not merely a question of quantity but of quality. Ten per cent. of humus may exist in soils and represent but little food in reserve; five per cent. may be all the amount, yet contain more than the ten. We suppose humus from Rye straw is humus still, and that from sewage nothing more; but they must be vastly different in many respects. Even when neither are in a condition to yield anything the reserve matter stored in both must differ greatly. For this reason the humus in gardens which results from good manure, or even from vegetable refuse, must differ from that in fields which result only partly from manure and greatly from corn and grass roots, stubbles and dead weeds. The one contains in its organic part much nitrogen, the other not much; the one is rich in phosphates and potash, the other in silica. But we might go on indefinitely enough. Humus is an indefinite term. Like loam, like peat, like the animal and vegetable kingdoms, it begins at 0 and amounts to any sum fancy may fix.

But though the thing itself is indefinite it has certain properties which are definite enough. Like clay, iron oxide, and other soil constituents, humus has the property of keeping manurial matter from being washed from the soil. Of all soil ingredients humus attracts and holds water best. Very light-coloured soils are ill to warm, and part with their heat most readily. When darkened by humus they absorb heat more readily and retain it better. Most of the nitrogen present in soil is in the humus. It also supports a bacterium which not only converts the nitrogenous matter present into nitric acid, but also that of applied manure. When organic matter is absent this change does not take place. In it geic, humic, ulmic, crenic, apocrenic, and other acids, including carbonic, are always present, which not only combine with ammonia to prevent its escape, but continually act as solvents on the mineral plant-food present. It is these that render lime soluble and cause its rapid disappearance from highly manured soil. These, acting on tricalcic phosphate, render it dicalcic, in which state it is easily attacked by the roots of plants. When they reach the iron which binds some subsoils into "pans" it is dissolved, and the pan put an end to.

It is to humus that the fertility of American forest and prairie land, as well as the famous black soil of Russia, is owing. It is the food liberated from the over-abundant humus of old garden soils by the application of lime that causes it to do instead of manuring, so long as the humus holds out. It increases the fertility of very sandy soil almost as much as clay would do; in addition to its manurial effect, and it lightens as well as enriches heavy clay. It is always largely present in rich old pastures, and then misleads those whose ideas of "loam" are vague. It is for want of it at the surface that new-laid-down grass pastures are thin of turf, weedy, and poor. Yet it may be too largely present, as it often is in old garden soils, which then get to be so full of worms that the soil gets greasy, sour, inert; so that Cabbages will not grow in it, Potatoes are bad, fruit trees get rank and unfruitful, their roots die, and the tops canker. Lime will cure all this as has elsewhere been shown. But new soils contain often not enough, and their fertility would be greatly increased by its presence in larger quantity. Ordinary manure and the addition of all sorts of vegetable refuse will secure this end. When artificial manure is used, and indeed in all cases, this could be done by keeping every bare inch covered with vegetation to be dug in. Twelve per cent. may be regarded as a medium amount of humus. If below this, efforts ought to be made to increase the amount, especially in the case of very light or very heavy soils. If much above it its reduction would be no evil, but the reverse, for too much greatly encourages vermin of all sorts in addition to the other evils named.—
SINGLE-HANDED.

GARDENS ABOUT BRISTOL.

OLD SNEYD PARK.

THERE are few more delightful places than this, the summer residence of F. Tagaart, Esq. The landscape is wonderfully varied, and includes Clifton, with its numerous handsome residences, in the background. To the left is the noted Clifton suspension bridge with its romantic surroundings; then there is the valley of the Avon, through which immense quantities of shipping goes to and returns from Bristol; while beyond this valley the glorious expanse of forests known as Leigh Woods are to be seen in all their beauty. The autumn tints this season are unusually bright and good, and many a pleasing picture might easily be painted from the pleasure grounds of Old Sneyd Park. The place, too, is well kept up and proves very attractive to the many visitors who avail

themselves of Mr. Tagaart's kindness in throwing open the place once a week during the time the grounds are at their best. One of the features of the place is the large circular carpet bed disposed near the carriage front entrance, and this at the time of my visit was looking remarkably well. In the centre stands a large handsome vase, but the square base of this rather interferes with the design for planting. Fully 8000 plants are required to fill this bed, these including all the approved sorts of Alternantheras, Iresines, Sedums, and other "carpeting" plants. In some of the panels Tradescantia zebrina was very effective, as was also the creamy variegated Pelargonium-like Tropæolum nanus Warrenii. As "dot" plants Sempervivum arboreum aureum was very attractive, and Chamæpeuce diacantha, American Agaves, Echeverias, and other succulents figured well in this excellently designed and planted bed. Other beds were well planted, and the long mixed borders near the house were gay with Marguerites, single Dahlias, Japanese Anemones, Violas, and other well-known bedding plants. There are also good herbaceous borders near the kitchen garden.

The conservatory adjoining the house contains a good assortment of plants, including a fine specimen of Cibotium spectabile, and a recess with its miniature fountain and banks of Ferns as viewed from the rooms presents a delightfully cool and pleasing appearance. There are a considerable number of plant and fruit-growing houses, but they are rather scattered. Orchids are extensively grown, some of the specimens being exceptionally large, while several choice kinds not always to be seen in a healthy state, notably Cypripedium niveum, in large pans are growing freely. One large basket of Stanhopea grandiflora had recently produced thirteen strong flower spikes, and others had done nearly as well. In order to prolong the duration of the usually short-lived Stanhopea blooms, Mr. Miller, the energetic and practical gardener in charge, stated that he hangs the baskets under a tree on the lawn before the buds have expanded, and here they gradually open and keep fresh and beautiful a much longer time than if bloomed under glass. Several plants of Oncidium macrophyllum were blooming strongly and prove serviceable at a time when Orchid blooms are rather scarce. The back wall of one of the plant stoves was beautifully furnished with a mixture of fine-foliaged Begonias, Tradescantias, Panicum, and Ferns in variety, the soil for these being enclosed by strong wire netting. Among the specimen plants were large highly coloured Crotons; Dracenas, and such Ferns as Gymnogrammas, Adiantums, and Davallias are in fine condition. Rondeletia speciosa is largely grown, and its bright orange-red flowers are very showy and serviceable, while two very large specimens of Abutilon Boule de Nieve in an intermediate temperature yield a profusion of white flowers all the year round. When allowed to grow to their full extent as at Old Sneyd this and other Abutilons, such as Fire King, Fire Fly, and Golden Gem, are wonderfully floriferous, and are particularly well adapted for planting in large conservatories.

The most serviceable range of houses are in the kitchen garden. One compartment devoted to heat-loving plants was quite a treat to me, so healthy and cleanly grown were all such kinds as Poinsettias, Eucharis, Pancratiums, Crotons, Gardenias, Allamandas, and Dipladenias. On the back wall and roof the Allamanda Schottii, Bougainvillea glabra, and Dipladenia boliviense—the flowers of the latter being the finest I have yet seen—were charming. Dipladenias, including the richly coloured D. Brearleyana, were also flowering freely. Poinsettias planted out and trained over a wall were growing luxuriantly, and from these last season were cut whorls of floral leaves 23 inches in diameter. Eucharis amazonica are exceptionally well grown, one pot alone having produced 120 flower scapes this season. It was here that the magnificent specimen pot of Eucharis that proved so attractive at the grand show held at Manchester in 1880 was grown. The monster specimen of Latania borbonica is also noteworthy. Soot is Mr. Miller's favourite stimulant or fertiliser, and I noticed it had been employed when watering a great variety of plants, including the Eucharis, Gardenias, and Poinsettias. It is most easily applied when kept mixed in the form of paste and stored in a flower pot. A small piece only should be used, or just sufficient to blacken the water.

Grapes are well grown in the various houses, and a few days prior to my visit a considerable quantity of half-ripened late sorts had been stolen. The thieves, however, overlooked a fine crop of Muscats in the next house, among which much the best in point of weight and appearance of crop is a seedling Muscat, said to be the result of a cross between Canon Hall Muscat and Golden Champion. It much resembles the Canon Hall in its general appearance, but apparently is a better setter, and it seemed to me to have a less pronounced Muscat flavour. The Peach house is being re-arranged, and will eventually produce a much greater number of fruits than heretofore. The wire trellises are now arranged across the house at right angles with the front, and about 5 feet apart. A coarse-mesh strong wire network is employed, and arranged so as to admit of the trees being planted in pairs back to back and yet clear of each other. This profitable method of training Peach and Nectarine trees, which appears to be fast gaining ground, does not interfere with the cropping of the back wall, and in this case, the house being high and light, there will be no necessity to unduly restrict the growth of the trees.

Peaches succeed admirably on the open wall in the neighbourhood of Bristol, and at Old Sneyd I saw a quantity of fine fruit on Lord Palmerston Peach, and Victoria Nectarine and other varieties had done well. Two immense Fig trees yield great numbers of fine fruit. They receive the benefit of the shelter of a high stone wall, but are not closely trained and in this free state the growth is short-jointed, hardy, and fruitful. The more Figs are pruned and nailed-in, the more gross and delicate the

shoots will be. On this same high stone wall I noticed an extraordinary crop of Trophy Tomato, and in this garden Tomatoes, I am informed, seldom fail to ripen heavy crops. The soil of the garden seems extremely fertile, and nearly everything in the way of vegetables, hardy fruits, and flowers succeeds admirably in this highly favoured spot.—W. IGGULDEN.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

No. 9.

IN consequence of its mode of growth the Strawberry is a plant peculiarly exposed to the attacks of insects that are accustomed to secrete themselves, when not feeding, beneath the soil or under the shelter of chance objects. Much injury may be done, and the cause escape detection, if the rows are not examined both by day and night. Washing and syringing cannot always be carried out, even if this were of proved utility in the case of some insect pest, nor can the plants be beaten or shaken with advantage, and searching for small species is tedious work, yielding unsatisfactory results. Something may be done in the way of trapping certain insects whose habits are known, but the destroyers at the roots are apt to escape notice until the injuries are well-nigh fatal to the plant. We have an advantage over these subterranean species with those crops that can be shifted from place to place in a way that is not possible with the Strawberry. It is one of those plants occasionally attacked by the grub of the crane fly (*Tipula* sp.). We had an instance reported to us this summer, and so numerous were the enemies that it was found necessary to destroy the bed, no remedial measures answering.

We proceed to notice the beetles that are hurtful to the Strawberry in various stages of its growth, and begin with those species which have been mentioned in this Journal of late as decidedly mischievous to the ripe or unripe fruit, but which, if previously enemies, had somehow been overlooked. Indeed, when the circumstance was first reported to me, I replied unhesitatingly that I believed there was an error, and that the beetles in question had visited the Strawberry rows to devour smaller insects and molluscs. But one lives and learns. Both in Britain and in America observations in several localities prove that more than one species belonging to the family of the Carabidæ, carnivorous by habit, and reputed formerly to be friends and not foes, will destroy quantities of Strawberries. One of the conspicuous species has been identified as *Harpalus ruficornis*, fig. 82, and it is most probable some others in that genus act similarly when they have opportunity. The beetles of the genus are variable in size and colour even in the same species, and are therefore difficult to classify. The "tarsi" or feet of the males have the basal joints dilated, and the wing-cases are generally dotted over with numerous punctures. During the day they hide under any convenient object, or, should the weather and soil be dry, they will get into cracks of the earth. After dark they come forth, perhaps by hundreds, where they have established a colony in a Strawberry



Fig. 82.

bed, and feast upon the fruit much to its damage. Why they should devour this instead of, or in addition to, their natural food is at present unexplainable, the chief point with the gardener is to put a stop to their proceedings. Trapping them has answered well. At first putting down pieces of board and slates was tried; the beetles concealed themselves under these, but their agility enabled them to escape frequently when they were turned over. It was found an improvement to lay in suitable spots drain pipes filled with hay, which served to attract the beetles, and from which they could readily be shaken and killed.

Samples of beetles belonging to another genus, *Amara*, have also been forwarded, accompanied by the statement that they were caught in the act of feeding upon the fruit. These, like the *Harpali*, are predatory and combative, so much so indeed, that several of them cannot be kept together in a box without a skirmish speedily commencing amongst them. Popularly they are called Sunshiners, because they love the sunshine, and therefore differ from the preceding in appearing by day and only hiding when alarmed. An old superstition is that ill luck or misfortune will befall the person who kills a Sunshiner; but in spite of this the gardener must protect his Strawberries from beetles of such an eccentric taste if he can. Trapping might be tried with these also, as they are supposed to hide at night. Having wings of good size, which they readily put into use, they are not always to be caught by day when they are seen. In form they are somewhat squat, with the thorax broad behind, and the wing-cases striated, are small in size, colour mostly blue or bluish green; some individuals are bronzy, or even black. The larvæ of all these species are supposed to be feeders upon other insects of subterranean habit, and therefore they may help to check some of those which damage roots.

Miss Ormerod, in her excellent "Manual," gives a prominent place to the green or rose chafer, *Cetonia aurata* (fig. 83), as a foe to the Strawberry, but I do not think it has been often complained of by

the cultivators of this fruit. The mature insect is said to injure the blossom, and from its size and appearance could hardly fail to attract notice where abundant, as I have sometimes seen it hovering in parties about Privet bloom or Roses in full flower. From its underground life, however, the larva or grub might escape observation easily, or be unrecognised if turned up with sundry creatures of similar habit. June is the month in which the beetle usually emerges. On the upper side the colour is metallic green with whitish streaks resembling cracks across the wing-cases; the under side is coppery, tending to a rosy hue. The structure of the thorax prevents the wing-cases from opening widely, so that although the insects fly well they cannot raise these when on the wing in the manner beetles commonly do. The clubs of the antennæ are composed of tiny flat plates, which are moveable like the divisions of a fan. All the older entomological works state that the larva feeds upon wood; in reality it is, as noted above, very commonly a destroyer of the roots of low

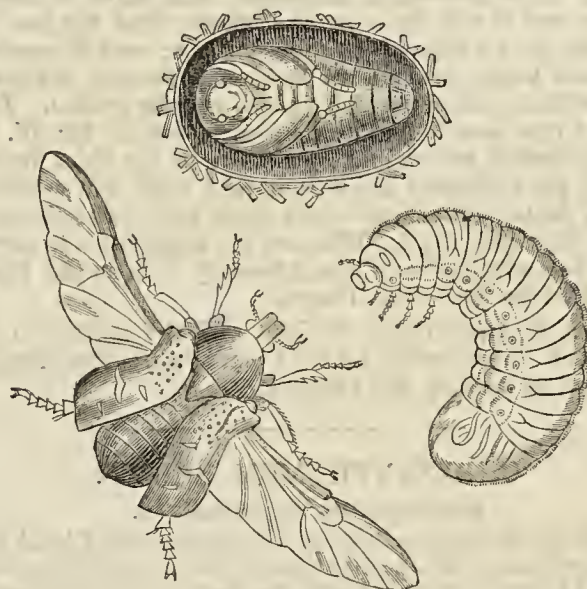


Fig. 83.

plants or shrubs, but lives also in decayed wood or wood soil. Resembling somewhat the grub of the cockchafer, it is rather thicker than that insect, and clothed with short hairs. It is usually discovered lying in a curved position, the hinder part of the body being thicker than the head; their life as larvæ is reckoned to last about two years. Rooks are reported to hunt them eagerly, and the application of diluted gas lime or a weak solution of paraffin has been recommended where their presence is suspected. There is no great difficulty in securing the beetles by a hand net.

When killing beetles amongst our Strawberries we must avoid injuring any species that is beneficial. *Carabus auratus*, for instance, one of the ground beetles, we are likely to see running eagerly about in search of its prey; it seizes caterpillars, snails, and other beetles, fearlessly laying hold even of the bulky cockchafer. This insect is golden-green, with a larger body than the rosechafer, and we at once distinguish it from that species by the three sculptured ribs on the wing-cases. The blackish larva or grub is also a killer of insects. This only comes forth at dusk to hunt. There are, however, other beetles that are now and then foes to the Strawberry, but which I merely name here, as their history belongs to that of other plants they visit more habitually. One of these is the bracken dock or June bug, *Phyllopertha horticola* (fig. 84), an enemy of fruit trees; but the beetle has in some



Fig. 84.

seasons stripped Strawberries of their blossoms. Then *Otiorynchus sulcatus*, also called the black or Vine weevil, has been taken on the fruit of Strawberries; and the grub of another, the red-legged weevil, *O. tenebricosus*, occasionally infests its roots. The particular aphid of this plant is named from it *Siphonophora Fragariæ*. It is a shining green with long antennæ and red eyes, very like the aphid of the Rose. Some years few are to be perceived, in others they cluster on the fruitstalks during May.—ENTOMOLOGIST.

PANSIES AND VIOLAS.

I MUST thank "H., Notts," and Mr. H. Cannell, jun., for their excellent endeavours to answer my query—namely, What is the difference between a Pansy and a Viola as at present grown, sold, and exhibited? I emphatically disclaim any intention of throwing discredit upon our so-called Violas as bedding plants; on the contrary, I grow them largely, but as Pansies and Violas have of late years occupied a place in almost

all the spring flower shows, and have been allotted separate classes, it is obvious there should be some rule to distinguish one from the other, such as there are in Carnations, Picotees, and Pinks.

I have seen exhibited in a class for twenty pots of Pansies (nursery-men) some of the same varieties that the same exhibitor staged in the class for twenty pots of Violas, and gained prizes in each case. There is no rule by which a judge can disqualify them. It is very easy to see the difference in the case of such varieties as Blue Bell, which is only removed one step from its parent, *Viola cornuta*. But raisers have not been satisfied to stop at the first cross; they have continued crossing until the bulk of the so-called Violas resemble Pansies more than they do their parents on the cornuta side.

I enclose a copy of a group of Pansies grown by Mr. Hogg, florist, Paddington, 1834, considered the best then in cultivation; and I think if Mr. H. Cannell, jun., could see it he would be convinced that the Pansies grown by his great grandfather a hundred years ago were not nearly so good as some of those called Violas at the present time. One of the group named Lucy seems to me exactly like *Viola lutea* Grievii. Now compare *Viola* Sovereign, Holyrood, and many others with the enclosed copy, and it will be seen at a glance that the best Pansies of 1834 were only poor Violas of the present day; and if separate classes for Pansies and Violas are not to become a farce it is time there was some distinguishing rule by which judges may be guided. I have often thought that a rule something like that suggested by Mr. W. J. Murphy, if it could be carried out, would be a move in the right direction—that a *Viola* shall have distinct lines radiating from the centre, all those having a solid blotch of colour would then have to be classed with the Pansies; but the difficulty is, Who are the authorities to carry out any rule, as I am not aware of any Pansy Society such as the Rose Society, the Auricula Society, &c.—WM. PLANT.

[There is a Scottish Pansy Society, and the matter in question is well deserving of consideration by the Committee. The group of flowers referred to shall be seen by Mr. Cannell.]

CHRYSANTHEMUM SHOWS.

EASTBOURNE, NOVEMBER 7TH.

THE first Show of this new Society was held in the Floral Hall, Devonshire Park, Eastbourne, an excellent place for an exhibition—large, light, and lofty; and being illuminated with the electric light in the evening made the Show very effective. The exhibits generally were very satisfactory, and gave good hopes that the Exhibition will be repeated another season.

Cut Blooms.—These were very fair, of good substance, though the Show was early. Mr. J. Ridout, Reigate, was first with twenty-four incurved, having blooms of good size, excellently finished, very fresh, and even, though there was an absence of monster "back rowers," as some call them. The varieties were Lady Hardinge, Beauty of Stoke, Mr. Brunlees, Emily Dale, Mrs. W. Shipman (fine), Mrs. Heale, Lady Slade, Prince of Wales, Gloria Mundi, John Salter, White Venus, Cherub, Golden Eagle, Novelty, Nil Desperandum, Geo. Glenny, Venus, Mrs. Dixon, Antonelli, Beverley, Mrs. G. Rundle, Miss Hope, Aurea Multiflora, and Bendigo—a new sport from Mrs. Heale, the colour something like Angelina, only lighter in the centre; this was the finest bloom in the Show, and was awarded a first-class certificate. Mr. Jupp, Torfield Gardens, Eastbourne, was a fair second with similar varieties. Mr. J. Ridout was again first with twenty-four Japanese blooms, very highly coloured flowers of good size and substance. The best were Peter the Great, Elaine, Triomphe du Nord (grand), Bertie Rendatler, Soleil Levant, Madame C. Audiguier (not very good for this variety), Fair Maid of Guernsey, Chang, Erecta Superba, Bouquet Fait, Etoile Toulousaine, Fulgore (very fine), Albert, Nuit d'Hiver, Comte de Germiny, Chinaman (good), Source d'Or, James Salter, La France, Lady Selborne, and L'Incomparable; Mr. Jupp was second some distance behind; and R. Russell, Esq., Lewes, third. In the class for thirty-six Japanese in twenty-four varieties the blooms were very uneven—indeed, it was too large a class for so young a Society, as the result showed, the number having to be made up with exceedingly small blooms. Mr. Ridout again took the premier prize; Mr. Jupp was second; while for twelve large Anemones, twelve incurved, twelve Japanese, and twelve triplets (Pompons) Mr. Jupp carried off all the first prizes.

Plants.—The best group in the Show was from Messrs. Scott & Co. of Ceylon Nursery, Eastbourne, covering a space of some 600 square feet, and most artistically arranged under Tree Ferns—not for competition. There were seven other groups of 75 feet, besides numerous well-filled classes for pot plants. A very artistic arrangement for a dinner-table was put up by a bashful young lady, who would not let her name be known. This consisted entirely of Japanese flowers. Messrs. Cannell & Sons, Swanley, brightened the Show with their usual fine collection of double and single Pelargoniums and select Primulas. Mr. Davis of Camberwell, who officiated with Mr. Cannell as Judge, exhibited a stand of superb blooms of miscellaneous Chrysanthemums, including the beautiful Mary Major.

A first-class certificate was awarded to Mr. Ridout for *Chrysanthemum Bendigo*, a sport from Mrs. Heale, which is described in the report of the Royal Horticultural Society's meeting.

BRIXTON, NOVEMBER 9TH.

A VERY attractive display of blooms, specimen Chrysanthemums, and miscellaneous plants was provided at Brixton as the commencement of the exhibition season in the metropolitan district. Several very good stands of incurved and Japanese blooms were staged, all that could be desired in finish, though in some instances a little wanting in size. The specimen plants were not quite so numerous, and the fine examples that were once the ornament of the Show are still missed, but those staged showed an improvement generally. Orchids were remarkably good, and formed quite a little exhibition in themselves. All the exhibits were well arranged, and the general system of management is creditable alike to the Secretary Mr. Hall, and the Committee which aid him so well in his work. As usual the lecture

hall adjoining the Congregational Church, Brixton Hill, was the site chosen, and it was satisfactorily filled. One of the principal features of the Show was a charming group of Orchids and Ferns from Mr. Salter, which were tastefully arranged at one end of the hall to form a bank of rich green foliage and bright flowers of great beauty. Amongst the most notable plants were *Cypripedium Harrisianum*, several good *Phalænopses*, and *Cymbidium giganteum* with a long handsome spike. The Judges signified their appreciation of this fine group by awarding Mr. Salter a first-class certificate for it, an honour which was well deserved. Another contribution not in competition was a large and choice collection of single Dahlias from Mr. T. S. Ware, Tottenham, which attracted much attention owing to the lateness of the season for such flowers. They were, however, as fresh and brightly coloured as some were a month ago.

Cut Blooms.—Collections of twenty-four incurved blooms were staged by four competitors, the best being that from Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Leigham Court, and though of medium size they were very neat, fresh, and of good colour. The varieties were Prince of Wales, John Salter, Beauty of Stoke, Empress of India, Mrs. Shipman, Lady Hardinge, Golden Emperor, Refulgence, Barbara, Beethoven, Jardin des Plantes, Rev. J. Dix, White Globe, Caractacus, Isabella Bott, Nil Desperandum, Mrs. J. Rundle, Lady Slade, Queen of England, Lord Derby, George Glenny, Prince Alfred, Mrs. Dixon, and Baron Beust. The second position was assigned to Mr. J. Holmes, gardener to M. Storey, Esq., Nightingale Lane, who had smaller blooms of similar varieties. Mr. T. Sadler, gardener to C. Lambert, Esq., Leigham Court Road, took the third place, his position being due to the comparative want of substance in the blooms. Five stands of twelve incurved blooms were entered, all of average merit. Mr. W. Slade, gardener to J. Wilson, Esq., Upper Tooting, won first honours, closely followed by Mr. E. Cherry, gardener to Mrs. Gabriel, Streatham, and Mr. T. Sadler. For six incurved blooms Messrs. Salter, Sadler, and Green were the prizetakers. A maiden class was provided for twelve incurved blooms, for which much the best samples were staged by Arthur Margetson, Esq., Leigham Court Road, who was awarded the first prize; but the second and third collections from Messrs. Lynch, gardener to Spencer Wicks, Esq., Streatham Hill, and W. Clarke, gardener to T. Bass, Esq., Christ Church Road, were rather weak.

The class for twenty-four Japanese was a good one, the exhibits being very close in merit. Mr. J. Holmes, gardener to G. M. Storey, Esq., Nightingale Lane, was adjudged the premier prize for blooms of good size, fresh, and bright. The varieties were Baronne de Prailly, James Townsend (seedling), Tendresse, Alba Plena, Dr. Macary, Triomphe du Nord, Madam Burnet, Criterion, Rosa Bonheur, Countess Beuregarde, Chang, Elaine, Curiosity, Hiver Fleur, Elegance, Bouquet Fait, Thunberg, L'Incomparable, Comte de Germany, Père Delaux, Gloire de Toulouse, The Sultan, Peter the Great, and Magnum Bonum. Mr. A. Holmes, gardener to A. B. Hill, Esq., Clapham Park, was close second, and Mr. J. Young, gardener to T. Hicks, Esq., Streatham Hill, was third with blooms but little inferior to the preceding. The competition with twelve Japanese blooms was keen, no less than six stands being entered. Mr. Salter was first with very good, fresh, and substantial blooms, Messrs. W. Glide, Cherry, and Sadler following closely in the order of the names. Stands of six reflexed blooms were contributed by Messrs. T. Sadler and J. Holmes, who were placed first and second respectively, their blooms being fairly good, not large, but substantial and richly coloured. Three good collections of twelve large Anemone varieties were contributed by Messrs. J. Young, Swain, and Salter, one creditable stand of Pompon Anemones securing Mr. Livermore the first prize in that class.

Specimen Plants.—The principal class for plants was for six incurved varieties, and in this Mr. Cherry took the lead with moderate-sized specimens, but neatly trained and well grown. The varieties were Beethoven, Mrs. Dixon, Prince of Wales, Venus, fine; John Salter, and Mrs. G. Rundle. Mr. Clarke followed with rather poor examples. For three plants Messrs. Cherry, Clark, Gates were the prizetakers. A maiden class was provided for three plants, incurved varieties; Mr. J. T. Salter, gardener to M. Shepherd, Esq., Roupell Park, taking the chief prize with moderately good plants, the blooms not very large but neat in form. For six Pompons, not pyramids, the leading position was assigned to Mr. Cherry, who had well-flowered, neatly but not formally trained examples of Brilliant, Calliope, Sunset, La Vogue, Perle, and White Cedo Nulli. Mr. J. Weston, gardener to D. Martineau, Esq., Clapham Park, was second; and Mr. J. Howes third, both showing well. Mr. J. Weston also had the best three Pompons, fairly well-grown plants, Mr. Cherry and Mr. W. Clarke following closely. Six beautiful pyramid Pompons gained Mr. E. Cherry the premier honours in that class, as they were freely flowered but not formally trained, contrasting very favourably with some of the others which had the shoots tied in very closely. Mr. C. Livermore took the second prize with less well-flowered examples. The best three standard Pompons were shown by Mr. W. Clarke, neatly trained specimens of Madame Marthe, Calliope, and St. Michael. Messrs. R. Clarke and C. Livermore were the other prizetakers in this class with similar plants but not quite so freely flowered.

Miscellaneous Plants.—Orchids constituted a decided attraction in the Show, and for the time of year were extremely good. The principal class was for six plants, in which Mr. Salter won leading honours with healthy freely flowered examples, such as he invariably stages. *Cypripedium Spicerianum* had seven fine flowers; *Cattleya gigas* three flowers of a good variety; *Vanda cærulea* a fine spike of thirteen flowers; and *Oncidium crispum* had a large panicle of flowers. Mr. Luff was second, his most noteworthy plants being the creamy white-flowered *Lycaste lanipes* with three blooms, *Dendrobium superbiens* with a spike of thirteen flowers, and *Masdevallia tovarensis* in a pan with sixteen flowers. With three Orchids Mr. Salter was again first, showing *Cattleya gigas*, *Vanda cærulea* of good colour, and *Lycaste Skinneri*. Mr. C. Livermore followed with *Vanda suavis*, *Zygopetalum Mackayi*, and *Cattleya Acklandiæ*, Mr. J. Young being third with *Dendrobium nobile*, *Lycaste lanipes* having six flowers, and *Oncidium Papilio*, while an equal third was adjudged to Mr. Weston, who had *Maxillaria picta* very well flowered. For a single specimen Orchid Mr. Salter won first honours with *Cypripedium Harrisianum* in beautiful condition, and bearing twelve handsome flowers.

Fine-foliage plants were well shown by several exhibitors, Mr. W. Clarke winning first honours with four specimen Crotons, Weismanni and Veitchi being very notable for their size and health. Mr. E. Cherry was placed

second, his best plant being *Dracæna Baptisti* in first-rate condition, large, finely coloured. Mr. H. Luff, gardener to R. R. Hyatt, Esq., Streatham, was third, having a good *Asparagus plumosus nanus*. For four Ferns Mr. Luff was first, having fresh vigorous examples of *Platycerium grande*, *Adiantum farleyense*, *A. cardiochæna*, and *A. cuneatum*. Mr. Young was second, and Mr. W. Clarke third, his *Adiantum gracillimum* being extremely good. Table plants were shown by Mr. F. Sandy, who was first with *Cocos Weddelliana*, *Aralia Veitchi*, and *Pandanus Veitchi*, neat and graceful. A graceful ornament for a dinner table secured Mr. J. Weston the first prize in that class. A charmingly simple combination of *Nerine crispa*, *Eucharis*, and *Bouvardia* blooms with Ferns, in a stand of unpretentious appearance, showed how tastefully a few materials may be utilised. In addition to these small Ferns single and double *Primulas* were excellently shown, some of the latter being remarkably well flowered.

Fruit.—Grapes were not largely shown, but were fairly good. For three bunches of white Grape Mr. W. Howe was first with Muscat of Alexandria well ripened; Mr. C. J. Salter second with good bunches of Trebbiano; and Mr. J. Rockell, gardener to Mrs. Falconer, Clapham Park, third with small Muscats. For three bunches of black Grapes Mr. W. Howe was again first with Alicante of good size and bearing excellent bloom. Mr. R. Holmes and Mr. C. J. Salter followed with the same variety in good condition. Apples were staged in good condition by Messrs. J. Rooney, gardener to W. J. Manning, Esq., New Park Road; J. Sadler, and A. Sandy, gardener to George Coles, Esq., St. Julien's Road, Streatham. The best Pears being from Messrs. W. Hall, gardener to W. Stevens, Esq., Lower Tulse Hill, and A. Sandy.

Collections of vegetables were well represented, Messrs. J. Young, Cherry, and J. Swain securing the prizes for fifteen kinds; while for a collection, the number of kinds not stipulated, Messrs. T. Sadler, Gates, and Andrews, Upper Tulse Hill, won the awards with very clean and good-sized produce. Cucumbers were staged by several exhibitors, Mr. W. Howe being first with Rollisson's Telegraph, Mr. J. Young second, and Mr. W. Collins third.

STOKE NEWINGTON, NOVEMBER 12TH AND 13TH.

THE annual Show of this old-established Society is always looked for with much pleasure by Chrysanthemum exhibitors and growers in the north of London; and the Exhibition this year, though not quite so well filled as some of its predecessors, well maintained the credit of the Society for handsome blooms and strongly grown freely flowered plants. Competitors were not, it is true, so numerous as might have been desired, and in some cases there was noticeable a deficiency of substance in the blooms that was not at all in accordance with the traditions of the Society, but taking the exhibits generally the Show was a satisfactory one. It was effectively arranged, the care and energy of the courteous Secretary, Mr. Goldsmith, being manifest in every direction. The competition for the silver cup was the great centre of attraction, and the Sheffield blooms, which so severely tried Mr. Gilbey's strength, were much admired by local and other growers; indeed, the district very nearly lost the honour of retaining the much-prized cup. The Show was, as usual, held in the Assembly Rooms, Defoe Road, Church Street, and was well attended by visitors on both days.

Plants.—Specimen plants are invariably well shown at Stoke Newington, and the present season is not an exception to the rule, for vigorous and profusely bloomed examples of the best varieties were numerous exhibited. The principal class is that for ten plants, but only two collections were entered. Mr. Monk, gardener to W. Fowler, Esq., Forest House, Leytonstone, won the leading position with dwarf and pyramidal-trained plants of Mrs. G. Rundle, Golden George Glenny, Venus, The Cossack, Mr. George Glenny, Dr. Sharp, Sœur Melanie, and others. Mr. R. Payne, gardener to C. Paine, Esq., Cedar House, Stamford Hill, was placed second, his dwarf plants of Rosinante and Cendrillon being the most noteworthy in the group. Standard Pompons were admirably shown; Mr. Gilbey, gardener to R. Booth, Esq., The Cazenoves, Upper Clapton, winning first honours with four beautiful examples of the White and Lilac Cedo Nulli, Marie Stuart, and Sunset, evenly trained and profusely flowered. Mr. Payne, was a close second, Sœur Melanie and Antonius being very fine. Mr. Langford, gardener to J. Barnet, Esq., Coleraine House, Stamford Hill, was third. Mr. Gilbey was also first with four dwarf Pompons, similar varieties to his other plants, and equally well flowered. Mr. Langford followed closely; and Mr. Dymond, gardener to S. Wright, Esq., Rosslyn, Stamford Hill, was third. The premier honours for six Pompons was awarded to Mr. Payne for freely flowered specimens of Sœur Melanie, Cendrillon, Antonius, Lilac Cedo Nulli, Madame Marthe, and Prince Victor.

Mr. Payne had the best four standard large-flowering varieties, The Cossack, beautifully flowered, Venus, Elaine, and Prince of Wales. Mr. Gilbey was second with rather more formal specimens; and Mr. Archer, gardener to J. Griffith, Esq., Highbury Grange, took the third position. For four plants, large-flowered varieties, Mr. Gilbey was first with Barbara; Mrs. G. Rundle, Mrs. Dixon, and Lady Hardinge being fine blooms. Mr. R. Payne and Mr. Langford were awarded each second prizes for rather smaller specimens. Mr. Monk had the only collection of six large-flowered varieties, taking the first prize with fair specimens.

Cut Blooms.—A table in the centre of the room was occupied with the blooms in competition, a row of table plants being placed between the stands. Taking the classes in the order of the schedule the first six are confined to nurserymen, gardeners, and amateurs of the district. In the class for twenty-four incurved blooms there were three entries, Mr. Gilbey being first with even, neat, compact, and handsome blooms of the following varieties:—Back row: Empress of India, John Salter, Golden Empress, Prince of Wales, Mr. Bunn, White Beverley, Alfred Salter, and Queen of England. Second row: Barbara, Princess of Teck, Bronze Jardin des Plantes, Mrs. Heale, Hero of Stoke Newington, Prince Alfred, Golden Beverley, and Princess of Wales. Front row: Princess Beatrice, Rev. J. Dix, Isabella Bott, Venus, Guernsey Nugget, Mr. Brunlees, Lady Hardinge, and Cherub. For this collection the four-guinea silver cup was awarded as the best twenty-four in the Show, the clean neat appearance of the blooms gaining Mr. Gilbey this honour. This is the third season he has won the cup—an unusual feat. Mr. Martin, The Gardens, Woodberry Down, was second with smaller but very neat blooms, the back row including some fine samples of Queen of England, Hero of Stoke Newington, and John Salter. Mr. R. Payne was third with still

smaller blooms, but Prince Alfred, Empress of India, and Queen of England were well represented. In the classes for twelve and six blooms in the same section the first-prize lot of twelve from Mr. W. Cooper, gardener to J. Johnson, Esq., Elmfield, Upper Clapton, included fine blooms of Queen of England, Empress of India, Golden Empress, and John Salter. Most of the others were rather small, the chief prizes being secured by Mr. R. Payne and Mr. Jones. Mr. Gilbey was first with a beautiful six, Queen of England, Empress of India, Golden Empress, John Salter, Prince of Wales, and Hero of Stoke Newington, very even and of good substance. Messrs. R. Payne, W. Cooper, and W. Martin were the other prizetakers.

In the Borough of Hackney amateur classes Mr. F. Bingham, 22, Manor Road, was first with twelve incurved symmetrical handsome blooms, not large but excellent in form and substance. Queen of England, Mrs. G. Rundle, Empress of India, Barbara, and Nil Desperandum were particularly good. Messrs. W. Goldsmith and R. Wright, 42, Darnley Road, followed closely. Six incurved were rather small, the prizes being secured by Messrs. F. Bingham and R. Wright. Two stands of six Japanese were entered, Mr. W. Goldsmith taking the first position with Fair Maid of Guernsey, Grand Turk, and Comte de Germiny very fine amongst others. Mr. W. Wright was second.

In the open class for twenty-four incurved blooms Mr. J. Udale, The Gardens, Shirecliffe Hall, Sheffield, was placed first with substantial handsome blooms, the back row being extremely fine. This collection was very carefully compared with the best twenty-four in the local class for the cup prize, and lost it by only a few points, three blooms being rather old. The blooms were Queen of England, Golden Empress of India, Princess of Wales, Hetty Barker, Bronze Jardin des Plantes, White Queen, Alfred Salter, and Empress of India in the back row. The second row comprised Mr. Howe, Blonde Beauty, Prince Alfred, Mr. Bunn, Princess of Teck, Cherub, Mrs. Heale, and Lady Hardinge. The front row included Jardin des Plantes, Prince of Wales, Barbara, Princess Beatrice, George Glenny, Venus, Mrs. G. Rundle, and Mrs. Dixon. The second-prize stand in this class contained much smaller blooms. Mr. J. Udale also secured premier honours with twelve incurved blooms, massive examples of Golden Empress, Queen of England, Empress of India, and Alfred Salter forming the back row. Mrs. Heale, Princess of Teck, Princess of Wales, and Cherub were in the second row; and Princess Beatrice, Barbara, White Venus, and George Glenny in the front row. This stand was much admired. Messrs. W. Monk and G. Chalkley, gardener to J. R. Droop, Esq., Stamford Hill, were second and third with smaller blooms.

In the maiden class for six incurved the prizes were secured by Messrs. F. Bingham and J. Hicks, all staging medium-size but even neat blooms. Anemone varieties were represented by two stands, large and Pompons respectively, the latter being much the better of the two, including Cedo Nulli, Firefly, Jornette, Perle, Marie Stuart, Astræa, and Calliope, very good. Mr. R. W. Wright was the only exhibitor in both classes. Two collections of twelve Japanese blooms were entered, Mr. W. Monk taking the first position with good blooms of Flambeau, Fair Maid of Guernsey, Gloire de Toulouse, Peter the Great, La Nympe, Chang, Mdle. Moulise, M. Castel, M. Charles Huber, L'Incomparable, and Thunberg. Mr. R. W. Wright was second with looser and smaller examples. Five stands of six Japanese were staged, Mr. W. Monk being adjudged the first position with Peter the Great, Fair Maid of Guernsey, M. Castel, Triomphe du Nord, La Frissure, and Flambeau, very bright, fresh, and of good substance. Messrs. A. Dymond and W. Martin were awarded the remaining prizes.

Table plants were well shown, neat, graceful, little specimens of Crotons, *Dracænas*, *Aralias*, and Palms being selected. The prizes were secured by Mr. Jones, gardener to W. P. Reynolds, Esq., Stamford Hill, and Messrs. Gilbey and Archer. Mr. Archer also had the best foliage plants, followed by Mr. Payne, the two collections forming a good bank at the end of the room. Mrs. G. Davis, 3, Stamford Road, Page Green, Tottenham (a cottager), showed two neat bouquets and table decorations, both tasteful and unpretentious. Mr. Cochrane, Superintendent, Finsbury Park, sent a handsome collection of twenty-four incurved blooms, substantial, compact, and clean. Mr. W. J. Smith of the Covent Garden Supply, 128, High Street, Stoke Newington, contributed a handsome collection of fruits, wreaths, bouquets, &c., the first-named comprising some particularly fine Pears, Apples, Pine Apples, and Grapes. This exhibit added greatly to the beauty of the Show.

LAMBETH, NOVEMBER 12TH, 13TH, AND 14TH.

THE ninth Exhibition of this interesting amateur Society, held as usual in the Borough Road Lecture Hall, proved one of the best that they have yet had. Both plants and blooms would not have disgraced the shows of much more pretentious societies. Incurved and Japanese blooms were admirably represented, and though the plants did not possess that finish which denotes trained specimens at large shows, they were in several cases extremely healthy and profusely flowered. This was particularly so in the class for a group of plants, which brought several good collections, and furnished a bright display on one side of the Hall. At one end, too, was a fine bank of foliage and other plants kindly contributed by Mr. Richards, one of the honorary members, who also staged some handsome blooms in the classes devoted to them. Indeed the honorary members' classes formed quite an important feature, and such a successful innovation might be advantageously followed up another season. It is also proposed, and we consider the proposition a wise one, to extend the radius of the Society to two miles from the Elephant and Castle. This will bring in a much larger number of growers, and may be expected to result in the production of a really first-rate Show, such as is wanted in this part of London. The Honorary Secretary, Mr. G. S. Addison, is energetically endeavouring to improve the position and usefulness of the Society, and the success attending his first year of office gives abundant promise of still better results in the future.

Plants.—One of the most important classes for plants was that for a group of twelve, not less than six varieties. Mr. Clarke won first honours (a silver cup) with freely flowered informally trained specimens, comprising beautiful examples of The Cossack, Chevalier Domage, James Salter, Elaine, and several Pompons. Mr. Mills was second, and Mr. Howett third, both showing good and effective groups. For six standard large-flowered varieties Mr. Tracy was first with very well grown and freely flowered examples of Mr. G. Glenny, Phidias, Mrs. G. Rundle, and Arigena, and Mr. Williams was second with rather more roughly trained, but with several good blooms. Mr.

Tracy staged the best twelve plants of six varieties, and Mr. Williams followed closely, both contributing bright and pretty groups. Mr. H. Ellis was first with six untrained bush Pompons, free and pretty plants, the varieties Antonius, Mr. Astie, and the Cedo Nullis being notable. Mr. Davis, who was second, also had the Cedo Nullis very attractively flowered, and Mr. Hadden was third with similar plants. Mr. Tracy took the lead with six pyramid Pompons, neatly trained but rather sparse of flower. Mr. Child had six neat standard Pompons, which secured him the first prize in the class, while Mr. Tracy showed the best three standards, followed by Mr. J. W. Addison, both showing moderately good plants.

Cut Blooms.—There was keen competition in nearly all the bloom classes. Incurved varieties were numerous and good, especially in the class for twelve blooms, in which the first prize was a silver cup. This was won by Mr. Child, who had small but fresh and neat blooms, the most noteworthy being Barbara, Princess Teck, and Nil Desperandum. Messrs. Ball and R. Ellis followed amongst five competitors. Of six incurved blooms eight stands were entered, and Mr. Ball was first with good blooms, the best being Princess Teck and Prince of Wales. Mr. Child took the second position, and Mr. Howett was third. In the class for six blooms of one variety Mr. Howett won the first place with handsome flowers of Mr. Bunn. Japanese blooms were largely represented, one of the leading collections being twelve fine blooms from Mr. Child, which gained him the first prize. The varieties were Japon Fleuri, Mons. Ardene, Fanny Boucharlet, Père Delaux, Triomphe de la Rue des Châlets, R. Pallantino, James Salter, Madame B. Reudatler, Mdle. Moulise, Etoile du Midi, Peter the Great, and Nuit d'Automne, very fresh and good. Messrs. H. Ellis and C. H. Payne followed amongst six competitors. Mr. Child also had the best six blooms in a class of nine competitors, winning first prize with good blooms of Triomphe de la Rue des Châlets, Fair Maid of Guernsey, Japan Fleuri, The Cossack, Madame C. Audiguier, and Peter the Great. Other prizetakers in this class were Messrs. H. Ball and Hadden. For six blooms of one variety Mr. G. S. Addison led with James Salter, very clean and fresh; Mr. J. W. Addison followed with Fair Maid of Guernsey, and Mr. Davison was third with James Salter. Mr. Child secured the first prize for twelve trusses of Anemone Pompons with a beautiful collection, comprising Mr. Astie, Regulus, Miss Nightingale, Astrea, Marie Stuart, Perle, Madame Montels, Firefly, and Antonius. Mr. Ellis was a very close second with similar blooms.

The honorary members' classes for blooms brought some excellent contributions. Mr. Richards won first honours with twelve incurved blooms, good even, neat and substantial blossoms of the following varieties:—White Beverley, Prince of Wales, Nil Desperandum, Mr. Corbay, White Venus, Golden Beverley. Messrs. Fraser and J. R. Crisp followed. Mr. Richards was also first with twelve large Anemone blooms, a very beautiful collection, and he gained the same position with Pompon Anemones, a similar attractive collection. For twelve Japanese Mr. Fraser secured chief honours with finely coloured substantial blooms. The varieties were Elaine, Red Gauntlet, Madame C. Audiguier, Fair Maid of Guernsey, Kämpfer, Soleil Levant, Rosa Bonheur, Marquis of Lorne, Rubra Striata, Triomphe du Nord Cry Kang, and Peter the Great. Mr. Richards followed closely, and Mr. J. R. Crisp was a good third.

PUTNEY.

SIX years have elapsed since the Putney and District Chrysanthemum Society was established, and each year the shows have increased in extent and excellence. For the Exhibition under notice, that was held on the 13th inst., there were nearly 200 entries, and although an annexe was opened at the end of the large Assembly Rooms the space was quite inadequate for the accommodation of plants, blooms, and visitors. We can only give a brief report of the Show, indicating its general character.

Groups of Plants.—These invariably form the commanding feature of the Putney Shows. The conditions are the best collection of Chrysanthemums in not less than twenty varieties, quality and general effect to be the leading features in this class, the space occupied by the plants not to exceed 40 superficial feet. The first prize is a silver cup. On this occasion six splendid groups were placed in competition, such that have not been excelled at any previous show held in England, if equalled. The Judges were nearly an hour in determining the relative merits of the collections, in consequence of the conflict between quality of the blooms on the one hand, and effective arrangement on the other. Eventually they awarded the cup to the collection they considered the best adapted for the embellishment of a high-class conservatory. The coveted honour was won by Mr. Newell, gardener to Sir Edwin Saunders, Wimbledon Common. His plants were remarkable for their sturdiness and fine foliage, which displayed to advantage the large blooms. The plants were grown in a natural manner, from 2½ to 6 feet high, and the arrangement was good without being crowded, and the colours admirably blended. Mr. Knowles, gardener to G. M. Allender, Esq., Putney Park Lane, was second with larger blooms, but rather too thinly arranged. Messrs. Mahood & Sons third with a beautiful and too-closely-packed collection; and Mr. Carter, gardener to H. J. Perry, Esq., Heathside, Wimbledon Common, fourth; the two unnoticed groups closely following in merit, but were a little too stiff and formal in arrangement.

Specimen Plants.—In the class for four large-flowered varieties Mr. Tyte, gardener to Mrs. Reid, Putney Heath, was first with admirably trained examples 2½ feet high and 4 feet in diameter, scarcely any sticks or bent stems being visible. Mr. J. Bentley, gardener to Sir Thomas Gabriel, Wimbledon Park, and Messrs. Tigwell & Sons, Mortlake, had the remaining prizes in this class. Messrs. Mahood & Sons won the premier prize in the single-specimen class with a fresh and good example of Mrs. G. Rundle, Mr. Knowles being second with a much larger plant of Christine, but over-trained, Mr. Bentley being third. Mr. Stacey was placed first in the single-specimen Japanese class with a neat and bright example of Dr. Masters, Mr. Bentley second with Elaine, and Mr. Pepper third with James Salter. Pompons were still better exhibited, the specimens staged by Messrs. Tyte, Mahood, and Hopkins being finer than have been seen before at Putney. The prizes were awarded in the order named. Eleanor, staged by Mr. Tyte, and Golden Mdle. Marthe by Messrs. Mahood, deservedly attracted much attention. They were not flattened by close training, but were full and free—about 4 feet in diameter.

Cut Blooms, Incurved.—In the class for twenty-four blooms only two

collections were staged—namely, by Mr. Carter in a garden to D. T. Galpin, Esq., and Mr. J. Holmes, gardener to G. M. Story, Esq., Balham, who were awarded the prizes respectively. Both collections were highly creditable to the cultivators, but the blooms in the first-prize stands somewhat over-weighted the others, which, however, were extremely neat. The champion bloom in the Show was in Mr. Harding's stand, a magnificent Empress of India; it was, however, run exceedingly close by Queen of England staged by Mr. Holmes.

In Mr. Harding's stand a bloom of a new variety not yet in commerce deserves special mention—namely, Jeanne d'Arc. It is a good-sized, symmetrical, perfectly incurved flower, silvery white, with pink-tinted florets, and was obtained, we believe, from Messrs. Jackson of Kingston; it is a variety of promise. For six blooms Mr. J. Bentley was first with superior examples of Golden Empress, Alfred Salter, Queen of England, Prince Alfred, Baron Beust, and Mrs. Heales. In the class for twelve blooms five stands were placed in competition. Messrs. Mahood & Sons secured the first position with handsome well-developed flowers; Mr. Harding being second also with good examples, and Mr. Sullivan, gardener to D. B. Chapman, Esq., Roehampton, third with neat blooms.

Anemone Varieties.—Several stands of these were placed in competition. In the class for six blooms Messrs. Mahood & Sons secured the chief position with Lady Margaret, Mrs. Pethers, Prince of Anemones, Gluck, Fleur de Maric, and George Sands, Mr. Charles Bentley being a good second, and Mr. J. Lee, gardener to E. R. Stephenson, Esq., Albermarle Lodge, Putney, a close third. The champion bloom in this section was George Sands, staged by the last-named exhibitor.

Japanese Blooms.—There was excellent competition in the class for twelve blooms, Messrs. Mahood being once again to the fore with fine and beautifully fresh examples. The most striking bloom was a new variety, Joseph Mahood, with round, erect, wire-like florets of a reddish gold colour, very bright; Mrs. J. Mahood, white, in the same stand, also Mrs. Townsend, dark chestnut, were very good, and M. Marouch, the latter with flat crimson florets, very fine. Mr. Sullivan was a close second with large blooms, and Mr. Lee third with very fresh examples, alba striata and Thunberg extra fine. In the class for six blooms Mr. J. Bentley, Mr. Sullivan, and Mr. G. Stevens were awarded the prizes in the order named, with stands very close in point of merit. Comte de Germany, staged by Mr. Bentley, was very grand, the contest for the championship resting between it and Meg Merrilees, staged in another class by Messrs. Mahood, which won the coveted honour.

Mixed Stands.—The prizes offered by Mr. Stevens for twelve blooms, four each of incurved, Japanese, and Anemones, staged 6 inches high, with the foliage attached, brought out three effective stands by Messrs. Mahood, Harding, and Bentley, who respectively secured the prizes.

Stove and Greenhouse Plants.—In the class for four specimens Mr. Stevens distanced all competitors, and secured the first prize with excellent specimens, Mr. Knowles and Mr. Woodhams following creditably. Primulas were well shown by Messrs. Woodhams, Newell, and Lee, who received the prizes in the order named for six plants. Mr. Pitts, a valued supporter of the Society, offered prizes for miscellaneous groups of stove and greenhouse plants, which were won by Messrs. Hoskins, C. Bentley, and F. Bush with neat arrangements.

Bouquets were good. For Messrs. Mahood's prizes the successful competitors were Messrs. Lee, Stevens, and Harding; the winners with Chrysanthemums being Messrs. Lee, Lacy, and Stevens.

Fruit.—The prizes for black Grapes were won—first by Mr. Holmes, Sisters House, Clapham Common, with fine Alicantes; second Mr. Richardson, Springfield Lodge, with Black Hamburg; third Mr. Bradford, gardener to S. Howards, Esq., Wimbledon, with Alicante. In the class for white Grapes the first prize was won by Mr. Freeman, Oak Lodge, Putney, with neat bunches of Golden Queen.

Vegetables.—Six splendid collections were staged, the prizes falling to Messrs. Tigwell, Campbell (The Priory, Roehampton), and Knowles in the order of their names. The Mushrooms in the first-prize stand and the Leeks in the second were of commanding excellence.

Prizes were also awarded for table plants, berried plants, Ferns, and Apples, all the winners showing most creditably; but we failed to obtain their names, owing to the press of visitors in the afternoon. The Show was well managed by Mr. Moore, who, with all the officials, laboured to make it what it was—a great success.

POTTING LILIES.

I HAVE been doing this during the last few days, and as Lilies are particular favourites of mine a few considerations in reference thereto may be of interest. First as to the time of potting. Some recommend January and February. I must respectfully maintain that, except for those imported later on or for the last potting, this is too late. (I have now in view those intended for indoor and conservatory decoration; those planted in Azalea Rhododendron beds take care of themselves.) I have had imported bulbs of *L. auratum* from Japan potted at the same time, with the same treatment, and with nearly two months between the time of flowering; and not only are those grand Lilies peculiar in the time of flowering, but they differ in colour, spots, lines, and markings more or less, and, still further, I have found the smaller bulb having the greater number of blooms. I mention the time of blooming for the purpose of saying that it is upon that the time of potting depends more than upon any stipulated date. This point is very important, for it is to my mind the secret of the reputed "failures" often heard of.

Nothing is so common as to remove potted Lilies when their floral beauty is past, outdoors, perhaps, to leave them uncared full in the sun; or worse, to the back of a house, where they get waterlogged and the sun never shines, instead of regularly feeding them with liquid manure if the pots are small or medium-sized, removing seed pods, and allowing them to regularly ripen full in the sun. I have not the least doubt, if satisfactory results are looked for next year, full ripening and full sunshine are necessary, though I am aware greater authorities than I am, such as

Mr. G. F. Wilson, have had fine blooms in the shade. No wonder there is failure in either of the neglected cases referred to, and that when you come to repot a half-decayed bulb only a few shrivelled scales are left. This is the explanation of why so many say they find Lilies do best outside. But I must maintain, where time can be had for looking after their post-floral treatment, there are few Lilies undeserving of a place indoors if it can be at all spared for them. No Lily lover would care to see his beauties destroyed by the storms peculiar to our climate, or splashed with a fierce driving rain.

As to why I think January and February is too late, when the stalk has withered to the surface of the pot and the leaves have fallen they should be shaken out. Most of my *L. auratum*, all *L. speciosum*, various (*lancifolium*), and with two exceptions my *L. longiflorum* and *L. Krameri* were withered thus, and presented a curious appearance when the clay was removed. Above the bulb was a large mop-like head of innumerable feeding roots; these should be withered and removed with the old stem. On the contrary, the roots at the base are fleshy, sound, and healthy, and ready to commence action immediately. The pots should be in proportion to the size of the bulb, leaving fully an inch free at the top of an 8-inch pot. I find a mixture of two-year-old loam, some peat, old rotten frame manure pulverised, and a small quantity of sand to give stamina, the best. No water for the present.—W. J. MURPHY, *Clonmel*.

REVIEW OF BOOK.

The Culture of Vegetables and Flowers from Seeds and Roots. By SUTTON & SONS, Reading. London: Hamilton, Adams & Co., 32, Paternoster Row.

As the title indicates this work is not devoted to the propagation and culture of plants that are usually raised from cuttings, but to those that are raised from seed and by roots, tubers, and bulbs. With the above limitation the field is wide, as it includes all the most useful crops for the kitchen garden, and most of the popular flowers that are grown for greenhouse, conservatory, and room decoration. The culture of them is detailed clearly and well, the result being a sound, substantial, well-printed volume of 300 pages, which also include chapters on the formation of lawns from seed, the insect pests of garden crops, and the fungus pests of certain flowers, these two latter chapters being illustrated.

In glancing through the chapters it is apparent that they have been written by competent cultivators, and no one can err in carrying out the instructions, except, perhaps, growers of Broccoli in cold northerly districts. On page 27 it is advised that "Broccoli should always be planted in freshly made ground, and if it is in some degree rank with green manure the crop will be none the worse for it. But rank manure is not needful; a deep, well-dug, sweet loam will produce a healthy growth and neat handsome heads." Rank manure and deep digging inevitably lead to succulent growth, and just in proportion as this is encouraged exactly in the same proportion is the destruction of the crops endangered by severe frost. When this destruction occurs, as it has occurred over miles of country, varieties get a bad character for being tender; but the cultivators in innumerable instances have made them so by treating the plants too generously. They will pass the winter far more safely in the firm moderately fertile soil of an open field than in the rich deeply dug ground of a sheltered garden. With this qualification—and we deem it important—we commend this work strongly as one of the most practical that has recently been issued on the cultivation of the garden crops and popular flowers on which it treats. It will be well, however, to let the volume speak for itself in the form of one or two extracts, selected not because they embody the best teaching of the pages, but because the subjects happen to be seasonable.

MAKING ASPARAGUS BEDS.

After describing what is alluded to as the "costly character routine" of repeatedly trenching the ground for beds, the author goes on to say:—

"But we are bound to say that a capital supply for a moderate table may be obtained by preparing a piece of good ground in an open situation in a quite ordinary manner with one good digging in winter, adding at the time some 6 inches or so of fat stable dung, and leaving it thus until the time arrives for sowing the seed. Then it will be well to level down and point-in half a spade deep a thin coat of quite rotten dung to make a nice kindly seed bed.

"At this point another grave question arises, which is not for the men of taste, but the men of practice to determine. It is the question of distance, for there are advocates of a space of a square yard, or even more, for each individual plant, for which, of course, the plant will make some return. But a really profitable crop is of more consequence than a smallish supply of monster sticks, for even if these are valued at £3 or £4 per hundred, as they sometimes have been, there are not many buyers to be found, and they are not wanted, even as home produce, on many tables. There is another question, too, as to the width of the beds, and this, of course, in part depends on the distance between the plants. But having tried many plans, we have come to the conclusion that the best to insure a great bulk of good produce with the least expenditure of labour, is to lay out the land in 3-foot beds, with 2-foot alleys between. The line is put down along the centre of the bed, and the seeds are dropped two or three in each hole at a distance of 15 inches. This is repeated at 6 inches from the alleys, and the result is three rows of plants, 1 foot distance between the inner rows, and 3 feet (including the alleys) between the outer rows. In very strong land, heavily manured, a distance of 18 inches in the row would be better than 15. For special circumstances a few beds may be sown with two rows only, and at 18 to 20 inches distance in the row. But the beds should never be more than 3 feet wide, for if that measure is

exceeded there will often arise an excuse for putting a foot on the bed, which is certainly injurious to Asparagus. April is the best month for sowing.

"When the grass from seeds has grown about 6 inches will be the time for thinning to one plant at every station of 15 or 18 inches in the row. On this point a remark is needful to this effect—much of the injury reported to result from close planting has been the result rather of carelessness in thinning. The young plant is such a slender delicate thing that, to the thoughtless operator, it seems a folly to thin down certainly to one only. The consequence is that two or three, or perhaps half a dozen, plants are left at each station to 'fight it out,' and these become so intermixed as to appear as one, though made of many, and of course amongst them they produce more shoots than they can feed properly by the limited range of their roots, and all drawing nourishment from the same limited tract of ground. Severe, or we may say mathematical thinning, is a *sine qua non*, and it requires sharp eyes and careful fingers, but it must be done if the Asparagus beds are to become, as they should be, the pride of the kitchen garden."

That is excellent advice, as anyone may prove who has fairly good soil to begin with, and will carry out the instructions in an intelligent manner. We pass to an example of the matter relating to flower culture, and the accuracy of the teaching may now or shortly be tested by those who have the means for doing so.

THE CULTURE OF CYCLAMENS.

"Cyclamens afford a striking example of the advantages of the rapid system of cultivation. Seed may be sown at any time of the year, and the plants will not only flower within twelve months, but if properly grown will produce more bloom than can be obtained from old bulbs. But we do not advise more than two or three sowings. The first and most important should be made in October or the beginning of November, and to obtain a succession of plants sow again in January or February. The best soil for the purpose is a rich sound loam, with a liberal admixture of leaf mould, and sufficient silver sand to insure free drainage. Press this mixture firmly into pots or seed pans, and dibble the seed about an inch apart and a quarter-inch deep. It is a good plan to cover the surface with a thin layer of sifted cocoa-nut fibre; this checks rapid evaporation, and keeps the surface free from moss. The autumn sowings may at first be placed in a frame having a temperature of not less than 45°. At the end of a fortnight transfer the pans to any position in the greenhouse or propagating house that is warm and moist. The January sowing should be placed in heat at once.

"Although the Cyclamen is a tender plant it does not need a strong heat, and will not endure extremes of any kind. Sudden changes are always fatal to its growth. In winter the temperature should not be allowed to fall below 56°, or to rise above 70° at any time. The more evenly the heat can be maintained the better, and give all the light possible. In summer, however, although a warm and humid atmosphere is still necessary, the light may with advantage be somewhat subdued, but this must not be overdone, or the constitution of the plant will suffer.

"The seed not only germinates slowly, but it also grows in the most irregular manner. Sometimes a plant comes up long after others have made a good start. Do not be impatient of their appearance, but when some of the seedlings are large enough for removal transfer to thumb pots, taking care not to insert them too deeply. As the plants develop shift into larger pots, ending finally in the 48-size. In the later stages mix less sand with the soil, and when potting always leave the crown of the eorn clear. Keep the plants as near the glass as possible, and when the sun becomes powerful it will require attention to provide shade and prevent excess of heat. Never allow the seedlings to suffer from want of water, or to become a prey to aphid. To avoid the latter, occasional, or it may be frequent, fumigations must be resorted to. About the end of May should find the most forward plants ready for shifting into 60-size pots. Give all the air possible to promote a sturdy growth, bearing in mind that fine healthy foliage is the precursor of a grand bloom. In doing this, however, avoid draughts of cold air. From the end of June to the middle of July the finest plants should be ready for their final shift into 48-pots, in which they will flower admirably. The growth during August and September will be very free, and then occasional assistance with weak manure water will add to the size and colour of the flowers. As the evenings shorten save the plants from chills, which result in deformed blossoms.

"The whole secret of successful Cyclamen culture may be summed up in a few words: constant and unvarying heat, a moist atmosphere, and abundant supplies of water without stagnation; free circulation of air, avoiding cold draughts; light in winter, and shade in summer, with freedom from insect pests. These conditions will keep the plants in vigorous growth from first to last, and will produce specimens of which the grower may be proud. The result will be so bountiful a bloom as to prove the soundness of the rapid system of cultivation. This routine may be varied by the experienced cultivator, but the principles will remain the same in all cases, because the natural constitution of the plant gives the key to the management required."

The above is, we presume, the method that is adopted in growing Cyclamens at Reading, where they are annually produced in splendid condition. The extracts given are fairly representative of the matter of the very practical, reliable, and serviceable volume before us, which is sure to be widely read, and highly useful as a work of reference by all who desire information on the culture of the most important crops of the garden and favourite flowering plants.

EARLY PURPLE-TOP MUNICH TURNIP.—Will any of your readers who have grown this variety give us their experience of it? I did not try it until late in the summer, when I sowed a row or two of it against other kinds, and it beat all for earliness. It has a short top, is of medium size, and has a bright rosy purple colour on the top of the bulb, but the flesh is white. So far as I can see of this variety we shall find it very desirable in gardens.—W. D. W.



HARDY FRUIT GARDEN.

Supplementary Fruit Lists.—In the lists of fruit given in the last two calendars for large and small gardens and for market, especial care was taken to give only sorts suitable for the ordinary fruit-grower; we now add lists of certain sorts of Pears and Apples which we have proved to possess such high merit that the connoisseur may well try to afford space for them. It cannot, however, be said that all the Pears will be found alike excellent, for they are much affected by soil and situation. None of them should be condemned at the first trial, for a good Pear is often an outcome of a season of favourable weather as well as of age in the tree. Try if possible to afford space for one or two cordons of each of them against a wall or building; 18 inches apart is the best distance for single cordons, so that a considerable number of them may be planted in a comparatively confined space, and wall cordons once brought into fruiting rarely fail of a crop afterwards.

Pears.—Doyenné Defaise, Red Doyenné, Duchesse d'Orleans, Passe Colmar, Deux Sœurs, Désiré Cornelis, Napoleon, Dr. Trouseau, Gansel's Bergamot, Duchesse de Mars, Alexander Bivort, Bergamotte Esperen, Beurré d'Anjou, General Todleben, Emile d'Heyst, Durondeau, Beurré de Jonghe, Huyshe's Prince Consort, Huyshe's Prince of Wales, Pitmaston Duchesse, and Beurré d'Aremberg.

Apples.—Coe's Golden Drop, Pearson's Plate, Beauty of Kent, Brabant Bellefleur, Lord Burghley, Reinette de Canada, Golden Pippin, Cockle's Pippin, Reinette Van Mons, Ross Nonpareil, Bess Pool, Scarlet Nonpareil, Barcelona Pearmain, Lodgemore Nonpareil, Ashmead's Kernel, Mannington's Pearmain, Pomme d'Api, Cobham, Mère de Ménage, Golden Reinette.

Planting Bush Fruits.—Distance apart:—Black Currants, 6 feet; Red and White Currants and Gooseberries, 5 feet; Raspberries, 15 inches in the row and 5 feet between the rows. Soil, a deep, rich loam, well drained, and when this can be had careful planting is all that is necessary. But in thin poor soil recourse must be had to special treatment, or failure will be inevitable; with a command of ample materials trenches 2 feet wide and 18 inches deep should be made and filled with top-spit soil thoroughly enriched with old decayed manure, and a liberal mixture of mortar rubbish or coal ashes, taking care to raise the surface sufficiently to allow for its gradual subsidence to the common level. Failing the requisite material for trenches the next best thing is to dig in a heavy dressing of manure, to plant the bushes, and at once mulch with manure and subsequently to apply a surface dressing 3 or 4 inches of manure, by means of which the bushes may be kept in a healthy fruitful condition, but without it they will soon deteriorate and die. Shorten Raspberry canes to 18 inches, and prune the Gooseberries and Currants sufficiently close to obtain abundant growth for main branches. Never plant Black Currants with stems, but let the branches spring direct from the ground.

FRUIT-FORCING.

FIGS.—Early-forced Pot Trees.—The house containing the trees to give ripe fruit at the close of April or early in May should now be closed. The pots, it is presumed, have been placed on pedestals of open brick-work, to bring the plants up to the light and prevent the pots sinking with the fermenting material, of which some thoroughly sweetened fermenting Oak or Beech leaves should be introduced, placing them loosely at the beginning round the pots, as only gentle excitement at the roots must be given at first, the heat not being allowed to exceed 70° or 75°. Syringe the trees and walls every morning and again in the afternoon, but not later than 2 P.M., as it is important the trees become fairly dry before night. In dull, wet, and cold weather syringing will hardly be necessary—the afternoon syringing in such weather should certainly be dispensed with. Apply tepid water to the roots at frequent intervals until every portion of the soil is well moistened. The temperature to commence with should be 50° minimum at night and 5° to 10° more by day in mild weather; but avoid a close vitiated atmosphere, ventilating a little at 55°, which should be the maximum from fire heat in the daytime in cold dull weather, and 65° from sun heat, closing the house when the heat from solar influences begins to decline. Undue haste in the early stages of forcing causes much and often irreparable mischief. The glass should be kept clean, and clear of condensed moisture by the admission of a little air in mild weather.

Earliest-forced Trees.—The house should be closed by the early part of December if ripe fruit is to be gathered from the trees early in May, therefore anything that requires to be done in respect of cleansing the house, and dressing the trees, and securing them to the trellis must be completed at once. Examine the borders, and if found very dry give a slight mulching with short manure, and afterwards water with that a few degrees warmer than that of the house, repeating at intervals until the whole mass of soil is rendered thoroughly moist.

Young Trees for Forcing next Season.—Young plants ought now to be shaken out and repotted. To prepare them for forcing they should be grown on with the forced plants, so that they make an early growth and have time to rest after they have matured their growth. Brown

Turkey, Negro Largo, and White Marseilles are fine varieties for early forcing, having large well-flavoured fruit.

VINES.—Early Vines in Pots.—These are now moving freely, and will need to be disbudded when more than one shoot start from an eye or joint, leaving the strongest and most promising; and it is advisable to leave more shoots than will be allowed to carry fruit, as these aid in maintaining a good root-action, consequently a supply of nutriment is maintained in the canes for the bunches to draw upon as occasion demands. Six to eight bunches are mostly sufficient for a Vine in a pot to carry, but everything depends on the strength of the canes and the means of support. Those numbers are quite sufficient for a Vine with the roots confined to the pot, but where the roots are allowed the run of a bed of fermenting materials we have seen a dozen bunches brought to much finer size of berry and finish. With the shoots about an inch long the temperature should be increased to 60° at night, or 5° more in mild weather, and 65° by day, advancing 5° to 10° from sun heat. Ventilate from 70°, and close at 75° when the sun heat begins to decline. Syringe morning and afternoon, but in dull weather the afternoon syringing should be omitted, especially where there is the advantage of a fermenting bed, the materials of which should be added to and turned over so as to keep the heat steady at 70° to 75°. Water as necessary with tepid water. Secure the canes in position after they have broken well throughout.

Late Grapes.—Those that were forwarded by a judicious application of fire heat in spring are quite promising as to keeping, being fresh and plump, and, the foliage having fallen, the most critical stage in the treatment of late Grapes has passed. We allude, of course, to Grapes that have been ripened by the end of September under conditions so frequently advised in these columns. One of the most fatal mistakes with late Grapes, or those for spring use, is that they should be allowed to come on naturally and ripen their fruit some time before Christmas, or with fire heat in the dull autumn months. The wood in this case never ripens perfectly, and the bunches are loose and wanting in berries; the foliage hangs until December, and generally ripened off by cold, and if the berries escape damp they shrivel when the foliage is gone or the fruit is removed to the Grape-room, which becomes a very important compartment, especially where late vineries have to be occupied with plants. In the Grape-room cleanliness and perfect ventilation are essential, as too dry an atmosphere is quite as fatal to the Grapes keeping as a stagnant moist atmosphere. Grapes keep best in a room having thick dry walls, and therefore not subject to sudden fluctuations in temperature, hollow walls being unquestionably the best, and with sufficient heating power to expel damp, or not allowing the temperature to fall below 45° in the severest weather. The house should be thoroughly cleansed and white-washed; the bottles also must be clean and filled with clear rain water, adding a small lump of charcoal to each, and placing in the racks ready for use. The Grapes should be cut on a dry day, and no portion of the wood above the bunches should be cut, or if it be cut must be dressed with styptic to prevent the escape of moisture from the wood. The Vines may then be pruned, and a long season of rest will then be secured to them. Any additions to the inside borders should have immediate attention, and surface-dress them after removing the loose inert surface soil, giving, if the border be dry, a good watering prior to the top-dressing of turf, crushed bones and charred refuse.

PLANT HOUSES.

French and Fancy Pelargoniums.—Every attention must be paid to these plants, especially the early batch, for if kept in a close atmosphere they will soon draw up weakly and their foliage become spotted. They must be kept close to the glass and in a temperature that will not fall below 45° at night, and every favourable opportunity they should have air admitted to them freely. No attempt must be made to push them forward now the days are short and sunless, but, on the contrary, keep them moving slowly, so that the growth they make will be dwarf and sturdy, which early in the season will be capable of supplying abundance of bloom. Watering must be done carefully and judiciously, only giving sufficient to keep their roots in an active healthy condition. After watering, if the day is fine apply a little fire heat for the purpose of expelling the damp.

Chrysanthemums.—These plants are early this year, and where they have been disbudded they will be unfolding their blooms rapidly. These large blooms are very liable to damp during dull sunless weather, and the only means of prevention is the application of heat and abundance of air. The flowers will need daily inspection during such weather, and any petals that show signs of damping must be instantly removed, or a number will soon suffer and the flower in a few days will be spoiled. There is not so much fear of flowers of a smaller size suffering from this cause. The late batches now they are indoors must be watched, and if mildew appear, which it is very likely to do, it must be destroyed at once, for if allowed to spread the foliage will be injured. For this purpose use a solution of soft soap and water, in which a little sulphur has been mixed, lay the plants down and give them a good washing, and after the mildew has been destroyed wash off the remains of the sulphur with clear water. Do not neglect supplying the late batches that have only just formed their buds, for in this stage they require liberal feeding if the best results are expected. Ventilate freely day and night while the weather is mild, and only close the ventilators in stormy weather and on frosty nights.

THE FLOWER GARDEN AND PLEASURE GROUND.

Glaucoli.—Unless frosts intervene the foliage of most of these will remain green till near the end of the month, when they may be lifted

and stored. Should severe frosts, however, be anticipated, the corms should either be lifted at once or protected with rough litter or leaves. They may be packed thinly in boxes of dry soil, and stored during the winter in a cool dry shed where they can be protected from frosts. The tiny corms, which in some cases are formed about the old corms, should not be overlooked, as these, if preserved in slightly moist sandy soil, and be properly replanted the following spring will, in the course of one or two seasons, grow into flowering corms. In some gardens, where the soil is light and dry, it is not absolutely necessary to lift them, but they should be protected from severe frosts. The commoner sorts frequently spread rapidly and flower freely under this treatment.

Dahlias.—These have held out unusually late this season, and have been particularly good. The beautiful Constance, Ariel, or White Cactus Dahlia, as it is variously termed, and the brilliant Juarezi or Cactus Dahlia, have been exceptionally fine this autumn, and are certain to remain popular long after numbers of the single varieties are discarded. Scarlet Glare of the Garden and its crimson form have been wonderfully effective, and these, with some of the Pompons—notably the white Guiding Star—are especially good for furnishing cut blooms, and may well receive the preference to many of the singles. At least nine-tenths of seedling single Dahlias ought to be destroyed. Better preserve a few really distinct and brightly coloured sorts and throw away all those that are poor both in form and colour. Directly the frosts have injured the leaves and flowers of all the Dahlias, the stems of those selected should be cut down to within 9 inches of the tubers, and either lift at once or protect from a second frost. The labels bearing the registered numbers, name, or brief description of each should be strongly tied to the stem, or otherwise much confusion may easily ensue. After the tubers have stood for a few days in a shed to dry they should be packed in a single layer on a dry floor, and be covered with fine nearly dry soil. They must be carefully protected from frost. When the tubers are stored under a staging in a greenhouse they are either injured by excessive moisture or induced to commence growth much too early.

Salvia patens and Verbena venosa.—The former may be treated similarly to the Dahlias, but in this case, the tubers being smaller, they may well be enclosed in boxes of good soil. The long fleshy roots of the Verbena are quite hardy, and from these any number of plants may be obtained in the spring; but as they interfere with the digging and manuring of the beds, a quantity of trimmed plants and their roots entire should be lifted and stored thickly in boxes of moist soil. A cold frame is the best position in which to winter them.

Herbaceous Lobelias.—These brilliant tall-growing species, of which *L. cardinalis* and *fulgens* are the oldest types, should be lifted and stored in boxes or pots of good soil, and be wintered in a pit, frame, or a greenhouse. They ought not to become dust-dry at the roots, the aim being to encourage them to push up strong suckers for division in the spring.

Polemonium caruleum variegatum.—This has again proved a very effective bedding plant, and should be lifted and treated similarly to the Lobelias. The less fire heat they receive the better. The beautifully variegated Tussilago Farfara is quite hardy, and is best left undisturbed till the spring, when numbers of strong suckers will spring up in all directions.

Chrysanthemums.—It is seldom we have these good in the open air, especially the easily disfigured white sorts. Where they are wisely planted near a wall, a mat should be carefully and securely suspended over them nightly, both as a protection from frosts and rain. If they are situated in such a position as to prevent any protection being given we should strongly advise that many of the best be lifted with a large ball of earth about the roots, and either be placed in large pots or tubs, or, failing these, be bedded in a heap of good soil somewhere in a vinery or Peach house. Such plants, providing they are in a moist state at the roots when lifted, and subsequently maintained in that state, will furnish surprisingly large quantities of blooms. They may perhaps lose much of their lower foliage, but better lose this than have the whole of the blooms spoilt by rains and frosts.

THE BEE-KEEPER.

HIVE-CONSTRUCTION—COVERING FOR TOPS OF FRAMES, QUILTS—TWO TROUBLES.

Two troubles usually beset the bee-keeper who is desirous of preserving the covering of his hive in good order—First, the persistency with which bees will gnaw holes in the material which goes immediately on the tops of the frames; and second, the disagreeable effects of propolis on the carpet covering, or whatever may be laid for warmth over the bees.

We have tried hair cloth, Indian grass matting, and American cloth, all of which were discarded as faulty and not answering the purpose. In casting about for a more suitable covering we came across a very simple article which we venture to say is the best yet introduced; very cheap, durable and indestructible so far as the bees are concerned. It is made of round German match-wood, and is used for various domestic purposes, such as splashes for washstands. This material when woven together with strong

thread is everything that can be desired. We had some difficulty in obtaining the article we required undisfigured by paint, but eventually succeeded, and if the manufacturers can be induced to make them of a suitable size for bee-keepers they will, we believe, be generally adopted. In use they are so light that one may be laid on the tops of the frames, while the latter are thickly covered by bees; not one will be crushed, and the bees can creep from under the covering without difficulty. When uncovering the frames the wood quilt is so pliable than when folded back it lies in a roll out of the way, while only just so much of the frames are uncovered as is necessary. Of course bees will propolis these as they will any other form of quilt, and we have to take the usual steps to remove the propolis when cleaning them once a year.

These wood quilts are made in two parts each 16 by 15½ inches; a small hole is cut in each to admit the bees to the feeding stage. An excellent covering for warmth is made from cow hair felt, used by engineers for the purpose of maintaining heat in boilers; it is about 1 inch thick, light, soft, and very porous, so that when sewn into calico coverings for durability one set of these quilts will last a lifetime. We make them in four parts two of which are 15½ by 9 inches, and two 15½ by 6 inches. A circular hole is cut in each wide piece for feeding.

We have now completed the description of our hive, and the diagram below will assist in making plain its construction as well as showing its relative proportions. We cannot well show the method

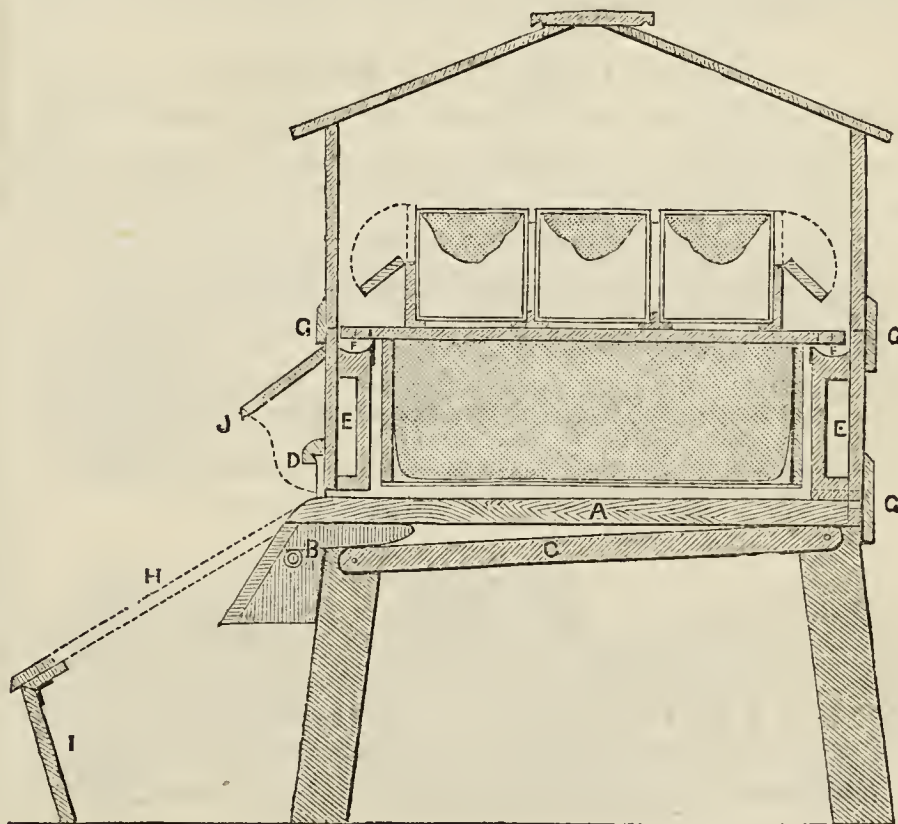


Fig. 85. DIAGRAM OF HIVE.

of fixing the legs without confusing the diagram, but they are cut with a shoulder on which the hive body rests, and screwed on at the front and back respectively.

Objections may be taken to this hive on the score of cost or trouble in making; but we would remind our readers that the hive which has been described is devised as the best that could be made regardless to an extent of one or the other. The timber, &c., used in its construction costs about 9s. All really first-class hives are rather costly, but a good article is cheap in the end, and the rubbishy packing-case affairs so frequently sent out now-a-days are dear at any price.

A cheaper form of the same hive for use in a bee house can be made by using inch stuff for the hive body, dispensing entirely with double walls, roof, legs, &c. At each end is screwed on a piece of inch stuff 4 inches wide. On the insides of these the inclined runners are fixed in such a position that the floorboard will fit close up at the back when pushed home, and allow half an inch fall in the front before it is wedged up. Two small wedges 3 inches long, tapering down to three-eighths of an inch, and fastened by a small chain or string to the hive, are used for this purpose. A strip of half-inch wood along the front and back, fixed level with the tops of the frames, keeps them in position; thus we have all the working parts of the hive the same as in the larger one at a cost of labour and material not exceeding that of the cheap hives now in use.—W. B. C., Higher Bebington.

[We regret to learn that our correspondent, also writers on gardening, are troubled with a number of letters that readers are not

justified in sending, and asking for information by post; and we trust that our request to correspondents in this column will be complied with.]

THE BEST TIME TO SLING HONEY

WHILE bees are gathering honey daily the only proper time to sling it from the combs is in the morning before they begin the work for the day. If the work of slinging be not attended to, then the honey extracted will be inferior—in fact, it will remain thin and soon sour. This fact has been repeated so often during the last ten years that I have not deemed it wise to repeat the old story for some years. About ten days ago I met Mr. Hewett of High Leigh, near Lymm or Warrington, a clever, experienced, and successful bee-keeper, when he told me that he had found in his practice that honey gathered in the fields during the day had to be re-swallowed at nights, and thus made into proper honey. Some ten or twelve years ago it did appear strange to me that so many of the leading bee-keepers of Great Britain should be ignorant of lessons that could be learned every day when bees are at work. Mr. Woodbury, unlike most of the leading apiarians of his time, did not venture to contradict or dispute the statement then made, but said he "did not know." It will be well if all bee-keepers who use extractors now learn that honey proper cannot be extracted from combs till the second day after it is gathered; in other words, that bees first gather honey in a crude state, and convert it at home into real honey. This is a lesson of far more importance than some advanced apiarians are now disposed to admit. The treasures of all true science are gathered from facts, and the facts of this case are open to all who look for them.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Forest and Ornamental Trees.*

Alex. E. Campbell, Cove Gardens, Gourcock.—*Catalogue of Gladioli.*

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Forest Trees and Roses.*

Francis and Arthur Dickson & Sons, Chester.—*Catalogue of Forest Trees, Conifers, and Shrubs.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Forest and Ornamental Trees, Conifers, and Roses.*

P. E. Francken, Steenbrugge-Bruges, Belgium.—*Catalogue of Shrubs and Trees.*

Robert Jenkins & Co., Rotherham.—*Catalogue of Boilers (Illustrated).*

Constant Kerkvooide, Wetteren, Belgium.—*Catalogue of Fruit Trees and Roses.*

D. Cannon & E. Brace, Les Vaux, Salbin, Loir-et-Cher.—*Catalogue of Trees, Shrubs, Potatoes, and Strawberries.*



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

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

Book (*B. J. C.*).—Mr. A. F. Barron's work on "Vines and Vine Culture" can be obtained from this office, price 10s., post free 10s. 6d.

"Mushrooms for the Million" (*C. F. T.*).—The above is the title of the treatise that was alluded to in the article that you have read. The second edition of the work is now being issued from this office, price 1s., post free 1s. 2d.

Greenhouse Rhododendrons (*A. T.*).—In addition to those you have, the following will no doubt suit you, as they are of compact habit with fine flowers—*R. Veitchianum*, *R. exoniense*, *R. formosum*, *R. ciliatum*, *R. barbatum*, and *R. Taylori*. Most of the highly coloured forms are of rather straggling habit, as *R. javanicum* is the species which has been chiefly employed in raising them.

Double Lapageria (*W. W.*).—Examples of the double Lapageria rosea, also of the white variety, have been previously obtained, notably by Mr. G. Duffield of Winchmore Hill, London, N., who has had both forms. The double white variety has much larger flowers, but the red one sent by you is very similar to that he had. It is a distinctly double flower and interesting, but it is a matter of opinion whether it is more beautiful than the single form.

Vine not Thriving (*H. S.*).—There are no signs of the phylloxera on the specimens you have sent, but the Vine is evidently in an unsatisfactory condition. If the others in the house are doing well we should remove the one that is unhealthy, and either plant another, using fresh soil, or train an additional cane from an established Vine. We are not able to determine the reason why your Vine refuses to flourish. It is probably inherently weak.

Insecticide (*J. C.*).—We are obliged by the sample you have sent, and will try it. In the meantime your best plan will be to have it fully tested by good local gardeners of repute. We are not able to send the addresses of gardeners on the terms you propose. The action of the material appears similar to that of gas lime.

Rose Garden (*Mrs. S.*).—We cannot give you more practical assistance than referring you to page 82, vol. xxxvi., January 30th, 1879, where a plan will be found of the Rose garden at Mentmore, and the varieties enumerated for planting the beds. If you do not possess that number of the Journal it can be had by sending 3½d. in postage stamps to the publisher, with a request that he send you No. 931.

Pruning Vines (*J. W. H.*).—Everything depends on the condition of the leaves. If most of them are changing you may prune as you propose, as the wood you have sent is fairly well matured, dressing the wounds with knotting or styptic as the pruning proceeds. Not knowing the exact state of the Vines we are unable to give a categorical reply to your question, but we think you would lose nothing by firing briskly for a week or ten days, making the pipes quite hot, and at the same time giving abundance of air, and so producing a warm dry atmosphere. After that you might safely prune. The retention of the foliage longer than usual will be no detriment, but more probably an advantage to the cropping of the Vines.

Raising Thorns and Briars from Seed (*Oxfordshire*).—The present is the time for gathering the seed. The usual practice is to mix the haws in damp sand and let them remain through the winter, then sow in drills in the open ground in the spring, and transplant the seedlings when they are large enough to be handled conveniently. Briars may be raised in the same way; but if a few only are wanted as quickly as possible they may be had by sowing the seed in a frame placed over a gentle hotbed, the manure being covered with 9 inches of soil.

Order not Acknowledged (*W. T., Quebec*).—We have received a letter from the florist to whom you referred in your post card, in which he states: "I was sold out of some of the things named, and the parcels post to Canada being so precarious the money (10s.) was remitted, as requested, to Mr. T.'s sister in Surrey. I am surprised she has not communicated this fact to her brother." Our correspondent has sent us your name, also the full address of your sister, and you will now probably admit that you have no grounds for complaint against him. He is a thoroughly respectable man.

Various (*Park Hill*).—The Fuchsias in question are shaken out of the pots just when they are starting to grow in spring, and carefully repotted in rich loamy yet gritty soil, and when the pots are crowded with roots rich top-dressings are given and copious supplies of liquid manure. If the Primulas are placed on inverted pots they will succeed very well provided the temperature of the house and its atmospheric condition are favourable. The finest of plants are so grown, the pots being inverted on a stage covered with ashes or cocoa-nut fibre refuse. Your letter on cropping a garden is too vague, as it implies you only desire to grow one crop only. You will find an article on the culture of Asparagus in another column, but to have produce as soon as possible you should plant two-year-old crowns in April.

Propagating Chrysanthemums (*R. S.*).—Many excellent cultivators find that stout suckers inserted early in the spring and grown without check give as fine exhibition blooms as plants do that are raised from cuttings in the autumn; but if very large specimen plants are required an advantage is gained by starting in the autumn and keeping the plants steadily growing under favourable conditions through the winter. Plants for ordinary decorative purposes may be safely raised from cuttings in the spring. Some persons insert cuttings in November because their whole stock can thus be wintered in a tenth part of the space that would be needed for preserving the old plants in frames. If you have no room in frames for wintering your old plants, you may preserve them by placing the pots near a south wall or fence, packing leaves or litter closely round them, and protecting with mats in severe weather. If you have space in frames you may prevent the growths becoming tall and wiry by abundance of ventilation, removing the lights entirely on all favourable occasions. Cuttings made of tall weak shoots cannot be expected to make good plants and produce fine blooms. If you plant one each of your varieties on a sheltered border, inserting young plants in spring, growing them there and allowing them to remain through the winter, they will probably give you the best of cuttings in the spring. Very highly fed plants that have given grand exhibition blooms often fail to produce strong healthy suckers, better cuttings being almost invariably afforded by plants that have been grown in a more natural manner and not forced by stimulants.

Flowers in Rose Bed (*Irish Subscriber*).—Dwarf Roses planted nearly a foot apart ought to occupy all the bed, and there would not be any "spaces" between them if you had not made them—that is, prevented the free growth of the Roses by planting amongst them Pelargoniums, Calceolarias, and other bedding plants. The only way we can suggest of rendering the beds attractive otherwise than with Roses is to plant such bulbs as Snowdrops, Crocuses, and Hyacinths, and let them remain. These would have a cheerful effect in the spring, and in the summer the beds should be quite a mass of Roses, with no spaces between them for anything; still, if there are blanks, such plants as Gladioli and Lilliums would fill them without greatly overcrowding the Roses.

Cucumbers and Tomatoes (*Old Subscriber*).—A temperature of 55° at night is too low for winter Cucumbers. Occasionally in severe weather, and when the pipes are very hot, we have known the thermometer to register as low as that in the Cucumber house without strong well-established plants receiving any serious check; but for growing Cucumbers successfully in winter there ought to be a command of temperature of from 60° to 65°. Tomatoes will succeed in the temperature named.

Grapes not Keeping (*The Lodge*).—Grapes do not keep so well during some seasons as they do in others, and the decay of Black Hamburg is accelerated by too much moisture at the roots. Perhaps your border has been saturated by heavy rains. Your Vines, too, may have been rather heavily cropped, in which case the skin of the Grapes would be thin and the keeping properties of the fruit thereby impaired. The fruit might perhaps have kept better on the Vines; still we presume you had some reason for removing the bunches. Five weeks is not long enough for Grapes to hang after the commencement of colouring, and to cut them at that time is to cut them too soon for purposes of keeping. Is the room in which you have them too cold and damp, or liable to extreme fluctuations of temperature? The temperature ought to be equable—about 45°. Lady Downe's is a good keeper, but does not succeed well in all places. We have grown it equally well on its own roots and on the Black Hamburg stock. The easiest to grow and certain to bear of late Grapes is the Black Alicante, but its quality is not equal to that of Mrs. Pince. Duchess of Buccleuch is not a late keeper. It is a small but very rich Grape, and not likely to suit you in anything but flavour. One of the most useful white Grapes for keeping is the Trebbiano; it is a strong grower, but not particularly rich in flavour.

Thorn Apple, Datura Stramonium (*Twenty-five-years Subscriber*).—The plant of which you send a fruit bears the above popular and scientific names. It is found wild in Britain, having escaped from the gardens, and its habitat is generally among rubbish and on dunghills. It is easily known by its large oval seed-vessels, thickly covered over with stout sharp spines. The whole plant has a disagreeable, nauseous, and heavy odour, particularly when bruised, and an acrid bitter taste. It loses much of its odour by drying, but retains its properties. When taken internally, in moderate doses, it causes numbness, vertigo, dimness of vision, dilation of the pupils, produces a slight delirium, intoxication, and forgetfulness, and these effects pass off in five or six hours; but if the quantity taken be large, then all the symptoms of poisoning are presented, as heartburn, intense thirst, a feeling of strangulation, delirium, madness, convulsive movements, and paralysis; congestion of the brain ensues, symptoms of inflammation are manifested, and death follows in twelve or fifteen hours. M. Orfila states that Stramonium acts with more force on the brain than Belladonna, and produces more furious delirium. Stramonium, smoked like tobacco, is a popular remedy for the cure of asthma. Its use in this way has been derived from the East Indies, where other species are used for this purpose. It is the root and lower parts of the stem which are so employed, and the smoke excites a sense of heat in the chest, followed by copious expectoration, and sometimes attended by temporary vertigo and drowsiness. The seeds have the same nauseous bitter taste as the leaves, and in them Brandes discovered an alkaline principle called *Daturia*, combined with an excess of malic acid. It is in the form of colourless crystals, inodorous, and when first applied to the tongue is bitterish, but afterwards of the taste of tobacco; its action is poisonous.

Fruit Trees in Pots (*H. S.*).—The following extract from a description of Col. Turberville's garden at Ewenny Priory will answer your inquiry relative to the trees grown by Mr. Hawkins:—One large span-roofed house and another lean-to are filled with fruit trees in pots, and these were just at their best at the time of our visit. The trees are chiefly Nectarines, Peaches, Plums, and Pears. They are mostly about 5 feet high. The pots are from 10 to 15 inches in diameter, and they altogether number about fifty. The first glance at the trees proves them to be in excellent health—not a spotted leaf or an insect being visible, and the crops are surprising. On a small tree of Rivers' Early Alfred Peach there were six dozen of good fruits, and Mr. Hawkins, the skilled grower, speaks highly of the variety as a sure cropper. Next to this there was one of Rivers' Purple Gage Plums which had sixteen dozen fine fruit on it last year, and this season they number ten dozen. This is considered the finest flavoured of all Plums. Pears were equally fine, a small sprig of a tree of Brockworth Park bearing fourteen fruit, each more than 8 inches in circumference; Louise Bonne of Jersey had forty fine fruits. These are finer than we have seen in the open air against walls or in any other position. Some samples of Pears were extremely fine. Three varieties were especially noteworthy—Doyenné du Comice, five fruits of which weighed 4 lbs. 3 ozs.; Pitmaston Duchess, and Duchesse d'Angoulême, one fruit of each weighing 1 lb. 15 ozs.; and Beurré Diel, five fruits making a total of 4 lbs. 12 ozs. The trees from which these were gathered are very small, but, like all the others, they are in excellent health. Beurré Hardy was also fine in pots, the fruits being remarkably clean. We may look in vain for such fruit out of doors in our walled gardens; and yet these trees are not expensive to grow, as they have little fire heat and they do not need much training, supplying water at this time being the heaviest part of the labour. After the fruit has been gathered the trees are moved out to the open air, and any which require potting are shifted a little time before the leaves fall. Gritty soil from the roadside is employed, and one barrowload of horse droppings is added to every four of soil. Old bones from the house are broken up and used as drainage. The trees in pots are not forced, but start into growth naturally under glass. In this system of growing trees Mr. Hawkins has the very highest confidence, and well he may, as everyone must envy those in his position with such large crops from small trees in a fruitless season out of doors. The same trees have been fruiting for fourteen years, and they have no appearance of being exhausted. Perhaps your trees are shaded or kept too close and warm during the blossoming period. Apricots do not usually succeed so well under glass as Peaches; but with healthy Pear trees you ought to succeed by carrying out the practice described by Mr. Rivers.

Names of Fruits (*J. Burn*).—1, Warner's King; 2, not known; 3, Syke-house Russet. (*G. Snow*).—1, Golden Noble; 2, Beauty of Kent; 3, Dumelow's Seedling; 4, Golden Winter Pearmain; 5, Court Pendu Plat; 6, not known. (*R. Ogston*).—1, Alfriston; 2, Autumn Red Calville; 3, Tower of Glamis; 4, Lemon Pippin; 5, Keswick Codlin; 6, Winter Greening. (*J. L., Newport*).—1, Mère de Ménage; 2, Blenheim Pippin; 3, Red Doyenné; 4, Bergamotte Cadette; 5, Winter Peach; 6, Claygate Pearmain. (*R. J. Lynch*).—1, not known; 2, White Nonpareil; 3, Doctor Harvey; 4, Cox's Pomona; 5, Cox's Orange Pippin; 6, Dumelow's Seedling.

Names of Plants (*Twenty-five-years Subscriber*).—Datura Stramonium. see reply above. (*A Subscriber*).—It is impossible for anyone to name such fragmentary specimens, crushed and dried as they are beyond recognition. Good specimens that arrive in a fresh state will be named if possible but

sprays of flowering plants should be sent with flowers attached, this being the only certain mode of getting them named correctly. (*C. S. R.*).—1, *Æschynanthus fulgens*; 2, *Sedum Sieboldi*; 3, *Cassia corymbosa*. The *Begonia* and *Primula* were quite shrivelled on arrival from being packed in dry paper.

Comb-making (*A Bee-keeper*).—Wax is made from syrup as well as from honey, but is not considered so good, as the combs are more brittle than those made from honey.

COVENT GARDEN MARKET.—NOVEMBER 14TH.

TRADE more quiet. Prices generally the same. Grapes in heavy supply. Cobs easily cleared at higher rates.

		s. d.		s. d.		FRUIT.		s. d.		s. d.			
Apples	1	0	to	3	Melons	.. ..	each	2	0	to	3	0
"	per	barrel	0	0	Nectarines	.. ..	dozen	0	0	0	0	
Apricots	box	0	0	0	Oranges	.. ..	100	6	0	10	0	
Chestnuts	bushel	10	0	0	Peaches	.. ..	dozen	0	0	0	0	
Figs	dozen	0	9	1	Pears, kitchen	.. ..	dozen	0	0	0	0	
Filberts lb.	1	0	0	" dessert	.. ..	dozen	1	0	5	0	
Cobs	per lb.	1	6	0	Pine Apples English	.. lb.	2	0	3	0		
Grapes lb.	1	0	3	Plums and Damsons	.. ..	0	0	0	0		
Lemons case	15	0	21	0	Strawberries	.. ..	lb.	0	0	0	0

		s. d.		s. d.		VEGETABLES.		s. d.		s. d.				
Artichokes	.. ..	dozen	2	0	to	4	Mushrooms	.. ..	punnet	1	0	to	1	6
Beans, Kidney	.. ..	.. lb.	0	0	0	0	Mustard and Cress	.. ..	punnet	0	2	0	3	
Beet, Red	.. ..	dozen	1	0	2	0	Onions	.. ..	bushel	2	6	3	0	
Broccoli	.. ..	.. bundle	0	9	1	0	Parsley	.. ..	dozen bunches	3	0	4	0	
Brussels Sprouts	.. ..	½ sieve	2	6	3	6	Parsnips	.. ..	dozen	1	0	2	0	
Cabbage	.. ..	dozen	0	6	1	0	Potatoes	.. ..	cwt.	4	0	5	0	
Capsicums	.. ..	.. 100	1	6	2	0	" Kidney	.. ..	cwt.	4	0	5	0	
Carrots	.. ..	.. bunch	0	4	0	0	Rhubarb	.. ..	.. bundle	0	4	0	0	
Cauliflowers	.. ..	dozen	2	0	3	0	Salsafy	.. ..	.. bundle	1	0	0	0	
Celery	.. ..	.. bundle	1	6	2	0	Scorzoner	.. ..	.. bundle	1	6	0	0	
Coleworts	doz. bunches	2	0	4	0	0	Seakale	.. ..	.. basket	2	0	3	0	
Cucumbers	.. ..	each	0	4	0	0	Shallots	.. ..	.. lb.	0	3	0	0	
Endive	.. ..	dozen	1	0	2	0	Spinach	.. ..	.. bushel	2	6	3	0	
Herbs	.. ..	.. bunch	0	2	0	0	Tomatoes	.. ..	.. lb.	0	3	0	8	
Leeks	.. ..	.. bunch	0	3	0	4	Turnips	.. ..	.. bunch	0	0	0	4	
Lettuce	.. ..	.. score	1	0	1	6								



IMPROVED DAIRY CATTLE.

(Continued from page 412.)

HAVING furnished ample prefatory remarks in connection with this subject we shall now consider the minute and somewhat difficult particulars. We hope that some breeder of experience will undertake the task which we would have gladly done twenty or thirty years ago with a prospect of having attained our object at the end of ten years from its commencement. Select first half a dozen heifers at the age of twelve months of the pure-bred Shorthorn type, celebrated for having descended from animals which shall have been notoriously great or deep milkers, and whose ancestors for a long period have been of a light brown, or patched light brown and white colour. At the same time it is of the utmost consequence they should in their generations on both the male and female side be known by tradition or pedigree to be the representatives and the descendants of a type and character celebrated for their milking characteristics, and possessing also capacious and well-shaped udders and a disposition to fatten quickly when out of use for milking. They should be noted for their perfect form and symmetry, excepting the light and bare shoulder top which we have previously stated as being of the greatest consequence as representing any tribe of full milking capacity. In order to be sure of the future generations being possessed of well-shaped capacious udders we must know the blood from which we select our heifers to have been carefully treated and managed by the dairymen and their owners. Unless this can be guaranteed there must always be a doubt as to the capacity of future generations to furnish us with animals possessing the shape of udders which we deem indispensable towards attaining the object we have in view.

To show the management necessary for this purpose, let us see what Mr. William Houseman, the greatest authority of the day upon such matters, has said in his excellent essay upon "The Management of a Shorthorn Herd" in the Journal of the Royal Agricultural Society of England, published in the year 1880. He says—"In the belief that without losing in the smallest degree the Shorthorn's usefulness as a grazing animal we may largely increase its yield of milk, I am supported by the carefully founded opinion of some of the most practical and successful breeders of grazing stock. In all probability the three-

times-a-day milking would greatly tend to cause an increased flow of milk; and a great deal, I believe, might be done by attention to the bag. In hand-milking a lazy milker goes to the hind quarters of the bag first because they are easiest to draw, and for the same reason he sticks to them longest, so that eventually they increase, while the fore quarters diminish, and a "can-bag," all down behind and shallow and shrunk in front, is the necessary consequence. Eventually the fore quarters become almost useless, not in the first cow that is so treated, but by gradual deterioration through successively mismanaged generations of cows, bred until in a great part of the stock, common as well as highly bred, which should be the dairy stock of the country, the capability of the udder is seriously impaired. More attention to this on the part of the owners of Shorthorn herds is urgently needed, not only on the part of herds kept for the dairy, but more especially of the owners of bull-breeding herds; for it is the bulls bred from cows with no fore-bags that do the mischief all over the country."

Thus we must admit how desirable it is in selecting our young heifers to make a searching inquiry, and it should be minute examination, or by our knowledge of the parents of the animals we may choose for the purpose of breeding from. We have been particular in naming heifers of the class and character described, because most practical men know the result of breeding from cows which have been mated with bulls of various colours as well as points not desirable for the object we have in view. As we have previously said and quoted from the opinions of various practical men, that with all our skill in cattle management and breeding we cannot combine in the same individual animal extraordinary fattening and extraordinary milking qualities. This leads up to the point or question of feeding of our selected stock heifers; and in order that no unforeseen obstacles may appear we advise that our heifers from infancy should be kept without artificial food, like cake, &c., but as soon as they would graze upon good pasturage in summer, and in bad weather in winter when the grass fails they should be fed upon cabbage or roots, with sweet pasture hay *ad libitum*, within littered yards and sheltered sheds. When being brought up in this way we may expect the animals will not only be healthy, but in that condition from which we may expect sound and well-conditioned calves, well calculated to answer every purpose we have sought on arriving at the breeding period. By this we mean that they should never be mated until they are fifteen or sixteen months old, so that no heifer drop her calf until she has reached two years of age; for heifers are not only surest to breed at that period, but usually prove the best milkers after calving at that age.

We must now turn our attention to the selection of a bull to mate with these heifers; and in fact it may be well to have two of the best Guernsey bulls of about two and a half years old, which shall afford reasonable hope of furnishing us with calves such as we desire. All possible care must therefore be used, not only through the good character of the parents from whence the bulls were derived, but we must especially make a searching examination into the style, type, and character of them, not only by our own experience, but also to obtain assistance from some of the best judges of cattle to assist us in our selection of the Guernsey bulls we may require. Still, let us be first assured, and accept some of the facts well known to experienced breeders as to the potency of the male in securing the quality we require in the highest degree of a butter-yielding stock, for there are various instances to adduce, both from America and Guernsey Island also, which alleges that the quality of the milk is determined by the sire, and the quantity by the dam. Let us see what Mr. Ledyard has said in his Lecture, and from which we have previously quoted, and in conclusion by the following observations—"If the purpose of the farmer is to produce butter that will meet the demand of critical consumers, he will attain the best results by using Guernsey males, thus availing himself at once of the centuries of careful breeding that have been carried on in the Channel Islands. Accidental breeding often produces cattle of great individual excellence—animals that in beauty and usefulness will compare favourably with any; but a breeder who relies upon the power of such to transmit these traits will be very likely to learn to his cost that the tendency in stock animals is to impress upon their get some of the mongrel strains that they are descended from. In the Guernsey this prepotent power of transmitting the traits inherited through a long line of pure breeding is very remarkable."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—As the harvest was late a heavy burden of horse labour has accumulated in consequence; in fact, the preparation and seeding of the land for Wheat has been in most cases on farms in various parts of the kingdom much delayed, especially as so much rain fell in

the end of September and early part of October. This matter has been more felt on those farms where steam power is not available, for it is generally admitted that in consequence of adverse seasons for fallowing the land for five or six years past, that the land upon the mixed-soiled farms is more foul with the Couch or Twitch than formerly. The difficulty of cleaning the land during the late autumn months has been great, and has tended to delay the dung-carting on the Clover leas for Wheat, as well as preparations of any kind for Wheat on fallowed land, and also the storing of Mangolds, Carrots, and lifting Potatoes, has suffered delay, and has induced great pressure upon the horse labour as well as hand labour up to this date. If November weather occurs and prevails—viz., alternate rains and frosty mornings, it will make further delay inevitable in sowing Wheat after roots, whether they have been fed off by sheep or chopped and ploughed in for Wheat. The latter usage for Turnips and green crops is increasing in favour with the farmers because the land does not suffer as by the treading of the sheep, and the Wheat may be sown anywhen on most soils, for requiring no other manure there is no hindrance to the seed in any respect if the land is ploughed and seeded simultaneously. When this is done every ridge is seeded immediately after ploughing, so that in case of a sudden change of weather, either from rain or snow, the seeding may be completed in a satisfactory manner. However advantageously this may be done upon good and friable loams, yet it should be remembered that upon flat soils of strong land the November seed-time should not be selected or waited for. It is therefore indispensable on strong land that the last week of September or first fortnight of October should be made the seed-time on such land, and should be arranged for by the manuring in anticipation of this period for sowing Wheat with more safety, and certainty in our fickle climate, especially in the finishing off the land in the best form. On those farms where Wheat has been sown and finished it becomes a question whether the land should be ploughed up deep to be benefited by frost during the winter, or whether it should be sown by Vetches, Trifolium, and Rye. Sir J. B. Lawes continues to write upon this subject, stating that a bare fallow loses a certain amount of fertility during the rainy period; in fact he goes so far as to state that totally opposite opinions may be held upon the same subject. It must be considered whether the green crops are intended for feeding by sheep or ploughing in as manure, and this in a great measure will depend upon whether there is couch or not on the land; for although the land under green crop would lose less in fertility, yet the chances of cleaning the fallow are greatly improved as compared with the short summer tillage after disposing of the green crops.

Hand Labour.—Men have been lately employed in filling and spreading dung on the Clover leas or Peas eddishes for Wheat. The preparing of the corn for sale after having been thrashed by the steam power has employed some men both for the Wheat and White Oats, which we have been threshing lately. Men and lads have also been employed in chopping and preparing the abundant root crops for ploughing under as manure for Wheat, and we have much to do in this way yet; for where the Turnips have been sown late so much the better, when thick in plant, for no labour of breaking down is required, the crop being ploughed under without any labour of chopping or labour of hoeing while growing.

Live Stock.—On various farms in the southern districts the horned Dorset and Somerset ewes are preferred, as they bring their lambs very early. Some parties have informed us that the early lambing season has so far been successful, the lambs and ewes both being healthy; and many twins, in some cases amounting to one-half of the ewes in the flock, has been obtained. These ewes are much preferred now the early lambing Down ewes are extinct, they being originally a cross between the Horns and Downs; for although the use of the Down ram only having been continued for many years, the horned blood still existed to some extent in certain flocks, which enabled the Down ewes to lamb early, with better milking capacity, and producing more twins. These breeds of ewes are now gone, and their successors are settled down into stock of the ordinary down type and character.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet- er at 32" and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
November.											
Sunday	4	29.910	45.2	43.4	S.	48.7	52.2	39.2	54.2	34.8	0.402
Monday	5	29.683	42.5	40.5	W.	47.7	50.7	38.2	80.7	31.2	0.336
Tuesday	6	29.970	55.0	53.3	W.	47.2	55.6	41.3	60.3	39.3	0.165
Wednesday ..	7	29.586	36.9	36.9	N.W.	47.0	46.8	33.7	59.6	26.3	0.066
Thursday	8	29.719	40.4	40.0	N.W.	45.6	49.8	35.1	75.4	30.7	0.034
Friday	9	29.695	49.6	47.8	W.	45.8	54.4	49.3	82.0	34.3	—
Saturday	10	29.644	38.4	37.3	N.	45.6	49.1	36.3	78.7	31.1	—
		29.601	44.0	42.7		46.8	51.2	37.7	70.1	32.5	1.004

REMARKS.

4th.—Fine at first; rain from 11.15 A.M. till 5 P.M.
5th.—Fine bright morning; very wet evening.
6th.—Wet morning; fine afternoon and evening.
7th.—Thick fog at first; fair day; fog again in evening with rain.
8th.—Fine day, with some bright sunshine; rain at 8.30 P.M.
9th.—Fine pleasant day; brilliant sunset.
10th.—Slight rain in early morning; bright cold day.
Temperature still falling, and rather below the average. Squally, with sharp rain on Sunday. Several exceptionally fine sunsets.—G. J. SYMONS.



COMING EVENTS

22	TH	Reading, Aylesbury, Tunbridge Wells, Taunton, and Ipswich Shows.
23	F	
24	S	
25	SUN	27TH SUNDAY AFTER TRINITY.
26	M	
27	TU	Liverpool and Norton and Maldon Shows.
28	W	

NOTES FROM THE NORTH.

ODONTOGLOSSUMS.—We have recently been cutting for room-decoration some very fine spikes of *Odontoglossum Alexandræ*. One spike with two branches measured from the bulb to its top over 3 feet, and bore thirty-nine blooms each 3 inches across. Another and very superb variety had twenty-seven blooms on a spike. One had twenty-three and another twenty-one blooms, all fine varieties. To support these when placed in glasses very slender green stakes are used, to which the spikes are attached, for the weight of bloom is such that light glasses would be upset unless the spikes were kept almost erect. A bulb of *O. Wilckeanum* (a most charming flower) gave two spikes, one with fifteen and the other with twelve of its elegant and beautifully spotted and barred blooms. These are plants grown in glazed pots filled to within 2 inches of the top with rough pieces of charcoal. Very little peat is used for potting—next to none, in fact; and what is used has every particle of soil taken out of it, and the hairy or fibry part only is used. The cone of sphagnum gets entirely matted with white healthy roots, and they hang down among the interstices of the charcoal in beautiful luxuriance and freshness. At one time the charcoal was covered with a layer of finer crocks, but this practice has been discontinued with marked improvement in the condition of the roots. The material is annually cleanly washed from the roots by rinsing them in a pail of water, so that the sphagnum is always fresh and living. There seems very little fear that this charming and useful Orchid will degenerate in this country, for each year the bulbs gain in size and the spikes in vigour.

CYPRIPEDIUM SPICERIANUM.—What a charming and useful flower is *Cypripedium Spicerianum*! The smallest morsel of it produces flowers, and, like *C. Harrisianum* and some others, it seems to be a perpetual bloomer, and with the heat of the East Indian house it grows freely. It is found that a very thin layer of sphagnum over plenty of rough drainage suits it best. Its roots cling most tenaciously to charcoal and the sides of the pot, indicative of the position in which it is said to grow in its native habitat—namely, the face of damp moss-covered rocks. Speaking of roots clinging to the sides of the pots, this may be all very desirable while the plant remains undisturbed; but when shifting time comes it is a disadvantage, for it is scarcely possible to shift this and many other Orchids without considerable breakage of roots. Could pots be invented to the which the roots would not adhere, but only to the charcoal lumps, the evil might be so far obviated. We fear glazing inside as well as outside of the pots would only partially accomplish this object. As to glazed pots for some Orchids, we find them a very great advantage, in as far as they never require scrubbing; and in the case of all Orchids as require to be kept constantly on the wet side, such as *Cypripediums* and *Odontoglossums*, they are a decided advantage.

GROS COLMAN GRAPE.—A recent writer pronounced Gros Colman Grape not fit to eat, and no doubt that is his own

experience of it. Along with this I send you a small bunch of it, and leave you to tell your readers whether the above verdict be correct, and also what you think it might prove to be in flavour if allowed to hang on the Vine for two months longer. My employers are very fastidious, or rather choice, as to the varieties of Grapes placed on their table, and they have made me discard all but Black Hamburgh, Duke of Buccleuch, Muscats, and Gros Colman, and much prefer the last-named as submitted to you to any other of the late blacks in December and January. When treated on the cool system it is admitted that it is not agreeably flavoured, but when treated to the same temperature as those who grow first-class Muscats treat that Grape it has always been pronounced an agreeable Grape here.

NECTARINES.—Have any of your readers found that the Victoria Nectarine cracks in a cool orchard house in October? With us it cracks so much as to quite disfigure the majority of the fruits. This applies to a tree with all its roots inside, and to another with a portion only of its roots inside. It bears most abundantly, as all admit. Under exactly the same treatment such varieties as Pine Apple, Humboldt, Albert Victor, Elruge, Pitmaston Orange, &c., do not crack. Growing side by side we find that Victoria is only eight or ten days later than Pine Apple, while the latter is finer in appearance and flavour. Humboldt is also a splendid Nectarine, about a week earlier than Pine Apple and of the same type but larger, and well worthy of all that has been said in its praise. With great reluctance we had to banish Lord Napier from cool quarters, for, excepting the one bright warm summer that we have had these five or six years, when it was grand, it was not satisfactory.

LADY BEATRICE LAMBTON PINE APPLE.—Another year's experience of this noble-looking Pine fully confirms the high opinion I had formerly held of its superior quality as a winter Pine. About twenty fruits of it have been ripened here this autumn, and the very highest estimate of its flavour has been formed by all who have partaken of it, and I have been asked if it was Black Jamaica that was handed round. Personally I consider that Black Jamaica is the only Pine to be compared to this much finer-looking fruit, the flavour of which is superb. The juice follows the knife in a stream, and I know of no Pine more free from stringiness (if I may coin a word). It melts in the mouth like marrow. It has been grown to 9 lbs. here, and I consider it can be raised to 11 lbs. One peculiarity in its successful management is that it requires to be kept drier at the root than any other Pine after it shows signs of ripening, because it is so deep or high a fruit, and so full of juice, that if kept moist the juice oozes from its base before it is ready to cut. It should also be cut with a green tinge upon it, and this is the stage in which all Pines are best flavoured in autumn and winter.

CALANTHE VEITCHII.—A few years since I called attention to the fact that there are two, if not more, quite distinct varieties of this grand *Calanthe*. In referring to this fact in a private letter to Mr. Speed of Chatsworth, he said, in reply, that he never knew there was more than one variety, and I sent him what I consider the best one, and he tells me this season the distinction is most marked. A similar correspondence with Mr. Wescott at Raby has led to the same result. The one most generally in cultivation has the middle of its bulb very much contracted, just like the waist of a fashionable lady. The other variety has no contraction, and tapers gradually from base to apex. The flower of this later variety is of a much deeper, and, as I consider, finer colour. Mr. Speed says he fancies the narrow-waisted bulb produces larger spikes, but I have not found it so. Several years since we discontinued growing the bulbs with the contraction because I considered the other so much finer than it. Those who have not this deep-coloured sort should certainly procure it.

SINGLE FLOWERS.—Those who have a fancy for single flowers—and who has not?—and want them in plenty after single Dahlias, yellow and white Marguerites, &c., are de-

stroyed with frost, should grow *Pyrethrum serotinum* and *Chrysanthemum lacustre* for whites. We find the former of these especially stands 10° of frost without the flowers being injured in the least. For yellow there is nothing more effective or hardy than *Rudbeckia Newmanni*, and for purples *Asters amellus* and *bessarabicus* are excellent among the dwarf and larger-flowering *Asters*. Then for another shade of colour—what shall we call it?—a reddish violet—there is *Senecio pulcher*. These for cut flowers and for furnishing large glasses or bowls are invaluable, and should be grown by the hundred for cutting late in autumn, and particularly in cool damp soils and climates like this.—DAVID THOMSON, *Drumlanrig*.

[The quality of the Gros Colman Grape above referred to is excellent, and such fruit is quite fit for the table of a Duke, however great a Grape connoisseur he may be. We have never tasted this Grape half so good when grown and ripened in a very low temperature.]

ANEMONE JAPONICA ALBA IN POTS— PROPAGATING.

THIS plant deserves the post of honour amongst hardy plants for flowering in the autumn. It has lately been much the most effective plant outside, and there is no question about its usefulness for decoration and for cutting. Some attention is needed when planting in order to extend the flowering period of this plant. Those placed in warm positions will bloom much earlier than those in less favourable situations, and the batch for late flowering should occupy a place on a north border. Those planted in this position should be so arranged that slight protection could with ease be applied to them during cold nights when the temperature is likely to fall below the freezing point. All that is needed is a light temporary framework of wood over which mats could be secured, or, better still, if the framework is sufficiently strong to support old or spare lights. Sooner than allow a fine late batch of this useful *Anemone* to be cut off by a few untimely frosts, we would recommend the plants to be lifted and potted.

It is an excellent plan to prepare a batch of plants in pots for flowering indoors late in the season, and nothing when well grown can surpass them for effect or beauty in the conservatory or greenhouse. After the plants have been raised for outside planting they should be potted in rich soil in 6-inch pots. After the completion of this operation they should be plunged outside on a north border, or in any position not fully exposed to the sun. To produce the plants that will flower late in the season when required indoors is the object to be attained, for seldom are hardy plants considered choice or much appreciated indoors when their flowers can be gathered outside in abundance.

The pots should be plunged for the purpose of saving labour in watering; in fact, they may be entirely covered with the plunging material or with soil. Stimulants will be found very beneficial to the plants after their flower spikes are visible. If worms take possession of the pots while they are plunged, a good soaking of lime or soot water will quickly eradicate them, and the soil can be pressed again afterwards firmly into the pots, and the plants top-dressed with fresh compost. Although this plant will bear lifting well, and will open its flowers freely afterwards, it is decidedly preferable to establish a batch in pots for late flowering.

I had thought that the old system of propagating this plant by division of the crowns had been discontinued, but I find to the contrary that it is still practised; and I am inclined to believe from the many inquiries that have been made during the past year or two that the method of root-propagation is not generally known. Some seven or eight years ago I first saw the root-system practised on a large scale in a nursery. A small portion of root was placed in the centre of 2 and 3-inch pots, which were afterwards stood in frames, and in a short space of time to my surprise hundreds of small, healthy, vigorous, saleable plants were the result. There is no risk to be incurred by the root form of propagation, and anyone anxious to increase their stock may safely lift the whole, or greater portion of the plants they possess, as the case may be, remove their roots, and convey their crowns to the rubbish heap. The roots should be cut into lengths, and every portion, if only half an inch in length, will produce a plant which, if well cared for, will make a strong flowering plant by autumn. None need fail with this quick and

ready system of propagation. If plants have to be purchased for a start obtain them as strong as possible (even if a larger price is required for them), so that they will possess good roots, from which a stock can be obtained. The whole of the roots can be taken and cut up, and the tops thrown away; this I should do if I wanted as many as possible. After the roots are cut into lengths they can be laid thickly together in pans or boxes filled with old potting soil amongst which has been intermixed a fair per-centage of leaf soil. After the roots are laid in scatter over them a little coarse sand, and cover them with about half an inch depth of fine soil. If strong plants are wanted a start may be made as soon as roots can be obtained, and the boxes containing them placed in an early vinery or Peach house that has to be started next month. In this position they will soon commence growing, and if placed thickly in the boxes will need to be transferred to others, as soon as they commence rooting, a certain distance apart, so that they will have room to grow until it is deemed safe to plant them outside. It is better to start the roots during the month of December even if they can be obtained at once, for they can be kept perfectly fresh amongst cocoa-nut fibre or even in the soil outside, until they are wanted. When started a little later they can be placed in cold frames, after they are well started or planted out of the boxes, on to a slight hotbed that has been prepared for them, with about 3 inches of old soil on the surface. The hotbed is by no means necessary, the other houses are free of them, and the boxes set at liberty; and the frame, if a moveable one, can be removed from protecting the young plants after they are well hardened, and used for other purposes. We prefer planting them out in frames to either keeping them in small pots or boxes until they can be finally planted outside; they can be lifted with good roots, and do not become so crowded as is the case when confined in boxes. When the time arrives for planting them outside the smallest can be retained for placing in pots for late flowering, and the remainder planted in various positions in moderately rich soil.

This plant should be grown in quantity, for it is at home in almost any position, and is invaluable for the neighbourhood of smoky towns, where it appears to grow as luxuriantly and flower as profusely as it does in the pure atmosphere of the country.—W. B.

MANURE AND MOULD FROM BEECH LEAVES.

"A. F. M.," at page 292, in a few remarks headed "Beech Leaves and Fungus," in which he refers to the fact that mould or manure made from Beech leaves are often (he seems to think always) hurtful, because of the fungus so liable to form where Beech leaves are. There can be no doubt of the correctness of what your correspondent states *so far*, but at the same time, while having seen all that he describes, we think it is only under certain conditions that mould or manure from Beech leaves is so infested, and have used quantities that was perfectly free, and seen them largely employed by themselves and in mixture with no evil result. At the same time I do not profess to quite understand the matter, and was in hopes someone thoroughly familiar with the subject in all its aspects would have done so. The present is only a contribution to the subject, and it is hoped some others may benefit your readers with their experience.

In different situations it has been my experience to see Beech leaves collected in quantities in autumn and stored in pits, sheds, and otherwise as dry and as firmly as possible for use in spring, liberally mixed with stableyard litter, in the formation of hotbeds. After serving this purpose during the spring and summer months, the beds in some cases being made up more than once with the addition of some fresh material, the best of the resulting mould we have seen used for all purposes, but especially for mixing with loam in which to keep bedding stuff over winter, and also for raising seedlings of all descriptions in the following spring, as well as for potting up numbers of plants. Many gardeners prefer this to pure leaf mould, as it is always richer, often because of the careful preparation to which it had been subjected, sweeter, and generally drier and more workable. We do not remember a case of this kind where fungus proved troublesome.

Again, about large places where Beeches thrive it is no uncommon thing for the leaves to be largely collected, mixed with road-rakings, ditch-clearings, and sometimes, sometimes not, mixed with lime and used as manure in the farm or in the garden. Under such conditions it never (or seldom) generates fungus to an observable extent.

In one district where we are very well acquainted there is a large wood of very fine Beeches. The villagers close by in winter gather the leaves from this wood largely for littering their pigs and making manure, which they put out for growing Potatoes with the farmers (the latter giving the land free, in return for getting their land cleaned and enriched), and though we have often seen these cottagers' plots, we never saw anything but the finest Potato crops. Neither do the rakings, partly mud but mostly leaves, gathered from a public road that traverses the wood have other than a beneficial effect.

There remains the other side of the picture. Some years since a few miles from where we then lived a new-come gardener, in his anxiety to improve the Vines, lifted and treated the roots as Mr. Iggulden did his

with so much success, but with, not successful—disastrous results. Correctly or not I cannot say, but having employed Beech leaf mould, he attributed his failure to that. Sure enough the Vines were destroyed with fungus in their roots.

Repeatedly have we employed Beech leaves, and leaves where Beech were largely present pure and simple, for forcing Seakale and Rhubarb where it grew, and afterwards used the leaves partly to form mould, partly to form manure, and never saw fungus in them. But we know one place at least where the leaves so employed go into one grey mass that cannot be used for anything afterwards. In both cases boxes were used.

Again, at the very place where the cottagers employ Beech leaves with so much success to make manure, the farmer dare not do so. With them the resulting manure is overrun with fungus. In this case we are inclined to think that the drier state of the stable manure, partly securing a high temperature, partly because of the comfortable state of the medium as regards moisture, produces the fungus. Mixed with mud, as in the case of road-rakings, with earth as in other cases, or much too wet and cold, as when used to litter pigs, the leaves get past the fungus-producing period before it finds thermal and other conditions favourable. But this by no means accounts for the sweet fungus-free mould produced by well-made hotbeds. At the same time gardeners well know how apt ill-prepared manure is to produce an evil crop of fungus and that well-sweetened does not.

At one large country domain where the leaves are collected into heaps, the masses become one mass of fungus. For this reason they are now, we believe, burnt. But again and again we have collected the best of leaf mould from where the leaves had drifted. Collected leaves we have thought have a tendency to produce fungus, and the sticks collected with them may be one cause of this. Another may be that, when collected dry they are with difficulty properly wetted afterwards by natural means. It is only slowly that the damp penetrates. But as it gradually creeps to the centre does not the favourable condition follow or accompany it for producing fungus?

Drifted leaves are generally free of sticks and of mast husks. Moreover they are not in such large heaps, and, therefore, become readily damp and of too low a temperature to encourage the crop that the collected heap encourages. That leaves dug in dry in spring will turn out dry and undecayed in autumn is very true, and this points to the necessity for thoroughly preparing such before applying.

That pure mould, free from fungus or anything hurtful, may be made from Beech leaves, and is, in fact, plentiful, is undoubted. That other Beech leaf mould exists full of fungus and poisonous is also undoubted. That both are found under the same conditions may be doubted. We may end with the confession that we cannot tell exactly what these conditions are, though we have endeavoured to indicate them. If anyone can tell us more clearly the information will be welcome.—SINGLE-HANDED.

GROS MAROC v. GROS COLMAN.

THIS Grape, which some seem to think will in a measure supplant Gros Colman has not, in the experience of the writer, proved such a fine variety as some persons assert it is. The berries of such samples as I have grown and seen do not approach Gros Colman in size, and the general appearance of the bunch is not so massive and handsome as Gros Colman. Undoubtedly the bloom of Gros Maroc is fine; in this respect it excels Gros Colman, though not by much.

The keeping qualities of Gros Maroc are not better if as good as Gros Colman; the flavour is not so good, the skin thicker, and the flesh less firm. Taking everything into account, Gros Colman must in my opinion still maintain the premier place as a noble-looking, prolific, long-keeping black Grape, possessed of fair flavour and of a splendid constitution. Whether Gros Maroc will keep better than Gros Colman when bottled has not yet been proved, but if it does it will be almost the only point in which it has the advantage of its noble rival.

Gros Maroc may, perhaps, be said to colour quicker and with less heat than Gros Colman, but the latter when well finished, as it can easily be when not too heavily cropped, amply repays its cultivator for any little extra heat expended on it.—S.

POLYGONUMS.

THE genus Polygonum is generally designated "the weedy genus," but there are nevertheless amongst its members many useful and exceedingly ornamental for the rockwork, the flower border, and for isolating in woods, &c. They are widely distributed in this and other countries, and seem suited to almost every condition of soil and climate.

Polygonum orientale.—This is represented in the woodcut, fig. 86. Although introduced to this country nearly two centuries ago it does not seem to be so well known in gardens as its merits deserve. It is a native of the eastern parts of India and the Levant, and was first sent to this country by Tournefort, who found it growing in the monks' garden near Mount Ararat, and where it was cultivated principally for the brilliancy of its flowers. It is seen to the best advantage when grown in a rich moist soil, where it often reaches from 8 to 10 feet in height, and has a most charming effect against a dark green background. The leaves are oval-shaped, slightly pointed, of a dark green colour, and covered with

soft hairs. The flowers, which are of a fine lively red, are borne on close terminal spikes 7 or 8 inches long, and often hanging downwards. It flowers from the beginning of July until cut down by the frost, and although only an annual the seeds are produced so plenteously that there is no fear of losing it. It is usually sown in spring along with the other annuals, simply thinning the seedlings to about a foot apart.

P. sachalinense.—For isolating in pleasure grounds or woods this is the noblest species of the genus. It forms clumps from 10 to 12 feet high and half as broad. The stems droop gracefully all round, and are well clothed with large and beautifully veined leaves, bright green, and undulated at the margins. It is, however, herbaceous, and care must be



Fig. 86.—*Polygonum orientale*.

taken to plant it only in places where it will not leave a gap or appear unsightly during the winter and early spring. The roots have a tendency to run, and unless allowed plenty of room will be rather troublesome. The flowers are inconspicuous.

P. cuspidatum.—A species introduced from Japan about 1824 by Siebold, and generally known in gardens under the name of *P. Sieboldii*. The leaves are broadly oval, having marked red margins, and the flowers, which are borne in bunches, are pure white or tinted, very numerous and effective. It forms a compact bush 6 to 8 feet high, and is admirably adapted for making a screen or planted in company with the above.

P. vacciniifolium and *P. affine* are both very useful for rockwork when planted with a view to hang over ledges or for covering bare slopes facing south or west. Flowers pink.

P. molle.—A half-shrubby species of North India, having dense panicles of small white flowers. *P. amplexicaule* and its varieties *P. Weyreichii*, *P. polystachum*, &c., are all very useful and effective for backing up rockwork.—W.

POTATOES FROM SEED—AMERICAN EARLY.

I HAVE been reading with great interest the various articles which have appeared for some time back in the Journal, but should have benefited more if the writers had mentioned the part of the country wherein they reside, and the nature of the soil experimented upon. Irrespective of the Potato question, might it not be a good rule for your contributors to state the country where their experience has been gained, also the height above sea level and the kind of soil? The average rainfall would be useful if obtainable. With these data much information could be gleaned which is otherwise lost or thrown away.

It appears to be generally admitted that the best way to eradicate the Potato disease is to raise new varieties from seed, and thus get a more vigorous race of plants. My own experience leads me to differ from this theory, inasmuch as that a number of years ago I began to raise seedlings, but could rarely save them over the first season in consequence of disease, and after four or five years' trial the attempt was given up in despair.

There is a Potato which has been cultivated hereabout for over half a century, known as the American Early. I have grown it in the same garden for more than twenty years, saving my own sets, and consider it less subject to disease than any of the new varieties which have recently been sent out. It is only about a fortnight later than the earliest of the other round varieties, is a fair cropper, and of first-rate quality for the table, besides being as handsome to look at as most kinds. I am aware that there is a Potato in the market of the same name, but it is an inferior strain, and I have never been able to purchase it true. I enclose three tubers taken at random from the seed bag, much handsomer ones could be selected. The soil here is sandy loam, 500 feet above sea level.—M. G. F., *Berwickshire*.

[We have grown the American Early for years, and it was one of the few that escaped the virulent attacks of the murrain with us in 1845 and 1846. It is an excellent second early variety.]

ORCHIDS AT BRIDGE OF ALLAN.

I LATELY enjoyed another visit to Fernfield. Dr. Paterson's cool treatment of his Orchids—not of his visitors—is vindicated by the splendid health of the whole stock, which quite fills without overcrowding the houses. I found the subjoined in flower or about to bloom:—

Cattleya maxima, *C. marginata*.
Cypripedium Spicrianum, *C. Sedenii*, *C. Roezli*, *C. Maulei*, *C. insigne*, *C. Harrisonianum*, *C. venustum*, *C. javanicum*, *C. longifolium*.
Cymbidium giganteum, *C. Lowii*.
Calanthe veratrifolia, *C. Veitchii*, *C. lutea*.
Cœlogyne Gardneriana, *C. speciosa*, *C. ocellata maxima*.
Dendrobium album.
Dendrochilum filiforme.
Epidendrum ciliare, *E. latifolia*.
Lælia purpurata, *L. superbiens*, *L. Perrini*, *L. autumnalis*, *L. anceps Barkeri*.
Lycaste Skinnerii.
Maxillaria lepidota.
Masdevallia tovarensis, *M. amabilis*, *M. maculata*, *M. aurea*, *M. melanopus*, *M. ichtbodes*, *M. Veitchiana*, *M. Davisii*, *M. ignea*.
Miltonia spectabilis, *M. Clowesii majus*, *M. Moreliana*, *M. atro-rubens*, *M. candida*.

Oncidium tigrinum, *O. tigrinum Barkerii*, *O. macranthum*, *O. Kramerii*, *O. Rogersii*, *O. linguiforme*, *O. serratum*, *O. cheirophorum*, *O. Schlimii*, *O. aureum*, *O. incurvum*, *O. ornithorhynchum*.
Odontoglossum Londesboroughianum, *O. pulchellum*, *O. Alexandrae*, *O. Pescatorei*, *O. bictonense*, *O. grande*, *O. Lindleyanum*, *O. nebulosum*, *O. candidulum*, *O. Hallii*, *O. cordatum*, *O. cirrhosum*, *O. Uro-Skinneri*, *O. Rossi majus*.
Phalenopsis Schilleriana, *P. grandiflora*, *P. Lowii*.
Plicone maculata, *P. Reichenbachiana*, *P. Lagcnaria*, *P. Wallichiana*, *P. præcox*.
Sophronites grandiflora, *S. cernua*.
Saccolabium giganteum, *S. gemmatum*.
Sarcanthus crotifolius.
Stenia fimbriata.
Vanda Cathcartii, *V. cœrulea*, *V. multiflora*.
Zygopetalum Mackayi, *Z. M. Patersoni*.

There are also in flower in the Orchid houses Amaryllis in variety with Nerines.—A NORTHERN AMATEUR.

STORED-UP SAP IN VINES.

A CORRESPONDENT (see page 396) signing himself "A Non-Believer" asks some pertinent questions respecting my physiological creed, which I shall have much pleasure in answering to the best of my ability, but at the same time I must tell him plainly he has no right to assume that most "experienced gardeners" are as far behind as he represents them to be. Let your correspondent be content to know that he has represented clearly the state of his own knowledge, and as he is anxious to learn he will doubtless find others more capable than myself willing to help him forward. Your correspondent says, "What is meant by root-action is the absorption of food from the soil." Well, this is part of its meaning, but not all. But he proceeds, "and this begins as soon as the Vines are started." We will see.

Those parts of a plant which are underground have in many respects their corresponding parts above. Thus, the main roots or "underground

stems" are analogous to the stem proper. The divisions and ramifications of the main roots have their corresponding parts in the branches, and both act mainly as channels for the conveyance of material from one part of the plant to another. These parts are all perennial—i.e., lasting several years.

Then we have the soft spear-pointed roots, darting about in all directions and seeming to be endowed with something like instinct, enabling them to travel the shortest way to obtain the plant's necessities. These we may, if we like, compare to the green growing shoots above, for, like them, they take up less room the second year than they do the first. And lastly we come to the real workers, the root-hairs and the leaves, and both of these are only of annual duration. All the good the plant receives from the soil, with perhaps the exception of water, passes through these root-hairs, and they are only formed on *new* growth. The part of the root which bears them is soft, and varies in size from that of a small pin to a goose-quill. Some time in the following winter the hairs and the epidermis of the root which bears them will decay, leaving only a small wire-like root, which will in turn emit other hair-bearing roots, and become itself, like its predecessors, only a channel of communication. Then your correspondent will see that one reason why the Vine does not begin to feed at the root at the same time it starts at the top is that it has no roots to feed with. Plums and most other fruit trees start at the root first. Why they do so I will not enter into here, and only mention the fact to show that the Vine, as far as I know, is unique in this respect.

A little further on your correspondent laudably endeavours to correct us by saying that "some people wrongly apply the term root-action to root-growth or extension." I confess to being in this company myself, and need hardly add to what I have already said, that root-action and root-extension are, for all practical purposes, synonymous terms.

To keep the point clearly before your readers I must again quote your correspondent's words. He says, "What is meant by root-action is the absorption of food from the soil, and this begins as soon as the Vines are started. If this is not so, will Mr. Taylor explain the well-ascertained fact that a Vine cut off at the root does barely more than burst its scale buds before it dies?" Whether such a Vine lived or died would depend entirely on its treatment. If it was cut off early in autumn and the greater portion of its stem buried, with a few inches of suitable soil above it, and kept where it would neither lack a suitable temperature, sufficient moisture, nor sufficient light, it would not only live, but, making allowance for the time it would take to emit roots where there had been none before, it would produce some fairly good fruit the first season. It probably contains in itself all that is necessary for the first stages of development, but as when above ground it is subject to evaporation, a certain quantity of water is necessary to make up the deficiency; and as a log of wood or even a brickbat is capable of absorbing water to its full length when one end only is placed in a moist medium, we cannot wonder that a living plant should do the same, even when it has no working roots.

The liquid which comes from a Vine stem when it is pruned too late in the season is, I believe, very little if anything more than water. It is perfectly tasteless, and beyond keeping the wound open probably does no harm. There are some Vines which have been so starved and badly managed that they will scarcely bleed with any amount of amputation; and again there are some—I had the manipulation of some such last spring—which bleed, as it is called, at every berry stalk when the Grapes are thinned. The growth of foliage will not always stop the bleeding; it is simply a question of degree. If the Vines are very vigorous they contain a great quantity of water, and some of it will exude. If they have been starved and stunted their cells are probably barely sufficiently large to draw up even the necessary quantity.

There is one sentence towards the end of your correspondent's communication, which although correct in this instance might mislead some readers who have not followed what I have written before on the subject of watering. I never allow the soil of a Vine border to become dry. Although it does not require as much water in winter and spring, and it is worse than useless to water it when it is already wet, it must never even approach dryness except on the surface.—WM. TAYLOR.

CAULIFLOWER AND BROCCOLI ALL THE YEAR ROUND.

THE subjoined directions are intended to supply general information, and must of course be adapted to the peculiar circumstances of each locality. The dates are transcribed from a diary in which the records of culture were carefully entered.

A continuous supply of Cauliflower and Broccoli can be maintained in the following manner:—Sow Walcheren Cauliflower the last week in August, plant out the 24th of October on a warm border, as thick again as wanted for a crop; leave the small plants on the seed bed until March; in that month thin out the crop planted in October to the proper distance, filling up the vacancies caused by the frost; then plant out a good batch in March of the plants left on the seed bed in October; they will come in May, June, and July.

The first week in February sow Walcheren, or any sort of similar constitution, in a warm quarter; then sow a little more the first week in March at the foot of a wall in case the February sowing fails. In the third week of April plant out two good batches of those on a

quarter of the kitchen garden ; they will come in July, August, September, and October.

In the middle of April sow Veitch's Autumn Giant and Walcheren ; the latter is useful, as the leaves cover the heads, keeping them dry and from being spoiled by the autumn frosts. This is the sowing that produces heads in November, December, and January. The plants must be protected in frosty weather. If they are taken up with good heads and laid in soil out of the frost they will keep a month or six weeks, and be none the worse for table use. Those with small heads ought to be placed in soil in frames, and covered with mats to protect them ; they will grow and produce good heads in January.

A small pinch of seed is sufficient to sow at a time, and 2 or 3 ozs. will be ample for all the sowings mentioned, unless the garden is extensive. Cauliflowers like plenty of manure and the ground well trenched, but some soils are poor, and will not do trenched ; in that case it is best to dig deep, and place the manure at the bottom of the trench. Always plant 2 feet apart when planting for a crop.

BROCCOLI.—For insuring Broccoli for the kitchen in January, February, and March precautionary measures should now be resorted to for Broccoli as well as Cauliflowers. The first batch that require protection now should be sown on a warm border the first week in March. Snow's Winter White Broccoli sown then will come in for cutting in January, February, and March, after the Walcheren Cauliflower ; plant out as soon as the ground is ready ; it should be well mulched, and trenched 2 feet deep. The end of October lift the plants with earth attached to the roots, and lay them in up to their leaves in a frame or some place where they can be protected with mats, straw, or Fir boughs in frosty weather. Snow's is by far the best Broccoli, as it come in at a time when most useful. There are perhaps other sorts that will come in the same time as Snow's if treated the same, but I have not seen them.

For succession sow on a border during the first week of April a little of about three sorts to stand in the ground all the winter. Snow's Winter White will come in in March and April ; also Adams' Early and White Malta. Though these are winter sorts they are rather tender. Plant out in June. In October or November lay them on their sides, facing north or westward. The way to do this is to dig out a trench before the first row, put the spade the opposite side, prise them ; dig out another trench for the next row, and place the soil on the first, and cover them up to their leaves. If not protected in this way and a sharp winter follow this batch is sure to suffer.

Again, sow three sorts during the last week of April. These will come in for cutting in April and May. Dilcock's Bride, Dalmeny Park, Salter's Imperial, with any other approved late sorts, are good for this sowing. During the third week of May sow two or three of the latest kinds. Cattell's Eclipse, Barr's Champion, also Late Mammoth and Dwarf Russian are suitable. I have seen a splendid lot of these in May and June, when there were plenty of Walcheren Cauliflowers from the autumn sowing ; thus by attention to sowing and treating Broccoli and Cauliflower heads may be cut all the year round, unless the winter is unusually severe. There are several other old and new sorts that will come in at specified times.—A FOREMAN.

WATERING PLANTS—CHRYSANTHEMUMS.

By the reference to the above subject at page 218 of the *Journal of Horticulture* the full meaning of my previous paper is obscured. With regard to watering, the remarks were intended generally. As there is no rule the guide I should take would be the plant. If it is a Chrysanthemum, water should be given to keep the plant fresh and vigorous. To the inexperienced an examination of the soil will be necessary to ascertain its condition of dryness. The opposite is to be avoided, as upon the solidity of the plant the character of the bloom depends. Perhaps there is no plant so easy to keep in bounds as the Camellia by limiting the supply of water. I refer to those inclined to produce second growth. I should not think of deluging such a plant, or to keep a starting Strawberry plant soaked with water, or a sickly Azalea recently potted watered on the principle of giving the supply to-day which it may require some future day. Such treatment consigns numbers of plants to the rubbish heap. The Cineraria so treated flags with the first bright sun in spring and soon dies.

The chemical constituents of the Chrysanthemum were, to the best of my belief, correctly given. The experiment was made several years since, and I have not at hand the notes for reference. If it serves no other purpose it will assist the gardener in his selection of compost to suit the individual plant, and stand in good stead of an array of figures which look so well on paper.

The Hyacinth, as an example, is built up strong in ammonia and potash? The question is, When does the Hyacinth require those substances? We cultivate the Hyacinth to develop the spike of flowers within the bulb, and from the conditions under which the bulbs are placed after potting decomposition of carbonic acid cannot be effected. We may therefore rest assured the safest compost to use is an almost insoluble one—pure silica with a little vegetable matter.

Next in order comes the Liliium. The ash obtained from the bulb

is not easily reduced. I suspect silica and iron are present, but silica dominates. Why does the Liliium bulb gradually become less in some soils and disappear? Silica is acted upon by lime (bones), ammonia, and carbonic acid, hence the benefit of preparing composts in a moist condition free from drenching rains some time previous to being required, allowing plant food to digest and become soluble.

In the use of manures blood, bones, guano, and preparations from slaughter houses never fail with myself to produce mildew on Roses and Chrysanthemums, especially in the latter stages of growth. Amies' chemical manure prevents mildew, and has given the most satisfactory results in the cultivation of the Rose and Chrysanthemum, washing the substance into the soil of the pot. The first-mentioned manures are used variously, solid and in solutions, and applied during the period of growth to many plants, including Ferns and Orchids.—C. PRINSEP, *Hammerwich*

GARDENERS' BENEFIT SOCIETY.

DOUBTLESS there are many like myself anxious to tender their thanks to Mr. Heale for his letter on page 339 ; also to our good Editor for his able article on page 349. I was previously quite ignorant of the existence of the United Horticultural Benefit Society, and I was, therefore, agreeably surprised to read Mr. Heale's letter. I now see no need of carrying out my suggestion (page 332), as this meets my ideas of a Gardeners' Benefit Society better than I could have expressed them myself. The chief thing that I see wanting now is for us all to unite and make it truly a Gardeners' United Benefit Society ; then we may hope soon to see "A Sussex Gardener's" (page 374) suggestion carried out, and have country branches established (but as he rightly says not at public-houses), with a horticultural library attached to each, always keeping one grand centre for all to look to for advice, &c., as I think it is always best when the younger know who is the head of the family. I think Mr. Divers has spoken very truly on page 402, when he says by joining such a society we are helping our brethren whose occupation is far more healthy, and their social life and morals are better than many mechanics. I think "J. B." (page 403) has offered a capital suggestion—namely, that your article on page 349 be reprinted and a copy sent to every gardener. I hope the Society will take the hint, though I suspect Mr. McElroy has found nearly all his spare time occupied of late ; but I will not encroach upon your kindness farther only to express my thanks (and I hope every gardener joins with me) for your kindness in giving publication to letters on this very important subject.—J. SMITH, *Hampstead*.

MUCH good has doubtless resulted from the publicity given in your columns to the "United Horticultural Benefit and Provident Society," and with the object of bringing its claims prominently before the gardening fraternity "J. B.'s" suggestion (page 403) deserves the notice of the Committee.

I would also offer two suggestions that may prove worthy of their attention.

In the first place, that printed forms be circulated amongst gardeners for the purpose of obtaining subscriptions from employers and others towards its funds ; also that the standard of age for members withdrawing their moneys be reduced at least five years. Surely if needed at all it is needed before attaining to the mature age of seventy, for, healthy as our calling is, comparatively few are able to cope with a day's work after sixty years of age ; and still fewer employers are generous enough to retain men in their service who cannot fully earn their pay.—T. L.

[This point was strongly urged when the Society was founded ; but the Government actuary did not feel himself justified in admitting it, and the proposal, we believe, had to be withdrawn to insure the enrolment of the Society].

I HAD no idea there was such an institution in existence as the United Horticultural Benefit Society until October 25th. I have written for the book of rules of the Society, as I hope to become a member. I think it ought to be advertised as a means of inducing others to join, also to have branches in different parts of the country the same as other benefit clubs, for I am confident it would be well supported in time. I have watched the various articles in your columns concerning the Gardeners' Royal Benevolent Institution, and I was in hopes the Secretary would answer them, but they appear to be unnoticed. When I have looked over the rules of the Benefit Society, with your permission I shall, perhaps, say more about it.—J. S.

WILL you kindly allow me a brief space in your columns for a word or two of explanation? I regret that the introduction of a single word—harmless as I certainly intended it to be—should have been misunderstood by your correspondent Mr. Coates ; but it seemed to me not inappropriate in a matter affecting gardeners to call a spade a spade.

Nothing could have been further from my thoughts than to cause the slightest breath of suspicion to rest on the management of this excellent institution ; the men who have the direction of its affairs in their hands merit the confidence and thanks of all true horticulturists for their laudable endeavours to stretch out a helping hand to their fellows in the craft in the hour of need ; and it appears from your editorial note that their "light" would not have been "hid under a bushel" had adequate funds existed for making the Society and its objects widely known. It remains, then, with every British gardener to help himself and the executive of this worthy institution by becoming subscribers,

and make it really a "united" society. Then will it possess that strength which we are truly told is the result of unity. I have joined the Society, so that my preaching has been reduced to practice, and to this, I presume, your correspondent will have no serious objection.—J. B.

YOUR excellent article on this Society, I am very pleased to say, has already borne fruit, several gardeners having informed me they have joined the Society or are about to do so. In my letter using the word "lukewarmness," I did not intend to wound anyone's feelings, but those who, like myself, are aware that the Society was originally advertised and made public in the gardening periodicals will thoroughly understand my using the term; and I trust, now the Society has been brought prominently before the gardening community, that they will not take notice of phrases to which probably the writers attach only a harmless meaning, but endeavour to make the Society known amongst their friends and neighbours; and I hope at the annual meeting (the second Monday in February) to see a goodly gathering of both old and new members, and no doubt the Committee would be pleased to see anyone who was not a member, but wished to observe how the business is conducted.

Having drawn up the rules of the Society and passed them through the "Registrar of Friendly Societies and the Government Actuary's hands," I have naturally felt great interest in the welfare of the Society, and I can fully endorse all that has been said about the good management and the most satisfactory manner in which the Committee carry out the rules. I have probably tried them (*i.e.*, the Committee) more than anyone else when residing in Scotland, and always found them to carry out in every case the intentions of the founders in a thoroughly business-like manner. Referring to holding meetings at hotels or public-houses, this has been unavoidable. The Committee pay for their room for the monthly meetings, and nothing more is required. If gardeners will now muster as they should do, and join in large numbers, the Society may some day be able to afford offices of their own.

"J. B.'s" suggestion that the Committee would do well to have your excellent article reprinted and a copy sent to every gardener is a step in the right direction, and if the Committee do not see their way to do it before, it will be brought forward at the annual meeting.

I hope the time has now come and the tide has turned, and gardeners will join the "United" and make it one of the strongest societies in the kingdom. The more members join the greater will be the benefits in their old age. The motto of the Society is "Union is Strength."—WILLIAM HEALE, *Messrs. Chvals', Lomfield Nurseries, Crawley, Essex.*

STORING GLADIOLI.

A FEW hints respecting these may be of service to many at the present time. It will be necessary to lift the corms and store them in a frost-proof place, but do not dig them up till it is absolutely necessary, in order to save them without running undue risk. This is of importance in more than one respect, but more especially to thorough maturation. If any seed pods are on the stems collect them as soon as they begin to burst, as the varieties raised from this seed may be as good as those that produced it. Whenever the corms are lifted they should be laid in an airy place, leaving the stems upon them till quite dry, when they may be removed with the withered roots, and the corms cleaned ready for storing. A very good plan is to keep them in small flower pots or boxes filled with dry sand, just covering the corms, and place them in as cool a place as possible to the exclusion of frost. Whatever temperature protects Dablias and Potatoes will answer equally well for the preservation of Gladioli, and there they can remain with their tallies till the middle or end of March, when the first batch may be planted, planting the remainder about the middle of April. It is preferable to plant in two or more batches, as the flowering period is greatly extended, and no plants are more effective in the borders, while for certain decorative purposes spikes are unique. At harvest festivals they are indispensable, especially the rich-coloured selfs, than which no variety is more appreciated than the old *brenchleyensis*. This, too, has the advantage of being almost ridiculously cheap. Good corms may be purchased at 1s. per dozen, whereas no florist thinks of charging less than 4d. per spike for them in flower; thus a good investment offers itself to those requiring such flowers during the late summer and early autumn months.

When raising the corms a quantity of small bulbils will be found attached to the base, which are called in the trade "spawn," and by means of which the stock of the named varieties is augmented. Presuming the amateur feels disposed to increase the stock by that means, the spawn should all be carefully removed, each kind being labelled and placed in small boxes or pots and slightly dried, then covered with dry sand until the spring, when they should be planted thickly in rich sandy soil in a sheltered corner. They will increase greatly in size the first year, and will ultimately produce corms equal in size to the parents. The process requires time and patience, but the reward is sure. We would encourage the raising of seedling Gladioli on a much more extended scale than is at present accomplished, because the stock is much more vigorous, and a great diversity of colour reveals itself.

A hint now as to the selection of Gladioli. The majority of purchasers—for the simple reason, I suppose, that they are not planted till the spring—do not order their bulbs before the new year, usually with the garden seeds. This is a mistake, because they are very likely to get poor corms, for the few that send their orders in with the ordinary

bulb order certainly stand a chance of securing finer examples. I advise all who intend growing these charming plants to fill up their desiderata lists at once, and put up with the small amount of trouble incurred in keeping the corms through the winter.—R.



THE BIRMINGHAM CHRYSANTHEMUM SHOW, opened in the Town Hall yesterday and continued to-day (Thursday), is the finest that has been yet seen in that town, both specimen plants and cut blooms being of exceedingly good quality. Mr. W. H. Dyer, gardener to T. W. Webley, Esq., Selly Oak, secured the £5 silver cup offered for the best nine Chrysanthemums in pots, a position he has previously obtained with similarly well-grown and neatly trained specimens. The chief interest however, centred in the class for forty-eight blooms, twenty-four incurved and twenty-four Japanese, distinct varieties, and in this Mr. Tunnington, The Gardens, Calderstone, Liverpool, won premier honours, the substantial prize of £10, with handsome blooms of the best varieties. He was followed by Messrs. Jellicoe, Comfort, and Neal, who all showed good blooms. Mr. Tunnington was also first with twenty-four blooms, twelve incurved and twelve Japanese, and again with eighteen incurved. Mr. Jellicoe was also the most successful exhibitor of twelve reflexed and twelve Anemone varieties. These brief details, which we received by telegram on the eve of going to press, will be supplemented by a full report next week.

— MR. DERRY, for some time past foreman of the extensive collection of Ferns in the Royal Gardens, Kew, has obtained an appointment in one of the Government experimental gardens, under Mr. Jenman, in British Guiana. We understand that the garden is a new one, and is to be devoted chiefly to the trial and acclimatisation of plants likely to be useful in that colony.

— THE CHRYSANTHEMUM EXHIBITING SEASON is now fast drawing to a close, and about half a dozen more shows will conclude the displays. Up to the present between thirty and forty exhibitions have been held since the 7th inst. For to-day the following are announced—Reading, Aylesbury, Tunbridge Wells, Taunton, and Ipswich; while on next Tuesday the two last events, Liverpool and Malton, will, with a few other local shows, bring the total up to fifty or more, all within the space of three weeks. This is convincing evidence of how fast the popularity, of the Chrysanthemum is extending.

— MR. E. R. CUTLER, Secretary of the Gardeners' Royal Benevolent Institution, writes:—"I beg to inform you that at the Committee held on the 15th inst. it was decided to add twelve pensioners to the list on the 10th January; two of whom will be placed on the list without election in conformity with rule No. 6; and they also ordered the sum of £350 to be purchased on account of the trustees, making the total amount of stock in the 3 per cent. consols £15,100."

— "R. I. L." writes:—"In the west of England an Apple called 'TOMMY KNIGHT' is very much valued for dessert, and it is an excellent kind which I do not remember to have seen elsewhere. Is it described or referred to in books? I do not find it in those I have." It is probably a local variety, and has not been described under its name in any work.

— "AMONGST the tall-growing Sunflowers none," writes a correspondent "can be compared to HELIANTHUS LENTICULARIS. It grows from 10 to 12 feet high, and the flower heads, although not so large as *H. annuus*, are much showier, owing to the brighter colour of the ray florets, more compact form, and darker disk; they are about 4 inches across. Seeds, I believe, of this species were received at Kew from America to try if possible and turn it into *H. annuus*, doubts having arisen as the probability of *H. annuus* being the parent; but so far from this, the plant after two years' cultivation still keeps its distinct character, which is well represented in the 'Bot. Reg.' tab. 1265."

— WE have received a parcel of CHRISTMAS CARDS of a very superior kind, and which exhibit a wonderful advance in the art of

chromo-lithography. They are from the works of Messrs. Meissner and Buch, chromo-lithographic printers of Leipsig, and most of them are equal, if not superior, to the most artistic productions by hand. They consist chiefly of flowers, and we are sure will commend themselves to the great mass of our readers.

— MR. T. PARKER writes:—"In your report of my APPLE, TYLER'S KERNEL, which gained a first-class certificate at the Committee meeting of the Royal Horticultural Society, you gave my address as Moreton Cove; it should be Moreton Court."

— THE "Journal des Roses" gives a coloured plate of ROSE SECRETAIRE J. NICHOLAS, a Hybrid Perpetual raised by M. J. Swartz of Lyons, and sent out at the commencement of the present month. It has a full, well-formed, and apparently substantial bloom of a very dark crimson-scarlet colour, and the variety is described as very vigorous and free.

— "A YOUNG GROWER" writes:—"We have Rose, Chrysanthemum, and Apple elections, why should there not be an ELECTION OF CARNATIONS AND PICOTEES? I am sure if one of the great growers, say Mr. Dodwell, Mr. Turner, Mr. Douglas, or Mr. Rudd, were to take it up all growers would be pleased to give their assistance and send in lists of the best varieties. If each elector sent in a list of the best twenty-four Carnations and the best twenty-four Picotees, the result could be published in the Journal, and with the co-operation of the exhibitors of these popular flowers I think it would be a decided success."

— THE forty-fourth ordinary meeting of the ESSEX FIELD CLUB will be held at the head quarters, 3, St. John's Terrace, Buckhurst Hill (opposite the church), on Saturday, November 24th, 1883, at seven o'clock p.m. The following papers will be read:—1, "On the use of the Hygro-Spectroscope in Meteorology, and the Observation of the 'Rain-band' Spectrum as a Weather Prognostic," by F. W. Cory, M.R.C.S., F.R.Met.Soc., &c. 2, "A Note on the Occurrence of the Beech Marten (*Martes foina*, L.) in Epping Forest," by James English. 3, "On a Proposed Catalogue of the Pre-historic Remains in Essex," by R. Meldola, F.C.S., F.R.A.S., &c., Vice-President. The rooms will be open at six o'clock for the exchange of books, and for the convenience of exhibitors at the meeting and conversation. During the winter session the library will be open on Thursday evenings from seven to nine o'clock. The Secretary, Mr. W. Cole, will be glad to have notice of any communications intended to be brought before the Club during the winter session.

— THE *American Journal of Forestry* records an instance of handsome PROFITS ON TREE-PLANTING received for ten acres purchased ten years ago in Logan Valley in Nebraska, and planted with Black Walnuts, by Col. Van. He gave 1 dollar 25 cents per acre for the land, and after it was handsomely covered with a dense growth of thrifty Black Walnuts ten years old, he sold ten acres for 3000 dollars. The time will certainly come when all this timber will be wanted at an advanced and handsome price, and there is nothing for which there will be a more extensive demand than the best, large, second-growth selected timber."

— AT the first meeting of the Manchester Horticultural Mutual Improvement Society recently, Mr. Leo H. Grindon delivered an interesting lecture on POISONOUS AND MEDICINAL PLANTS. He also exhibited two curiosities, one a specimen of a Japanese Chrysanthemum, in which, intermingled with the bracts forming the involucre, were developed a number of leafy branches, so that the flower was enclosed, as it were, in a little arbour of green foliage. The object, he remarked, was a monstrosity, and one might have to wait many years before meeting with anything like it. He had received from the Isle of Wight a specimen, the first he had seen in Manchester, of the fruit of the *Benthamia fragifera*, from the far East. The tree from which the branch was taken was sent to the Isle of Wight some twenty or thirty years ago. Proceeding with his lecture, he said that botanists had ascertained through the medium of living specimens in the country, and more particularly through the medium of dry specimens brought from foreign countries, that there are no fewer than about 100,000 different flower-bearing plants. At a liberal estimate the number of plants which could be said to be of direct service to mankind would not amount to more than 10,000. There would be 500 different kinds of fruit trees, then all sorts of vegetables, trees supplying timber, and plants which give material for the manufacture of clothing—cotton, hemp, flax, and so on. The greater portion of the remainder of the plants were simply

ornamental, but to his mind every bit as useful as the economic ones. As nearly as he could estimate there might be some 5000 plants which were more or less poisonous and hurtful, some of them very much and others only moderately so. The most important fact of all was that a large proportion of the deadly plants with which we are acquainted are admirable medicines in the hands of a clever physician who knows how to administer them in proper quantities and at proper times. We may, therefore, look upon poisonous plants and accept them as the good gifts of Providence intended to be applied to certain purposes.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE attention of the Committee of this Institution has been drawn to a letter in your Journal of the 8th inst., signed by Mr. W. H. Divers, of Burghley Gardens, Stamford, stating "that a friend of his had paid ten guineas to the fund of the Society, thinking thereby to provide for a rainy day; that he became seventy years of age and unable to pursue his calling any longer, and that upon applying to be placed on the pension list was told that he had paid the ten guineas as a donation, and consequently was not eligible for the pension."

As this statement is so extraordinary and one calculated to inspire a want of confidence in the management of the Institution, I am instructed by the Committee to request that Mr. Divers will kindly favour me with the name and address of the subscriber in question, and if possible with the date of his application to be placed on the pension list, and the name of the person who told him he was not eligible. Upon receiving these particulars the Committee will cause the subject to be investigated.—EDW. R. CUTLER.

I DID not intend entering into any of the discussions which have taken place in our Journal in relation to this Institution, for I agree with others who have written that the Secretary is the proper person to give any information that may be sought. If tendered privately, as appears to be the whim of the "Royal," it benefits only the person who makes the inquiry, but when given publicly it imparts information to others who are interested besides the inquirer. I cannot tolerate this "stand off" principle, and think the questions asked in the first instance were only reasonable, and should have been as freely and willingly replied to. In reference to the letter from Mr. Divers respecting life subscribers, I fail to find the rules satisfactory on this point. Before I became a life subscriber I asked a similar question, and the answer received must have been satisfactory. I have again written, and I will give extracts that bear upon the point from the letter received. "Any person subscribing the sum of £10 10s. to this Institution becomes a life subscriber of it and is free from all further payment, and as such is entitled to vote at all elections of pensioners." "Should such a subscriber be a gardener, or other coming under rule No. 3, when he has been on the books fifteen years and upwards he would (should he be in need and in every way complying with the rules), in the event of an addition to the pension list, be placed upon it without any election in preference to all others who may not have subscribed so long or not at all. This rule also applies to the widows of such person. It is the fundamental rule of the Institution and has never been departed from. At the present time we have one pensioner who subscribed £10 10s. in the year 1846. In the year 1879 he fell into distress and applied for the pension, and in January, 1880, he was placed on the list without any election. Should he at his death leave a widow, she, upon showing her credentials, would be placed on the list in his place without election." "Life subscriptions are not treated as income, a portion of them being invested yearly in Government securities."

If this information prove of any service to any of your many readers, then I shall be abundantly repaid in obtaining it and forwarding it to you. I am afraid we are too apt to look upon what we contribute from a selfish standpoint. I sincerely hope I shall never need the assistance of the Institution, and am gratified to think that the mite I have subscribed may be the means with others of helping those who may be so unfortunate to need assistance.—WM. BARDNEY.

BOUVDIAS IN WINTER.

BOUVDIAS are amongst the most beautiful and useful of all our winter-blooming plants. When propagated from cuttings in spring they may be grown into bushy plants by the end of September, and they will begin flowering then and continue until the winter is nearly over. Most useful plants may be grown in 6-inch pots, and for general purposes these are to be recommended. Some growers turn their plants out into the open borders in summer and lift and pot them in the autumn; but this I never do, as some years ago I proved to my satisfaction that plants grown wholly in pots were the best during the winter. The lovely flowers of the Bouvardias are acceptable at all times, but they are most pleasing during the winter, and it is no difficult matter to grow the plants so as to make them bloom profusely now. A cold frame suits them well throughout the summer, and here the leading shoots should be frequently stopped to cause the production of side shoots and make the plants dwarf and bushy. By September they should be a mass of healthy young shoots, and these, when introduced to a temperature of 65° or so, will produce a fine cluster of bloom. As soon as these are open they should be cut off, and this will induce more young growths to come. These will flower in their turn and

form a good succession to the first flowers. They will do well at this season in a temperature of 65°, and 70° will bring them on faster, but they will not grow and bloom successfully in less heat than this during the winter. Frequent syringings and copious supplies of liquid manure also help greatly to bring them to perfection, and they are well worth all the labour which is required to bring them out to the fullest, as they are really the best and choicest of our winter flowers. The new double-flowering varieties recently introduced are very handsome, and are as easily grown and bloom as freely in winter as the single ones; but with many others I prefer the single flowers to the double ones.—J. MUIR.

LANE'S PRINCE ALBERT APPLE.

SINCE the favourable reference to this Apple in articles that have recently appeared we have been requested to describe its character; and though an outline of the fruit was published in this Journal a few years ago, we have prepared a more complete representation of the fruit.

We may remind our readers that there are two Prince Albert Apples in commerce; but the best known, and we believe the first to bear the name of Prince Albert, was that raised by Mr. John Lane of Berkhamstead from Russet Nonpareil fertilised by Dumelow's Seedling. It received its name on the occasion of Her Majesty and Prince Albert visiting Berkhamstead.

Lane's Prince Albert (fig. 87) is a large handsome Apple, and the tree is an immense bearer. The shape of the fruit is short, conical, or ovate, even and regular in its outline, with broad ribs round the crown

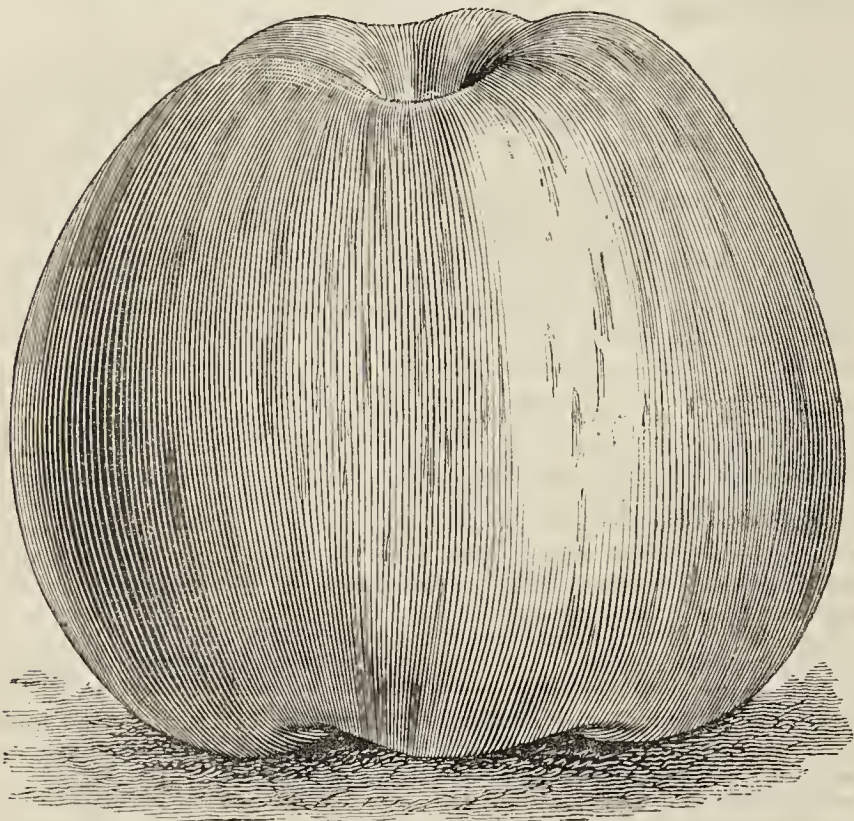


Fig. 87.—Lane's Prince Albert.

Skin smooth, bright grass green at first, but changing to clear pale yellow as it ripens, and sometimes with faint broken streaks of red on the side next the sun. Eye rather small, closed, with erect pointed segments, which are reflexed at the tips and set in a deep rather angular basin. Tube funnel-shaped; stamens basal. Stalk over half an inch long, inserted in a deep round cavity. Flesh very tender, juicy, briskly acid, and agreeably flavoured. Cells wide open. A very excellent kitchen Apple, in use from October till March.

In all probability this Apple will be largely planted both in gardens and orchards, as it bears freely in a dwarf state on the Paradise stock and as a standard on the Crab. It, moreover, appears to be hardy during the blossoming period, as trees of it produced fine crops during the first few almost appleless years.

The other Prince Albert, Smart's, is a very good conical dessert Apple grown in Kent, and is now called Smart's Prince Arthur.

PELARGONIUM v. GERANIUM.

To botanists like Mr. Percival the difference between the Pelargonium and the Geranium may be as "clear and distinct" as he says it is. To ordinary observers there is great confusion and disorder, with the usual accompaniment—bewilderment. To begin at the very beginning, confusion meets us in the very names and their derivations. Take them as they are given in the "Cottage Gardener's Dictionary":—"Pelargonium,

Stork's-bill (from *pelargos*, a stork, referring to the beak-like formation of the ripe seed-pod). Geranium, Crane's-bill (from *geranos*, a crane, referring to the beak-like torus, or projection beyond the seeds)." What is the difference here? Are not Cæsar and Pompey very much alike, especially Pompey.

I accept Mr. Percival's explanation as one more addition to those clearing-up of differences already given; but I beg to point out to him that his explanation is not clear enough to the lay understanding, and that the contention begun here as to the difference between the Pelargonium and the Geranium does not lie in matters of nice botanical distinctions, but in those broad and clear lines of judgment that are required for the ordinary observer to decide which is which. For instance, the Show and Fancy Pelargoniums are called Pelargoniums rightly; there is no confusion here except amongst the hybrids as to what family or families of Pelargonium have been married to produce such a wide variety of form and colour; but then the bedding Geraniums are Pelargoniums proper, and yet who ever thinks of calling them Pelargoniums? It was this confusion that was referred to by me in quoting the curiosities of the styling of Pansies and Violas. That confusion lies on precisely the same lines as the other; so it appears to me, and the sooner we reconcile the differences the sooner we shall get order where at present there is disorder. It is calling things by first, and often ignorant but conventional, names that does the mischief, and it is only in the pages of the gardening press where we may thresh the matter out and bring about a right way of speaking of things.

It may be said, and I admit the force of such a speech, that it is easier to point out an evil than it is to suggest a remedy that shall effectually right the evil. My own contribution is, I own, a very feeble one, and is more in the form of a suggestion of a remedy than a remedy itself. I would have the botanists and other plant-namers in their classification of plants not to make families of plants from small and hidden peculiarities, but to classify on broad lines, and on lines that can be seen at a glance. This, with a correct way of speaking of plants by their real names rather than their local or conventional ones, would, I think, clear the ground a little of some of the differences that now exist. Anyhow this is what occurs to me, and I throw it out for what it is worth.—H., Notts.

FORCING RHUBARB AND SEAKALE.

THE time of the year being at hand for the above work, a few remarks as to the best and most economical way of proceeding may not be out of place in your widely read journal. Undoubtedly the best place for such a purpose is a Mushroom house, as it curtails labour, which is a great consideration to many gardeners, but all do not possess such a structure. Failing this the next most suitable place, if it is wanted early and good, is a heap of thoroughly prepared manure and leaves.

The manure and leaves, about half and half of each, should be well mixed before using them, for by so doing most of the rank heat will have escaped, the object aimed at being a steady lasting heat. The manure being properly prepared, a suitable position in which to make the bed must next be decided upon. I may here state that we have for some considerable time now dispensed with Rhubarb and Seakale pots, and the generally practised method of putting hot manure around them, such a practice proving not only less satisfactory, but causing much unnecessary labour.

The bed may be made in any corner as near the heap of prepared manure as possible, but if against a south or east wall so much the better. All being ready, lift the desired quantity of Rhubarb roots carefully, and place them in a line 4 feet from the wall and as close together as the balls of soil will allow. Next drive some stout stakes about 4 feet in length into the ground, allowing about 3 feet above ground on each side of the roots, equidistant 2 feet. It will thus be 4 feet wide inside the bed. To the outside of these stakes nail boards along both sides and the ends to the desired height, 3 feet. This done, put in what soil is necessary. Any good garden soil will do well for this purpose. The Seakale may now be planted. Lift carefully as many roots as will meet the demand, and plant them on each side of the Rhubarb, introducing more roots from time to time as required. Place the manure 2½ to 3 feet wide around the whole, shaking it well and treading it firm during the operation. Some boards should now be placed on the top, and on these a few barrowloads of rather long manure. Water may be occasionally given with advantage if the soil gets at all dry.—J. RICHARDSON.

GARDEN CHEMISTRY.

THE PREPARATION AND MANAGEMENT OF SOILS.

HAVING made up our mind in the choice of soil it depends on the purpose to which it is to be put, how it should be collected, and how prepared. In the case of pot plants much depends on whether the plants are large permanent specimens, or only decorative stuff destined to live one season only. For large plants it is necessary to cut the turf so that only soil full of fibre be taken; for decorative plants much more may be taken, and indeed it may do very well though it be devoid of fibre. For years we were in the habit of using loam that once had been weeds, but had, after years of decay, become plain soil. When we say weeds it is wrack grass, weeds from fields that is referred to, not the weeds from gardens.

After turf is cut it requires to be kept till it is more or less decayed, and for this purpose it is stacked in ridges so formed as to shed most of the rain that falls on the heap. For permanent plants it is best if the fibre is little more than dead; for small plants it must be so decayed as to be easily broken in pieces—must be far on the way to mould, in fact. In the case of small plants it is almost invariably mixed with manure and leaf mould at potting time. A better way is to build the manure along with the turf at stacking time. For this purpose cowdung should have the preference over that from horses, as horse manure is apt to cause a growth of fungus, which is frequently very injurious, especially in light soil. Put up with the soil, cowdung in a few months becomes fine sweet mould—much sweeter and better than the same decayed in a heap by itself would; indeed, it is in no way behind the best leaf mould, and is richer. In the case of rich loam a good dressing of this manure may make the soil quite rich enough; but if it is poor, rather than overdo the proper quantity of mould it is far better to be at some trouble to get urine from stables and to give that. Weight for weight this will enrich the loam more than the solids; but, unlike them, will make no mechanical alteration. Many gardeners stack and rot their materials separately, and for some purposes it may be necessary to have the loam pure; but for nearly all purposes the plan of preparing them all together is very much to be preferred. It is only in the soil that plant foods are properly cooked and digested, so to speak, and if those who have hitherto held to the older method will try the plan advocated here they will be convinced.

Failing turf, as we have said, much may be done—indeed, the best success secured—with loam in which no fibre forms a part, at least with plants the existence of which is short. The only peculiar care necessary with such is to rather under than over-pot, and to use more gritty opening material than when fibre performs this office. In the case of very heavy loam a little hot lime may be sprinkled over and thoroughly incorporated with the whole some time before using; but wood ashes, especially when much small charcoal is present, is decidedly better, and may be applied when the soil is used. Failing wood ashes burnt clay soil is a capital substitute, and, indeed, both may be used together. For opening purposes charcoal is very valuable, as it sweetens soils and holds stores of nutriment, gradually yielding them up. Even pieces of sandstone are by no means to be despised, and the use of sand is well known as an opener, although it is, not unseldom, too plentifully applied, especially by those who are in the habit of giving large shifts. For a very large number of plants an addition at potting time of phosphates is advisable, and no better way of giving them exists than as very fine bonemeal for small plants, and crushed bones for large. Light soil will be improved if mixed with soil which by itself would be much too heavy. Mr. Thomson of Drumlanrig recommends watering-in clay into sandy soils in order to convert them into loam. We commend the idea.

In preparing peat it is not usual to put up manure of any kind with it, but for some plants, Azaleas and Camellias for instance, when really good leaf mould cannot very well be had, it certainly improves it and secures much finer growth. For the majority of plants grown in pure peat, however, anything beyond sand, charcoal, sandstone, and, in certain cases, good leaf mould, would be an evil rather than otherwise. When very fresh it requires a long time to prepare, and when allowed to become too dry it does not prepare very rapidly. As a consequence it may often require to be turned over and damped, but it will be ruined if kept wet.

In taking soil for making borders it is far better to take a good few inches, unless the under soil is very unsuitable, than merely to skim the surface turf off, if the turf, that is, really is turf. The habit of making up borders of clean turf has led many astray; besides, it is frequently easy to find enough material when 6 inches are taken, and the opposite when only the merest surface is skimmed. Then, when only turf is taken, it requires much chopping and turning and mixing, and even then the borders are hollow and sink much, carrying the roots found downwards as they sink. If soil be taken as well as turf the borders may be made at once, and made firm and un-sinkable too. Into this subject we cannot go in detail here, but must refer the reader to the books treating of different subjects for the details; but we ought to warn against the very wide and very deep borders recommended by many. Gardeners are now in favour of very much more restricted borders for all sorts of trees than they were only a decade ago; and there can be no doubt that as gardeners get impressed with the idea that it is better to have small shallow borders filled well with roots, than large deep ones unfilled, the borders of the future will be shallower and narrower still, for in narrow borders when the roots are near

the surface, exactly what is wanted can be plentifully supplied exactly when it is needed. Big borders were perhaps the proper thing before men had learned exactly what to supply and when to supply it. Now the case is altogether altered.

In the making-up of borders the same rules apply for the lightening of heavy clays as in the case of potting soils, but lime rubbish and burnt clay are of more value in Vine and other borders than even charcoal, and are much cheaper, unless when it can be made at home from brush or other otherwise useless wood. Wood ashes, which have been produced by smother-burning, are also of extreme value for such purposes. Even broken stones and brickbats are of value. It is not so easy dealing with very light soils, but roadside turf, and even well-sweetened serapings from off public roads, materials which are generally of a heavy nature, the writer has employed with great advantage. Mixing-in very heavy clay loam, if thoroughly done, is also of advantage, but the evil influence of light gravelly or sandy soil may be best combated by the plentiful use of water, proper feeding, mulehng, and other mitigative treatment. Keeping the soils well firmed is also a very good plan. As all roots of all kinds of fruit trees are best when very near the surface, in order to keep them there all manurial applications should be over the surface; and as much humus is not conducive to fruitfulness, the use of artificials rather than ordinary manure may be advised. The digging of all such borders is, of course, a blunder. Digging borders often does no harm, because matters are so bad neither digging nor anything else could make them worse.

In the matter of potting soils, and even in those with which Vine, Peach, and other fruit-tree borders are made, there is generally a choice, and that which is considered unsuitable may be rejected. It is quite different with the soil of gardens which have been formed. Even with most which are not formed no choice of soils exist. The garden must be on a given spot, no matter whether the soil or site be good or bad. Even when a choice has been afforded, by some strange fatality the worst site and soil have often been chosen. A very large number of gardens have been made on the lowest spot, where spring frosts linger and winter ones are hardest; where the soil was wettest, most clayey, and most difficult to drain; where the beams of the early sun ever will be utilised, not in warming the soil, but in evaporating dampness; and where heavy mists shut the sun out altogether at times, and breed and nourish mildews against which labour fights nearly in vain. But no matter what or where the soil is, if it is too heavy or too light, too thin or too poor, it can be improved if not made very good. In some respects clay soils are worst to deal with, especially when the rainfall is great. Light soils, especially when thin, are worst when the rainfall is small.—SINGLE-HANDED.

ROSE CUTTINGS—TEA ROSES.

"A. F. M." and Mr. W. Boyes are agreed that Rose cuttings do not bloom as freely as the budded plants. "A. F. M." recalls how he was "sat upon" some weeks back for venturing such an opinion by "A Judge" and Mr. Sanders. Perhaps we are all disposed, and not unnaturally, to value our own experience beyond that of other observers; yet it seems to me that in this matter both the contending parties may be right, and season and locality may explain why one observer sees no difference between budded plants and cuttings, whilst another pins his faith for blooming purposes entirely on the former. What Rose exhibitors would rather learn is, whether, other things being equal, the blooms are as good from plants raised from cuttings as those established on stocks. I scarcely think they are. Probably here I am in error, as to make a just comparison a certain number of the same varieties need to be tried under similar conditions. Certainly, from cuttings I have had very satisfactory blooms, and when I reflect that my cuttings are in proportion but as 1 to 15 or 20 I am content still to strike cuttings. Personally I am now forced to depend on cuttings, for whether flies have the same predilection for me as for "A. F. M.," or the reverse, my back now positively refuses the doubled-up position requisite for budding dwarfs. My old plan used to be standing over the stock and stooping down to place the bud. This position entails a tightening of neck collar, which is not advisable as years increase. I confess that there is a greater pleasure in the success of a bud than of a cutting, at least to myself. I think the bud requires more attention, "A. F. M." calls it "toil," but with such a queen to serve, attention, toil, or whatever it may be called, becomes a pleasure.

In any comparison between the two sets of plants, those raised from cuttings and those from buds, it strikes me that their first season is not the date for comparison. The budded plant is perhaps at its best, at least with the great number of varieties, as far as "exhibition" blooms are concerned; while many of the cuttings, not being placed in circumstances calculated to bring them to perfection, being probably in very close quarters, would not be fit to enter the lists until well settled in their proper site, with room both to breathe and grow. If, therefore, the following season after budding or striking is taken as the test period,

budded plants must win. I do not like to speak positively, but I fancy that it is during the year after striking that the plants do not bloom so freely. I have two or three-year-old plants from cuttings that appear to me just as floriferous as the budded plants whether on the Briar or Manetti.

For "garden Roses" I certainly think the palm must be given to cuttings, and for this reason, that so long as the plant lives you will have the Rose itself and not the stock cultivated. It may be said that this accident should not occur. Granted, but nevertheless it does. Ordinary working gardeners are as a rule not sufficiently acquainted with the Manetti, for instance, to detect it, and as it is a grand grower its shoots are often carefully preserved, and the bud, the Rose *par excellence*, of the plant is a thing of the past. This every Rose-grower, I fancy, must have noticed. It rarely falls to my lot to go round a flower garden without spotting a Manetti shoot if there are two or three dozen Roses grown, and on one occasion a friend complained to me that her Rose trees never bloomed. I found there were large rampant bushes of Manetti, and scarcely a plant with any of the budded portion left. Such a condition could not exist with plants grown from cuttings.

"A. M. B." endorses the opinion promulgated during the last two or three years, that the Tea varieties are far less tender than was supposed. There is no question in my mind that many of the Teas are as hardy, if not more so than some of the Hybrid Perpetuals. Last season, February was so forcing that my Teas were throwing up young shoots through their protection. To harden off these I removed the protection; then comes March, bitter, biting, and for ten days or a fortnight we had continuous frost of 10° to 20° below freezing. I feared the Teas would suffer, but the only plants that I saw injured, and I do not feel certain this was frost, were a Climbing Devonensis and a Triomphe de Rennes. Of their extreme elegance and beauty one cannot say too much. They are the cream of Roses, not alluding at all to their colour, whilst for continuous blooming the H.P.'s cannot approach them. With all my intense admiration for them I must allow that a great number of them do not like wet, and if caught in the bud decline to open. The fuller they are the more probable is this to occur, but the blooms are worth a little protection then, they well repay it. Safrano merits all that "A. F. M." writes. I would say more. "A. F. M." remarks that in November he can always find a bud, and I would add that in many Februarys he might find the same, at least it is one of the earliest bloomers bar Gloire de Dijon, which our old friend "C. P. P." maintains is not a true Tea, as it is one of the latest; and although it may have but a dozen petals, how exquisitely are they folded and tinted in the bud! and in that stage how beautifully the poverty of petals is hidden!—Y. B. A. Z.

VIOLAS.

In the Journal of November 8th there is a further correspondence respecting Violas and Pansies. To those who have grown these plants for years there is really no difficulty in classifying them so far as trade lists are concerned. Holyrood and Blue Stone, as well as Blue King and others, are Pansies, but then the Pansy is a Viola, and is Viola tricolor. Such varieties as Blue Bell, Crown Jewel, Countess of Kintore, Mrs. Gray, and all the small-flowering kinds, are safely classed as Violas to distinguish them from Pansies, both Show and Fancy, for as a rule the bedding Violas have stronger constitutions than Pansies, stand bad weather better, and are much better bedders. It is quite true that Pilrig Park comes very near to the Pansy in growth, still, as it is a capital bedding variety, and not of the slightest use as a show Pansy, I should place it amongst the Violas. Mr. Percival refers to the perfume of Miss Darling Pansy. In Mrs. Gray Viola we have a strong, delicious, Violet perfume, and this, added to the snowy white colour of the flower, and its robust habit and freedom of blooming, makes this a most desirable bedding plant for spring and summer.

Mr. Murphy's solution of the problem as to considering "all those with radiating distinctly marked lines from the eye as Violas" is altogether wrong. I have held for years past that we should aim at getting pure self-coloured Violas entirely free from any blotch or lines whatever, and in Golden Queen of Spring, Yellow Beauty, Yellow Dwarf, all seedlings of mine, we have it. Mrs. Gray and Countess of Polwarth are almost free from markings. In the midland and northern districts thousands of Violas are now grown where only dozens were cultivated a few years since. One of our very best and most distinct varieties is elegans, by no means a new kind, an abundant and continuous bloomer of a pleasing pale lilac colour. Mrs. Gray is a grand white, and True Blue by far the best and most useful blue I know.—W. DEAN, *Florist, Walsall*.

CHRYSANTHEMUMS.

NEW VARIETIES.

It appears that increased attention is now being paid to raising Chrysanthemums from seed, and as a consequence the new varieties are rapidly becoming more numerous; indeed there is just a possibility that the demand for novelties may cause the market to be flooded with many that are inferior to older and proved sorts. This is one evil which it is to be hoped will be avoided, and most of the leading nurserymen who trade in these plants will undoubtedly be careful in recommending their new productions until their merits have been tried or submitted to the test of examination by a competent tribunal, such as the Floral Committee of the Royal Horticultural Society. Without some guarantee the public are likely to become the unhappy possessors of worthless additions

to their stock at prices greatly in advance of those for which they could obtain really useful and beautiful forms. It seems that some of those who devote themselves to raising new Chrysanthemums on the continent must do so in a very haphazard manner, no definite attempts at systematic crossing being made, and the chief object is apparently to get all the seed possible, and nearly every plant so raised which differs at its first flowering in the slightest perceptible degree is honoured with a name and sent out with a magniloquent description. Fortunately, however, this is not a general practice, and there are some continental firms who have distinguished themselves by the high quality of the varieties they have contributed to commerce. The same remark applies to all the best home growers, who are very careful in introducing to their lists those alone which possess sterling merit, and it is only by acting on this principle that they can gain the confidence of the public. Still selection becomes of greater importance as the numbers increase to preserve the character and high quality of the different sections in general estimation.

It is strange that so few additions are made to the incurved group. We still need brighter and more diversified colours amongst these; yet the three best novelties of the present season—namely, Lord Alcester, Bendigo, and Jeanne d'Arc are all light-coloured. Two of these are sports, and seedlings are of very infrequent occurrence. The Japanese produce seed more freely, and there seems to be no difficulty in getting a supply from France and some other districts in South Europe where the autumn temperature is sufficient to mature the seeds. Some English seedsmen now offer seed at moderate prices, and those who wish to indulge in the agreeable excitement of raising new varieties can readily do so, as the seed usually germinates very readily in a little heat, young plants being obtained within a fortnight if the seed is good. It is rather surprising that more efforts are not made in crossing Chrysanthemums in England, as there is every probability that with a moderate amount of perseverance and study of the peculiarities of the floral structure in these plants satisfactory results could soon be insured. Mr. Broome of the Temple Gardens, one of the most noted of the earlier growers of Chrysanthemums, tried experiments of this character more than twenty years ago, and his efforts were sufficiently successful to encourage others in the same path. In a lecture delivered in 1863 the above grower thus describes the method adopted:—

"The following mode I saw practised in Guernsey, where I went twenty years ago, at Christmas, to look after some new varieties. At the town of St. Peter's, which is built on a rock a considerable height above the sea, I found the Chrysanthemum seeded freely, and that many of our newest and best varieties were raised in an alcove on the top of a rock. About one hundred pots were crowded together in the dry, and all the late blooms of the season were full of seed half ripe. I saw the petals had been carefully cut off with a sharp pair of scissors close to the florets, avoiding disturbing the pollen. The buds were quite firm with the seed. I have practised the same mode myself with perfect success. Mr. Wyness of Buckingham Palace has also raised a great number of very good varieties. He takes the seed off in February, and puts it into his pocket to dry for a week or two, and then sows it in a sharp heat in silver sand, and it comes up in nine days. I am persuaded that anyone can seed them in the greenhouses or dry stoves in this country if kept free from damp."

The structure of the florets should be carefully observed, and where, as is usually the case in the incurved as well as other varieties, the florets contain a pistil only, pollen could be gathered from the central tubular florets of the best single or semi-double varieties if it could not be otherwise obtained, and by this means it is very probable that seed might often be secured if the plants were grown in a light, dry, and warm position after the crossing had been effected. Should anyone be induced to undertake the task they should by all means direct their efforts to improving the colour of the incurved; and if it were possible to get a cross between some of the highly coloured Japanese and the superbly formed varieties of the former type, a beautiful race would probably be originated.

It should be observed that Mr. John Salter, who did so much to improve the Chrysanthemum and added so many fine varieties to those in cultivation at that time, once expressed an opinion that on an average not more than one out of every 2000 seedlings raised were worth naming as distinct. This was the result of long experience, and if it were true twenty years ago, the probability of obtaining meritorious novelties must be even less at the present time.

Some of the best of the varieties that have been recently honoured with certificates are the following:—

Lord Alcester.—A grand substantial bloom, pale creamy yellow, quite of the Empress of India type, from the golden form of which it was described at Southampton as being a sport, though it was stated at Kingston to have been obtained from Golden Queen of England. The former is the more probable, and some doubts were expressed at Kingston respecting the correctness of the information. It is, however, a superb bloom, and is likely to become a great favourite for the back rows of exhibition stands.

Jeanne d'Arc.—This, also an incurved variety, will undoubtedly become a favourite if it retains the character which distinguished the blooms shown at Kingston by Messrs. Jackson & Son. The petals are broad, strongly incurved, the bloom substantial and full, while the pure white tipped with pale purple has a very distinct effect.

M. Astory.—A magnificent Elaine, with much broader petals and extremely full handsome blooms, pure white. This may be expected to prove a fine exhibition variety.

Roseum superbum.—Both Messrs. Laing and Messrs. Jackson have

secured certificates for this variety, which was much admired at Kensington and Kingston. It is one of the fluted-floret section, the florets recurving slightly and of a peculiarly rich and distinct shade of rosy purple. Very telling and attractive.—L. CASTLE.

VERSCHAFFELTIA SPLENDIDA.

A GARDENER writes us that he "is in a fix and hopes we may be able to help him out of it." His case is that he is "likely to lose his situation, because he cannot help the old leaves of the above Palm decaying," but is expected to keep it "feathered to the ground," the plant being 9 feet high.

The owner of the Palm in question expects a practical impossibility, and not until he can grow an Oak tree to a large size and keep it "feathered to the ground" ought he to expect his gardener to achieve this phenomenon with a Palm. It is the nature of these handsome

completely envelopes the stem, the latter portion being abundantly armed with long black spines, whilst the footstalk is only about 6 inches long and perfectly smooth. The leaves are entire, broad, somewhat serrate at the edges, and deeply bifid at the apex; they are of a rich bright green in colour, and in a plant of some 3 or 4 feet high the blade will measure from 3 to 4 feet in length and nearly as much across. One of the peculiar features of this plant is its broad entire leaves, which is one of the distinguishing characteristics of the genus. This will satisfy every reasonable person who has hitherto not been familiar with the habit of this plant, and we are convinced will help our correspondent in his difficulty.

EUCHARIS AMAZONICA.

I SEND for your notice a very extraordinary flower scape of *Eucharis amazonica*. It has nine flowers upon it. This is more than I ever re-



Fig. 88.—VERSCHAFFELTIA SPLENDIDA.

plants to cast their lower leaves as others unfold, and the charm of Palms consists in their tall straight stems and crown of handsome foliage.

A developed specimen of this Palm is represented in the engraving. It is a native of the Seychelle Islands, belonging to the dependencies of the Mauritius, and when first introduced to our gardens, in 1864 was known by the provisional name of *Regelia majestica*. The stem is slender and of somewhat quick growth; as it increases in size it sends down adventitious roots, which in the form of an inverted cone ultimately serve to support the tree after the manner of the genus *Iriarteia* of the American continent, and give to the plant a most singular and picturesque appearance. The stem is profusely clothed with very long black needle-like spines, which spread around it in a fanlike manner. The petiole is short, with the exception of the large, broad, sheathing base, which

member having seen upon one head; but the most noticeable part is the extra development of one of the flowers. You will see that instead of the usual number of six petals in the flower it has ten. It has also ten stamens set along the edge of the corona. We have just had in flower a pot of *Eucharis amazonica* with sixty-seven spikes of flowers. These opened in a temperature of an intermediate house, and were remarkable for the size of the flowers.—ROBERT MACKELLAR.

[The spike sent is very fine, and the flower referred to extremely handsome. A similar one was exhibited last week at South Kensington by Mr. Wallis of Keele Hall. If a flower of this character were fertilised with its own pollen there would be a chance of a double variety being raised; but whether this would be more beautiful than the normal form is a question of taste. The experiment is worth trying.]

CRICKETS AND COCKROACHES.—I should be glad if any of your readers could tell me what will rid my houses of crickets and cockroaches. They eat everything, and the loss I have sustained is very

great, and I find toads so scarce, or they are very useful. I know plenty like myself who would be glad of some remedy that would destroy them quick.—J. W. R.

ROSE NIPHETOS.

I AM glad to see the Niphetos Rose being brought to notice. I have often wondered why it is not more generally grown. I quite agree with your correspondent that it is the best white Rose. About eight years ago, having decided to build a Rose house, I purchased two Niphetos Roses and planted them at the foot of wire pillars, and ever since we have not been short of white Roses. I consider Niphetos and Safrano two of the most useful varieties anyone can grow. They are both in bloom most of the year. Very little pruning is needed, simply cutting out the weakest wood and thinning the rest. I put a little heat on at the beginning of October simply to expel any damp, increasing it about the beginning of February, and by the middle of March we are rewarded with plenty of blooms. Besides Nephetos we have planted out Maréchal Niel, Adam, Marcellin Rhoda, Gloire de Dijon, Safrano, and David Pradel. The last I consider very poor, and would be glad if anyone can recommend a good red climber. Perle des Jardins I consider a splendid Rose, but not so free as Safrano. I enclose three Nephetos blooms; they are not quite so good as in April, but not to be despised.—F. B., *North Wales*.

[The blooms were very fine, and indicate excellent culture.]

PROPAGATING REIDIA GLAUCESCENS.

I HAVE been a reader of your Journal for more than a dozen years, and have derived much benefit from its perusal. Your answers to correspondents have always been a source of interest to me, containing a wonderful amount of information in a single number. In your issue of November 8th, in answer to "J. G." regarding the propagation of *Reidia glaucescens*, you say, Insert cuttings of half-ripe wood under a bellglass. This does very well, but it takes some time to get up a stock unless there is a number of plants to commence with. I grow this plant very largely, and find the best way to increase it quickly is to turn out a plant that is rootbound, cut the ball right through the middle, using the roots cut off as cuttings. We cut these in pieces an inch long, and insert in seed pans. This is done in early spring, and they make handsome plants for table use by the autumn. They strike readily from the leaves, but I much prefer the roots. This elegant plant has done so well with me treated in this manner that I trouble you with this note.—G. R.

[We shall be glad to be "troubled" with other notes similarly useful. We know the system of propagation described is good, but when letters arrive late we are only able to give brief answers, and are always glad for them to be supplemented, as in this case, by competent cultivators.]

CHRYSANTHEMUM SHOWS.

SOUTHAMPTON, NOV. 13TH AND 14TH.

THE sixth annual autumn Exhibition of this important Society was, as usual, held in the Victoria Skating Rink. The entries in all the classes were very numerous, far surpassing both in quality and general excellence any of the kind exhibited in Southampton before. The plant classes made a grand feature, occupying a large portion of the body of the great hall, and most of the plants would have done honour to the metropolitan exhibitions. The cut-bloom classes each contained seven entries and upwards, and the quality throughout was very marked. The fruit and vegetable classes were magnificent, and not only occupied the whole of the table room allotted to them, but a gallery some 50 feet in length had to be extemporised to receive them. Nearly twenty collections were staged in each of the five classes provided for Apples and Pears, which in the aggregate amounted to about 400 dishes.

Plants.—In the class for a group arranged in a space 8 feet by 5 feet there was only one exhibitor, Mr. Osborne, gardener to H. J. Buchan Esq., Wilton House, Southampton, who staged a very creditable collection, and well deserved the first prize awarded to him. For nine plants, distinct, Mr. Wills, gardener to Mrs. Pearce, The Firs, Bassett, was awarded first honours for a magnificent collection, consisting of Hiver Fleur with about 100 very fine flowers, Mdle. Bertie Rendatler, Fair Maid of Guernsey, and La Nympe of the Japanese varieties. This last variety was a perfect monster bouquet, the plants being from 3 to 4 feet in diameter, and carried upwards of 170 well-finished flowers of a delicate pale pink, showing how well this variety is adapted for specimens. The other plants were Golden Christine (good), Mrs. Forsyth and Dr. Sharp of the reflexed varieties, and Mrs. Dixon and Hero of Stoke Newington of the incurved varieties. This was altogether a very fine and well-finished collection, the plants were globular-trained, and well clothed with foliage almost to the rim of the pots. Mr. J. Allen, gardener to J. Bailey, Esq., Elmfield Hill, Southampton, was placed second for a collection larger than those to which the first prize was awarded, but not so fine in flower and finish. Mr. Osborne was placed third, also with an excellent collection. For six plants Mr. J. Thomas, gardener to R. R. Scott, Esq., Shirley Lodge, Shirley, and Mr. H. D. Hunt, gardener to R. Moss, Esq., M.P., Woolston, were placed first and second respectively for good collections. In the maiden class for four plants first honours fell to Mr. W. Joy, Shirley, the second to Mr. Hunt, and the third to Mr. N. Blandford, gardener to Mrs. Hazlefoot, Moorhills, West End. Classes were provided exclusively for Japanese-trained plants. In the class for six, Mr. Allen was well to the front with Hiver Fleur, Sultani, Mdle. Bertie Rendatler, Triomphe du Nord, Nuit d'Hiver, and Alba Plena, Mr. Osborne occupying the second position. For four plants Mr. Wills took the first place with plants nearly 5 feet in diameter of Fulgore, Sultani, Fair Maid of Guernsey, and Hiver Fleur, Mr. Hunt taking second honours. For a single specimen Japanese Mr. Wills and Mr. Allen shared the honours, the former with La Nympe, the latter

with Alba Plena, both very fine examples of culture; and for a single specimen, incurved or reflexed, Messrs. Wills and Osborne were first and second respectively, Mr. Wills showing Mrs. Sharp, and Mr. Osborne a good plant of Golden Christine. In the class for six plants, distinct (amateurs), Captain Gibbs staged a very good collection, and worthily deserved the position awarded to him. Mr. W. Reeves, 33, Brintons Road, received the second prize; and in the class for single specimen (amateurs) Captain Gibbs and Mr. Reeves were again placed first and second respectively, while the third position was gained by Mrs. Brodie, Belmont Inn, Portswood.

Cut Blooms.—For twenty-four cut blooms distinct, sixteen incurved or reflexed and eight Japanese, Mr. E. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, was awarded the first position with a magnificent collection. The back row in this collection consisted of Comte de Germiny, Fair Maid of Guernsey, Boule d'Or, Mad. C. Audiguier, Meg Merrilees, Marguerite Marrouch, Japonais, Baronne de Prailly; while the other two rows consisted of King of the Crimson, Incognita, Mr. Bunn, Queen of England, Golden Empress of India, Mrs. Heales, Dr. Sharpe, Princess of Wales, Lord Wolseley, Princess Teck, Barbara, Cherub, Prince Alfred, Venus, Empress of India, and Alfred Salter. Mr. Wills was a very good second, in fact some of the blooms were even larger than the same varieties in Mr. Molyneux's collection. Mr. Allen also exhibited a superb collection for third position, and in which was a fine bloom of Gabriel Delaux. Mr. Osborne was a good fourth.

For twenty-four cut blooms, not less than eighteen varieties, Mr. Molyneux was again first with handsome blooms. Mr. Wills was also here a good second, and having amongst others monster blooms of Snowball, Golden Empress of India, Comtesse de Beauregard, Madame C. Audiguier, and Lord Alcester. Mr. Allen again is awarded the third place. For twelve cut blooms, incurved, Mr. Molyneux was awarded the first place with another magnificent collection, Messrs. Wills, Allen, and Osborne following in the order of their names. In twelve Japanese, distinct, Mr. Molyneux was once more to the front with Meg Merrilees, Baronne de Prailly, Comte de Germiny, Elaine, Balmorean, Boule d'Or, Japonais, Khedive, Peter the Great, Madame C. Audiguier, Marguerite Marrouch, and Bend Or; Mr. Allen second, Mr. Wills third, and Mr. Moorman fourth.

Twelve cut blooms, Anemone-flowered. Mr. Molyneux here out-champions all with a grand stand of blooms, comprising Mdle. Cabrol, a new variety departing from the usual style of an Anemone flower, the guard petals being much longer and partaking much of the Japanese character—a most pleasing and promising variety; Mrs. Pithers, Lady Margaret, Princess Louise, Madame Godereau, Fleur de Marie, Gluck, and Empress. The other four were duplicates of the above-named. Messrs. Wills and West were second and third respectively. For twelve reflexed, eight varieties, Messrs. Molyneux, Wills, Allen, and Osborne were placed in the order of their names. The first-prize collection comprised King of the Crimson, Golden Christine, Mrs. Forsyth, Cloth of Gold, Felicity, Phidias, Christine, and Dr. Sharp; the others were duplicates. This was a remarkably fine collection. Other cut-bloom classes followed, which were well contested, the principal winners being Messrs. Osborne, Cox, Neville, Hammond, Jennings, Ransom, Gibbs, and Carter.

Fruit.—In the fruit classes the competition was very keen. For the heaviest bunches of Grapes Mr. Molyneux was first with a bunch of Barbarossa, weighing nearly 6 lbs. For three distinct varieties Messrs. Hall, Molyneux, Budd, and Miller were placed in the order of their names. For three bunches of black Grapes Messrs. Hall, Wyndham, and Dalgety were first, second, and third respectively, all exhibiting well-finished bunches of Alicante. For three bunches of white Grapes Messrs. Sanders, Molyneux, and Davidson occupied similar positions with Muscat of Alexandria, while the prizes for two bunches of white and two of black were awarded to Messrs. Sharp, Allen, Gates, Osborne, and Dalgety respectively. Apples and Pears formed, as we have before said, a grand feature. The first prize for three dishes of kitchen Apples was awarded to Mr. J. Mair for Blenheim, Alfriston, and Gloria Mundi. The second to Mr. Saunders with Dumelow's Seedling, Mère de Ménage, and Warner's King. The third to Mr. Hall with Bedfordshire Foundling, Wellington, and Flower of Kent. For three dishes of dessert Apples Mr. W. Fowle, gardener to Sir H. Mildmay, Bart., Winchfield, received the first prize for three splendid and highly coloured dishes of Cox's Orange, Blenheim, and Fearn's Pippins. In the class for four dishes of Apples the first and second-prize collections contained Mère de Ménage, Warner's King, Cox's Pomona, and Wellington, all wonderful examples of size and colour. Primulas, berried plants, and vegetables were all numerously exhibited, adding materially to the attractiveness of the display.

The above is but a necessarily brief account of a large and grand Exhibition, admirably managed by Mr. Fuidge, the Secretary, and ably assisted by Capt. Gibbs and others on the executive, whose sole desire is to study the interest of both visitors and exhibitors. The Royal President, General H.S.H. Prince Saxe-Weimar and the Princess honoured the Show with their presence on the first day, and the amount taken at the doors was nearly £150.

A certificate was awarded to Mr. Wills for

Chrysanthemum Lord Alcester.—A cream-coloured sport from Golden Empress of India. It is described in the Kingston report.

HAWKHURST, NOVEMBER 13TH AND 14TH.

THE first Exhibition of the Kentish Society was held in the Hawkhurst Lecture Hall, and, judging from the first attempt, the promoters have every reason to congratulate themselves, and may also safely anticipate still better achievements in the future. The district is notably a highly favoured one, and there is no lack of supporters and exhibitors of all things pertaining to horticulture. Mr. Gilmour, gardener to the Right Hon. J. G. Goschen, Seacox Heath, Hawkhurst, took an active part in establishing the Society as well as in the preliminary arrangements of the Show, and, as will be seen, was also the most successful competitor. Mr. L. Barnes, gardener to Lady Herschel Collingwood, Hawkhurst, and Mr. A. Whetley, gardener to A. Hardcastle, Esq., Hawkhurst, contributed materially to the success of the meeting. A very pleasing group of well-grown plants, comprising among others Chrysanthemums, Ferns, Primulas, were arranged by Mr. Nicholls, gardener to J. C. Fischer, Esq., Highgate, Hawkhurst, and in addition to these a few other plants and fruits were contributed by other growers not for competition.

The premier prize group of plants of Japanese varieties were staged by

Mr. Gilmour, and consisted of handsome flatly trained specimens of Purple King, James Salter, The Cossack, and Lady Selborne. Mr. Whetley followed with creditable specimens of Madame Crousse, Bouquet Fait, L'Isle des Plaisirs, and La Frasure. Mr. T. Barnes was a good third. Mr. Gilmour had the best four plants of incurved varieties, these being well-grown pyramids. Mr. T. Barnes and Mr. G. M. Newman (the latter an amateur) were placed equal second. Mr. Gilmour also staged the best Anemone-flowered and Pompons, Mr. Whetley being second in the former class and Mr. Barnes with Pompons. For a single specimen Mr. Gilmour was first with Mons. C. Hubert in good condition. Mr. Whetley was second with a fine plant of Elaine, and Mr. Barnes third with a good pyramid of Mrs. G. Rundle.

Mr. Gilmour was first in both classes for cut blooms. His stand of Japanese varieties included good blooms of the leading varieties. Mr. Barnes was a good second in both instances. Competition was keen in the classes for table decoration, open to ladies only. Here Mrs. Gilmour distinguished herself, the other successful competitors being Mrs. G. Cooper and Mrs. Pridgeon, and Mrs. Litchfield, who took the prizes in the order named, all giving evidence of good natural taste for the work. Two very fine stands of cut blooms of Chrysanthemums were lent by Mr. Doughty gardener to Mrs. Tomlin, Angley Park, Cranbrook, and these deservedly attracted much attention.

Mr. Gilmour took all the principal prizes for Apples. Messrs. Barnes, Whetley, and R. Titley, gardener to J. Thompson, Esq., also exhibited successfully in the Apple classes. Mr. J. Iggulden, gardener to the Rev. Canon Jeffreys, Hawkhurst, was first for a creditable collection and also for single dishes of Pears, the remaining prizes being taken by above-mentioned exhibitors. Amateurs made a good display in the classes provided for them. Of these the most successful were Messrs. E. T. Rodmell, G. Russel, J. Arnold, C. Boxall, G. M. Newman, Pridgeon, G. Fuller, and G. Feaver, all of Hawkhurst, and Mr. Lester, Ticehurst.

LEWES, NOVEMBER 13TH AND 14TH.

THE second Show of the Lewes Chrysanthemum Society was held in St. Ann's Concert Hall, and although unfortunately clashing with Brighton there was a great improvement on last year in both plants and cut flowers. In the open class for six pyramids Mr. Divall, gardener to A. Russell, Esq., was first, and also for six dwarf-trained plants. For six Japanese Mr. Stedman, gardener to Mrs. Godlee, Lewes, was easily first with meritorious blooms, Mr. Stidworthy being first for six Pompons. In the class open only to gardeners and amateurs within fourteen miles of Lewes Mr. Stedman was again to the fore with six well-grown plants, and also first for a specimen standard, a well-grown plant of Mrs. Dixon. Cut blooms were well shown. In the open class for twenty-four incurved there were six competitors. Mr. Gore, gardener to Capt. Taylor, being first, Mr. Stedman second, and Mr. Barchard, gardener to C. Cornwell, Esq., Uckfield, third. With twelve Japanese Mr. Divall was first, and also for twelve Pompons. Mr. Gore was again first in the restricted class for twenty-four incurved varieties. Mr. Barchard being second. For twelve incurved Mr. Hopkins, gardener to R. Thornton, Esq., Framfield, was first, and also for six Japanese; Mr. Divall being first for twelve Japanese.

The amateurs' exhibits of both plants and flowers were very creditable. Primulas and table plants were not very good, Mr. Stroud, gardener to F. Verral, Esq., taking first for the former, and Mr. Gore for the latter. There was a prize of two guineas offered for the best single flower of Chrysanthemum indicum, which was withheld, and rightly so, for if those that were staged were single flowers it will be a difficult matter to draw a line between single and doubles. A large quantity of Grapes, Pears, and Apples was shown not for competition, Mrs. Woollard of Cocksbridge being the principal exhibitor.

BATH, NOVEMBER 14TH AND 15TH.

THE fourth annual Exhibition of this Society was in every respect a great success. A decided improvement was evident in nearly all the classes, this being most marked both in the groups composed entirely of Chrysanthemums and also flowering and fine-foliage plants; these, in fact, rightly engrossing more attention than the various trained specimens. It was generally admitted that the arrangement was most satisfactory, and creditable alike to the Committee and Mr. Pearson, the able Honorary Secretary. No precaution, however, was taken to prevent damage being done to the front rows of plants and cut flowers, as well as the tables of tempting fruit. The Assembly Rooms, commodious and otherwise suitable as they are, were still uncomfortably thronged with visitors; and if ropes had been provided, and policemen stationed inside with instructions to keep the visitors moving, no damage would have been done and the Exhibition rendered more enjoyable.

Plants.—With six large-flowered specimens Mr. J. Bradner, nurseryman, Bristol, was easily first, his plants measuring about 4 feet across and carrying on an average about ninety well-formed blooms. The varieties were Mrs. Corbay, Mrs. Dixon, Alma, Mrs. Rundle, Lady Hardinge, and Prince of Wales. Mr. H. Scott, Bath, was a good second, his most noteworthy specimens being of Mrs. Glenny, Sir S. Northcote, and Mrs. Forsyth. Mr. M. Cole, gardener to R. B. Cater, Esq., was third with larger but rather shabby specimens. The best four specimens were staged by Mr. G. Tucker, gardener to Major W. P. Clarke; the second prize going to Mr. H. Gay, gardener to L. Danberry, Esq.; and the third to Mr. A. Hawkins, gardener to T. Jolly, Esq., the exhibits in each instance being most creditable. In the class for Japanese varieties Mr. Tucker took the lead with admirable examples of Elaine, Peter the Great, Nympe, Bertie Rendatler, Soleil Levant, and James Salter; Mr. M. Cole following with, among others, fairly good specimens of Fulgore, Elaine, and Peter the Great. The best six trained Pompons were staged by Mr. Bradner, and consisted of freely flowered specimens of Bob, Golden Circle, Mustapha, Calliope, Andromeda, and St. Michael. Mr. Clarke was a good second. Messrs. Scott, M. Cole, and G. Cooling & Son were also successful exhibitors of Pompons.

In the single specimen classes Mr. Bradner was first for a large-flowered variety, Mr. Tucker for a Pompon, Mr. Bradner Anemone-flowered, and Mr. M. Cole for a large-flowered variety not a pyramid. The latter won with an immense plant of Peter the Great, fully 7 feet across, and carrying hundreds of well-developed blooms. There were but few good standard-trained specimens shown. The best came from Mr. Bradner, and consisted of

Guernsey Nugget, White Globe, and Prince of Wales. Small trained conservatory plants were well shown by Messrs. Bradner, Cooling & Son, and H. Scott. There were seven excellent groups of Chrysanthemums arranged, the plants in most cases being in small pots, and were tall, freely bloomed, and bright in colour. The group of best-grown plants were unplaced, owing to lack of variety and damage from frost during transit. The successful exhibitors were Messrs. H. Gay, Mr. S. P. Budd, gardener to W. Taylor, Esq., and Mr. J. W. Brown.

Fine specimen Crotons and Palms were well and successfully shown by Mr. J. Mould, gardener to E. E. Bryant, Esq., Mr. M. Cole, Mr. W. C. Drummond, Mr. Hawkins, and Mrs. Grace Tiley. The groups of fine-foliaged and flowering plants with which Messrs. G. Cooling & Son took the lead was particularly attractive. It was sufficiently heavy without being crowded, and was a good example of what may be done with an abundance of good materials. It was largely composed of Crotons and Dracenas in rich variety, Bouvardias Alfred Neuner, Vreelandii and elegans, Roman Hyacinths, Erica hyemalis, and Adiantum cuneatum farleyense. Mr. J. Mould followed with a choice and neat, but rather too thin group, the third prize going to Mr. W. C. Drummond. Primulas in the different classes were well shown by Messrs. F. J. Walker, T. Channing, E. F. Pocock, and Mrs. Counsell. The four double white Primulas staged by Mr. Pocock were the best we have yet seen. The variety is vigorous, has dark leafstalks, and the trusses of very double pure white blooms are very attractive. Mr. W. K. Wait had the best Poinsettias, Messrs. Cooling & Sons the best Cyclamens; and pans of white Roman Hyacinths were well shown by Messrs. Bryant and Mr. Howe gardener to Lewis Fry, Esq., M.P.

Cut Blooms.—These were shown in good numbers, and in some instances were very fine, notably those shown by Mr. J. Baylis, a quarryman living at Winterbourne near Bristol, and Mr. E. S. Cole, gardener to E. S. Pethick, Esq., Clifton. The former staged the best twenty-four blooms in twelve varieties, these consisting of perfect examples of Empress of India, Bronze Jardin des Plantes, Prince Alfred, Princess of Wales, Mrs. Heale, Prince of Wales, Miss M. Morgan, White Venus, Baron Beust, Jardin des Plantes, St. Patrick, and Barbara. T. Hobbs, Esq., was a good second, and had excellent blooms of Beverley, Novelty, Isabella Bott, Mr. Corbay, and Barbara. Mr. D. C. Powell was third with smaller but fairly good blooms. Mr. E. S. Cole had the best twelve blooms in twelve distinct varieties, these consisting of large, though not coarse, examples of White Globe, Lady St. Clair, Empress of India, Mr. Bunn, Cherub, Golden Empress of India, Princess of Wales, Jardin des Plantes, Mrs. Nash, John Salter, and Venus. Mr. J. Waite followed with smaller but otherwise good blooms, among which were good Empress of India, Mrs. Rundle, and G. Glenny. The third prize was awarded to Mr. W. Fox, who also staged creditably. Mr. H. Scott had the best six blooms. The best bunches of

Pompons were staged by Messrs. Hawkins and H. Scott. The first-prize stand of large-flowered Anemones by Mr. E. S. Cole was remarkably good, and included splendid blooms of Empress, Lady Margaret, Gluck, Acquisition, Fleur de Marie, and Louis Bonamy. Mr. Baylis followed with similar varieties, and T. Hobbs, Esq., was a good third. The Japanese varieties were well represented, and naturally delighted the visitors. Mr. D. C. Powell took the lead with very fine blooms of Fair Maid of Guernsey, Daimio, Hiver Fleur, Cossack, Album plenum, Meg Merrilees, Madame C. Audiguier, and Soleil Levant. Mr. E. S. Cole was second with rather small but stouter blooms of such sorts as Golden Dragon, Rosa Bonheur, Flambeau, and Madame Clemence Audiguier. Mr. J. Baylis was third, in his stand being a fine bloom of Madame Berthe Rendatler. With twelve blooms in four distinct colours and varieties Mr. Baylis won first prize, staging good-sized blooms of Barbara, Prince Alfred, Golden Empress of India, and Mrs. Cunningham. Mr. E. S. Cole was second, and was followed by Mr. J. Waite. Messrs. Baylis and D. C. Powell were the successful exhibitors of eighteen blooms with long stems and foliage. Vases of cut flowers as shown by Mr. M. Hookings, Miss Turner, and Mr. Drummond; bouquets by Messrs. W. H. Mould, Hookings, and A. George; and baskets of autumn foliage and berries by Miss Pearce, Mr. H. Lord, and Miss Martin, were all highly meritorious.

Fruit.—There was a fairly good number of Grapes staged, while Pears and Apples were most abundant and good. Four collections of six varieties of fruit were shown, Mr. W. Nash, gardener to the Duke of Beaufort, taking the lead with very good Black Alicante and fairly good Muscat of Alexandria Grapes, a Melon, Beurré Diel Pears, good Ross Nonpareil Apples, and Medlars. Mr. W. Bannister, gardener to H. St. Vincent Ames, Esq., was a very close second, his collection consisting of good Black Hamburgh and Muscat of Alexandria Grapes, a faulty Melon, very fine Marie Louise Pears, Worcester Pearmain Apples, and Medlars. The third prize was awarded to Mr. J. T. Holmes. Mr. Nash was first for four bunches of Grapes in two varieties with perfect examples of Black Alicante and creditable Muscat of Alexandria, Mr. Bannister again following closely with good Black Hamburgh and Bowood Muscat. Mr. G. Shelton had fairly good Lady Downe's and Black Alicante, and was awarded the third prize. In the class for three bunches of any black variety Mr. Nash staged three large grandly finished bunches of Black Alicante, and was followed by Messrs. G. Shelton and W. K. Wait, both staging Black Alicante in good condition. Mr. H. Jones, gardener to General Doherty, was the only exhibitor of white Grapes, and received a second prize for rather poor Muscat of Alexandria.

There were twelve entries of six varieties of Pears, Mr. A. George being first with fine dishes of Beurré de Rance, General Todtleben, Beurré Bachelier, Beurré Clairegeau, and Duchesse d'Angoulême. Mr. F. R. Smith was a good second, and Mr. H. Beavis third. The best four varieties were staged by Mr. E. Jones, and consisted of General Todtleben, Beurré Bachelier, Duchesse d'Angoulême, and Durondeau. Mr. M. Cole was a good second, and Mr. W. Hall third. There were thirty exhibits of a single dish of Pears, Mr. F. Rice winning with Marie Louise, and was followed by Mr. C. H. Gabriel with the same variety, and the third prize was won by Mr. W. Mead, who staged Glou Morceau.

Twenty lots of six varieties of dessert Apples were staged, Mrs. Pinder taking the lead with highly coloured medium-sized fruit of King of the Pippins, Cox's Orange Pippin, Royal Russet, Newtown Pippin, and Blenheim Orange. Messrs. H. Beavis and W. Bannerman took the remaining prizes. There were twelve exhibitors of four varieties, Mr. E. Hall winning the first prize with Jackson's Pippin, Ribston Pippin, Blenheim Orange, and King of the Pippins in good condition, the other prizes going to Messrs. H. Taylor

and J. Horsell. No less than forty-nine single dishes were exhibited, the Judges eventually awarding the first prize to beautifully flavoured Cox's Orange Pippin, staged by Mrs. Phayre, the second prize going to Mr. Fisher for Ribston Pippin, and with the same variety Mr. A. Beavis was third. Kitchen Apples were also numerous and well shown. Mr. S. Butler staged the best six varieties, these including fine fruit of Warner's King and Blenheim Orange. Mr. A. Beavis was second, and Mrs. Pinder third, both staging fine produce. There were thirty single dishes shown, Col. Grant taking the first prize with very fine Warner's King. Mr. S. Butler was second with the same variety, while the third went to Mr. W. Ashman for very good Blenheim Pippin.

CROYDON, NOVEMBER 14TH AND 15TH.

THE seventh annual Exhibition of Chrysanthemums, &c., was held in the Public Hall, George Street, and in spite of the clashing with other shows the result was highly satisfactory, the exhibits showing a marked improvement as a whole. There was better quality running through the whole classes, the rear rank in the cut blooms showing up much better than usual—a sure indication that the Society is doing the good work it intended in advancing the cultivation of the Chrysanthemum.

The groups were very effective in the trade class. Mr. Curd, florist, Addiscombe, was first with a fine collection, and Mr. Coppin second. In the amateurs' division Mr. Bowman was first with well-grown plants and of fair average quality. Mr. Lewis, gardener to H. Goschen, Esq., Addington, and Mr. Salter were the principal prizetakers for trained plants, the exhibits showing good cultivation, but some of them badly finished, the sticks in some of the standards being very objectionable.

In the open division for cut blooms Mr. Gibson, gardener to E. Wormold, Esq., Mordam Park, as usual, showed some fine blooms, as he was awarded the silver cup for twenty-four incurved, distinct, and also the silver cup for the corresponding class for Japanese; Mr. J. Holmes, gardener to C. M. Storey, Esq., Nightingale Lodge, Balham, being second in both classes with good well-finished blooms, and Mr. Elsey, gardener to D. Cornish, Esq., Selhurst, third in both classes. The other classes for cut blooms confined to the district were well filled, the principal prizetakers for incurved blooms being Messrs. Sadler, Elsey, Reed, and Rodbourn; and for Japanese Mr. Alderman, gardener to C. Czarnikow, Esq., Mitcham; Mr. J. Staines, gardener to J. Newton, Esq., Park Hill; and Mr. Reed. The large Anemones were well represented, but, unfortunately, some of them were not distinct, which led to disqualification, and the Committee would do well another year to allow eight varieties to be shown, which would lead to greater competition. All the classes in the amateurs' and single-handed gardeners' division were well filled, Messrs. Reed, Bowman, Brice, Welstead, Staines, Dobson, and Elsey taking the chief prizes. The competition in the fruit classes was very keen, and rendered especially interesting by the splendid collection of Apples from Mr. Cummings, gardener to A. Smee, Esq., Carshalton, who staged over a hundred dishes of handsome clean fruit, and was awarded first prize for a collection; Mr. Penfold, gardener to Canon Bridges, second; and Mr. Rodbourn third. Mr. Cummings was also first for black Grapes with Mrs. Pince, and Mr. Alderman first for white Grapes with Muscat of Alexandria. The baskets of vegetables were exceedingly good, Messrs. Cooper, Rodbourn, and Welstead being the chief prizetakers. For a single stand for dinner-table decoration Mrs. Bishop was awarded first prize and Mrs. Cross second. Mr. Chaff, florist, was awarded an extra prize for a splendid box of cut flowers of stove and greenhouse plants, which was a great attraction, and extra prizes and commendations were also awarded to Messrs. Roffey, Curd, Gibson, for various plants and cut flowers.

BOROUGH OF HACKNEY, NOVEMBER 14TH AND 15TH.

THE finest Exhibition yet held by this Society was that at the Royal Aquarium, Westminster, on Wednesday and Thursday last week, as the number of competitors was larger than usual, the general quality of the exhibits was admirable. Blooms, specimen plants, fruit, and vegetables were all in strong force, and in many respects superior to any that have yet been staged at previous Aquarium shows. It has been customary to place the vegetable and fruit exhibits in the gallery, but on this occasion they were all with the blooms and plants in the large hall, and produced a fine effect, though this was somewhat marred by their being rather scattered owing to the arrangements for the entertainment. If the whole body of the hall could have been devoted to the Show it would have been much more imposing and convenient for the visitors. The general system of arrangement and affixing the prize cards was all that could be desired, and though a little delay occurred in the judging, the general details were well managed and very creditable to the Hon. Secretary, Mr. William Holmes, and his coadjutors.

Plants.—A most important class in this section was for a group of Chrysanthemums arranged for effect in a space of 100 square feet. Three competitors entered, and though all their contributions were good there was considerable difference in their merits, and the awards occasioned much discussion and some dissatisfaction. It was stated that "general effect would be the leading feature," and it would seem the positions taken by the groups was not in strict accordance with this rule. Messrs. Mahood & Sons, Putney, won the silver cup offered by the Royal Aquarium Company with handsome well-grown plants bearing substantial and beautiful blooms, but the arrangement was a little too crowded and not quite well enough finished in front. Mr. G. Stevens, Putney, was placed second also with good plants and blooms, but in this case rather too loosely arranged, and the front plants were too tall. Mr. N. Davis, Camberwell, took the third position with a group that was well entitled to second honours, and it was a matter of opinion if it was not more effective than the first. The plants were strong, bearing handsome blooms with a good diversity of colours, and freely arranged without being either loose or crowded, and having a neat margin of dwarf plants. For six specimens of large-flowered varieties in 12-inch pots Mr. E. Cherry, The Gardens, Norfolk House, Streatham, was the leading exhibitor, taking first honours with even freely flowered examples of Mrs. G. Rundle, Barbara, Mrs. Haliburton, Prince of Wales, Mrs. Dixon, and Beethoven. The best six Pompons were staged by Mr. R. E. Reeve, Hadley Green, Barnet; dwarf beautiful specimens about 4 feet in diameter, excellently flowered; Defiance, Antonius, Fanny, White, Golden, and Lilac Cedo Nulli being the varieties. In the borough classes Messrs. Drain won the silver

cup for the best ten specimens with handsome dwarf plants, some of the best in the Show. They were all freely flowered; Gloire de Toulouse, Elaine, Peter the Great, and Bouquet Fait being particularly good. Messrs. S. Gilbey and R. Payne followed closely in this class, both showing freely flowered examples. In the other borough classes the same exhibitors secured the leading prizes.

Cut Blooms.—Principal interest centred in the class for forty-eight blooms, equal numbers of incurved and Japanese, not less than eighteen varieties of each, or more than two blooms of one variety. The prizes of £10, £3, and £1 have usually brought a number of competitors, but this year only three staged, the first two being close in merit. Messrs. Dixon & Co., Hackney, won first honours with substantial beautiful blooms of great depth, clean and fresh. The incurved blooms comprised the following varieties—Golden Empress, Queen of England, Golden Queen, Empress of India, a grand bloom, about 4½ inches deep, which was awarded a prize as the best bloom in the Show; Prince Alfred, Cherub, Refulgence, White Globe, Venus, John Salter, Mrs. Shipman, and Princess of Wales, Lady Slade, White Venus, Jardin des Plantes, Barbara, Princess Beatrice, Hero of Stoke Newington, and Eve. The Japanese varieties were Fair Maid of Guernsey, Mons. Ardene, Madame Moulise, Baronne de Prailly, Meg Merrilees, Alba Plena, Madame C. Audiguier, The Daimio, Comte de Germiny, Soleil Levant, Dr. Macary, Criterion, Sarnia, Thunberg, Fanny Bouchardat, Bronze Dragon, Alba Plena, Triomphe des Châtelets, Agremens de la Nature, Parasol, and Cry Kang. Mr. C. Herrin, The Gardens, Chalfont Park, Gerrard's Cross, followed very closely, most of his Japanese being equally as good as those in the premier stand, and some were superior in size and substance; but the incurved, though neat and fresh, were a little wanting in size. Messrs. Mahood & Sons were third with smaller blooms, but bright.

The class for twenty-four incurved blooms was a good and interesting one, eight collections being staged, mostly very even in quality. The silver cup was, however, well won by E. Sanderson, Esq., St. Mary's Road, Harlesden, the President of the Society, and one of the oldest Chrysanthemum growers in the metropolis. His blooms were throughout distinguished by their symmetry and substance, clean, even and perfect. The varieties were, in the back row, Empress of India, Alfred Salter, Emily Dale, John Salter, Queen of England, Barbara, Hero of Stoke Newington, and Golden Empress of India. Second row: Empress Eugénie, Jardin des Plantes, Lady Hardinge, Princess Teck, Le Grand, Guernsey Nugget, Venus, and Mrs. Heales. Front row: Princess of Wales, Abbé Passaglia, Golden Eagle, White Venus, Cherub, Nil Desperandum, and Mrs. W. Shipman. The second and third prizes were secured by Mr. C. J. Salter, The Gardens, Selborne, Streatham, and Mr. J. Clark, gardener to Mrs. Joad, Patching House, Worthing, Sussex, both showing good collections. For eighteen incurved Mr. Sanderson again took the lead, followed by Mr. J. Major, gardener to G. J. P. Kidstone, Esq., Nyn Park, Potters' Bar, and Messrs. Saltmarsh & Son, Chelmsford.

Competition in the class for twelve incurved blooms was extraordinarily keen, seventeen stands being entered. Mr. J. Udale, gardener to J. Watson, Esq., Shirecliffe Hall, Sheffield, won first honours with large, even, and handsome blooms of Queen of England, Alfred Salter, Empress of India, Golden Empress, Princess of Wales, Mrs. Heale, Cherub, Isabella Bott, Jardin des Plantes, Prince of Wales, Princess Teck, and Barbara. This stand well deserved its position, as the blooms were much superior to the majority of others in the same class. Mr. C. Herrin was second with smaller but very neat and well-finished blooms; Mr. J. Spreckley, Worplesdon, Guildford, being third. Six incurved were also strongly shown, sixteen competitors staging, Mr. H. Prickett, gardener to J. Gribble, Esq., East Barnet, taking the lead. Mr. Berry, gardener to the Countess of Leven and Melville, Roehampton, had the best twelve large Anemone-flowered varieties—very fine blooms of Lady Marguerite, George Sands, Fleur à Marie, Mrs. Pithers, Marginatum, St. Margaret, Acquisition, Prince of Anemones, Gluck, and Louis Bonamy. E. C. Jukes, Esq., Hope House, Winchmore Hill, N., and Messrs. Mahood & Sons secured the second and third prizes. Mr. H. Butcher, Hadley, Barnet, staged the finest twelve Anemone Pompons—a very beautiful collection. Mr. Ridout, gardener to T. B. Haywood, Esq., Reigate, was awarded premier honours for twenty-four Japanese, a grand lot of blooms of the best varieties. Mr. E. Maxted, gardener to the Marquis of Ely, Kearnsey Abbey, Dover, was a good first in the class for twelve Japanese blooms amongst thirteen competitors. The same exhibitor had the finest collection of twelve Pompons, extremely beautiful blooms. The special prize offered by Messrs. Dixon for twelve new Japanese varieties sent out by that firm was secured by Mr. J. J. Hillier, with Chinaman, Beauté de Toulouse, François Delaux, Mdle. Louise Sabatie, J. Delaux, Venus, Source d'Or, Mr. Starling, J. Hillier, Petit Frise, Petit Norbont, and General Lartique. In the one-variety classes Mr. Herrin was first for large Anemones with six handsome blooms of Lady Margaret; Messrs. Mahood first for Japanese with Triomphe de la Rue des Châtelets, large and full; closely followed by Mr. Herrin with Baronne de Prailly. In some of the local classes Messrs. S. Gilbey, Martin, P. Payne, G. Laughton, and Nichols were the chief prizetakers.

Fruit.—Grapes, Apples, and Pears formed an interesting portion of the Show, as they were both largely and well represented. The most important Grape class was that for twelve bunches, number of varieties not stipulated, and in which the prizes—viz., £10, £3, and £1 10s., were offered by the Royal Aquarium Company. Eight collections were entered, some comprising black Grapes alone, and some had twelve bunches of one variety; there was thus evidently some little confusion respecting the meaning of the schedule. Mr. J. Roberts, gardener to the Baroness Rothschild, Gunnersbury Park, Acton, was adjudged first honours for a fine collection, the bunches being even, and including handsome examples of West's St. Peter's, unusually good for that variety, Alnwick Seedling very well coloured, Alicante, Gros Guillaume, Mrs. Pince, large in bunch and berry but not highly coloured, Black Hamburgh, Muscat of Alexandria, and White Tokay. Mr. Austen, The Gardens, Ashton Court, Bristol, secured the second place with even bunches that were considered by some as equal in merit to the first, but only three varieties were represented—namely, Black Alicante, good, Mrs. Pince, and Muscat of Alexandria, first-rate in colour and size. Mr. Findlay, The Gardens, Wroxton Abbey, Banbury, was third, all his specimens being black Grapes—Gros Colman, beautifully finished, of medium size, Gros Guillaume Alicante, Lady Downe's, and Mrs. Pince. Messrs. Goodacre, Elvaston Castle Gardens Church, Bradsworth; W. Howe, Park Hill, Streatham; Holmes Clapham

Park; and S. Castle of Lynn, also competed in this class. Mr. Allan, The Gardens, Gunton Park, was first with three bunches of black Grapes in a class of eight competitors with the grand examples of Gros Colman staged at Kensington on the previous day; Mr. S. Castle was second with Alicante; and Mr. W. Howe third with the same variety. Mr. A. Smith, gardener to H. Sewell, Esq., Loughton, was first with three bunches of white Grapes with Muscat of Alexandria, followed by Mr. Austen and Mr. C. Herrin with the same variety, seven lots being entered.

Apples were remarkably good, one of the finest displays we have seen this season. Twenty-two collections of six dishes of dessert varieties were staged. Mr. Allis, gardener to Major Shuttleworth, Old Warden Park, Biggleswade, being first with even and handsome examples of Reinette Grise, Aromatic Russet, Sykehouse Russet, Court of Wick, Court Pendu Plat, and Cox's Orange Pippin—a very fine collection. Messrs. Goldsmith and Austen followed closely. For six dishes of culinary Apples there were sixteen entries, Mr. Haycock, The Gardens, Barham Court, Maidstone, winning premier honours with superb fruit of Gloria Mundi, Emperor Alexander, Peasgood's Nonesuch, Bedfordshire Foundling, and Mère de Ménage. Mr. Ross, The Gardens, Welford Park, Newbury, and Mr. Austen were second and third respectively. Fifteen collections of six dessert Pears were staged, Mr. Haycock securing first honours with magnificent fruit of Duchesse d'Angoulême, Doyenné du Comice, Conseiller du Cour, Beurré Diel, Easter Beurré, and Triomphe de Jodoigne. Mr. Fowler, gardener to Sir H. Mildmay, Bart., Dogmersfield Park, Winchfield, and Mr. Goldsmith followed with smaller but good fruits.

Vegetables.—A large and good display of these was provided. Eight collections were staged in the general class, the number of sorts not stipulated; and Mr. May, Nortbau Home, Barnet, won the premier prize with a most excellent collection of nineteen varieties, all in first-rate condition. Mr. J. Austen and G. Hanes, Highworth, followed. Messrs. Webb & Sons' prizes for a collection of six varieties Mr. Austen took the lead, followed by Messrs. May and Findlay, all the specimens being of great merit. Of Potatoes about 130 dishes were entered, Mr. R. Dean, Ealing, securing the premier prizes in both classes; Messrs. Osman, Prangnell, and Ross following.

Miscellaneous exhibits comprised an extensive and beautiful collection of Zonal Pelargoniums, Salvias, single Chrysanthemums, Primulas, and Cyclamens from Messrs. H. Cannell & Sons, Swanley; a fine group of Chrysanthemums from Mr. N. Davis, Camberwell; a group of well-grown Chrysanthemums from Mr. J. Lewry, gardener to James McAnderson, Esq., Belmont, Mill Hill; and a large collection of Potatoes from Messrs. Sutton and Sons. A first-class certificate was awarded to Mr. Ridout for

Chrysanthemum Bendigo, a yellow sport from Mrs. Heale which has been already described.

STAINES AND EGHAM DISTRICT.

THE second annual Exhibition of this young Society was held in the Literary Institute, situate in the High Street, Egham, on the 15th inst. Unfortunately a capital display of plants, cut flowers, fruits, &c., was much marred by the darkness of the rooms in which the Show was held and the very limited space at disposal, contrasting indifferently with the ample light and space seen in the Staines Town Hall last year. During the afternoon the Show became so crowded with visitors that locomotion was almost impossible, and seeing the exhibits was out of the question. The groups of decorative plants were a telling feature in the Show, not less than eight being in competition. Mr. Thatcher, Tborpe, had the best—a very admirable arrangement, and Mr. Springthorpe's was a capital lot of flowers. Trained plants were not largely shown, but some very good standards came from Mr. Riddish and Mr. Jannett, both of Egham. The open classes for twenty-four incurved blooms and the same of Japanese flowers were the chief features in cut flowers. In the former Mr. Hill, gardener to A. Savory, Esq., Chertsey, was a good first with capital blooms well displayed, and Mr. Strong, Wellington College, Berks, had some fine blooms in his second-prize lot; Mr. J. Strong, gardener to H. Sweet, Esq., Weybridge, came third. Messrs. Hill and Strong occupied the same positions in the Japanese class, both having beautiful blooms. The classes limited to the district brought fair quality and good competition, some specially good blooms being put up in the class for six incurved one kind, and six Japanese one kind, the prizes offered by the Secretary, Mr. Rawlins of Chertsey. Princess of Wales and Fair Maid of Guernsey was first, and Empress of India and Soleil Levant second. Zonal Pelargoniums, Solanums, Chinese Primroses, Mignonette, &c., were all well shown, and there were also some splendid Lady Downe's, Gros Colman, and Muscat of Alexandria Grapes sent by Mr. Robinson, gardener, Cooper's Hill, and some fine Alicantes from Mr. Peckham of Tborpe. The best two bunches were first-rate Madresfield Courts from Mr. Craill, gardener to F. Yeo, Esq., Staines. Apples and vegetables were of a high order, and merit the warmest commendation.

KINGSTON, NOVEMBER 15TH AND 16TH.

THE seventh great southern Chrysanthemum Exhibition has come and past, and has raised the fame of the Society to a still higher level, for in it was represented some of the most handsome blooms, both incurved and Japanese, that have ever been staged in the south. The number of blooms were rather less than last year, owing to the fact that then there were two challenge vase classes, the conclusion of the competition for the first, and the commencement of that for the second. This not only increased the number of exhibits, but also added greatly to the interest of the Show. However, taking the blooms, plants, and groups all through, the Exhibition just concluded would bear favourable comparison with any that the Society has previously held. In one respect it was remarkable—i.e., for the general success of Mr. Molyneux, who was undeniably the premier exhibitor, gaining first honours in six of the principal classes, besides the crowning achievement of winning the second challenge vase, in itself sufficiently creditable.

The Drill Hall was as usual chosen for the Exhibition, and the arrangements being judiciously supervised, the result was a very satisfactory display, bright, varied, and attractive. The weather proved very favourable, and a large number of visitors assembled on the first day, the Princess Frederica honouring the Show with her presence.

Cut Blooms.—These formed by far the most important portion of the Show, and the challenge vase class was the great feature of interest. This, it will be remembered, is the second vase, and was first offered last year for

twenty-four incurved and the same number of Japanese; Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, being the successful exhibitor. According to the terms under which it was offered winning the vase twice renders it the property of the exhibitor, and this has been accomplished by Mr. Molyneux this time easily, for his blooms were much superior to all the others staged. Only three collections were entered, the Swanmore Park blooms, both incurved and Japanese, being remarkable alike for their size, substance, and freshness. The incurved were beautifully finished with few exceptions. The varieties were as follows:—Back row—Empress of India, Hero of Stoke Newington, Golden Empress, Alfred Salter, very fine; Mrs. Howe, Princess of Wales, handsome; Jardin des Plantes, and Queen of England, grand. Second row—Beauty, Mrs. W. Shipman, Prince Alfred, Cherub, Mrs. Heale, Barbara, fine; Pink Venus, and Refulgence. Front row—Mr. Bunn, Incognito, Bronze Jardin des Plantes, Princess Teck, Baron Beust, Le Grand, Orange Perfection, and Lady Hardinge.

The Japanese were similarly handsome, the colours being exceedingly rich. The varieties were in the back row—Mad. C. Audiguier, Fair Maid of Guernsey, Marguerite Marrouch, Dolores, Meg Merilees, M. Ardene, Peter the Great, and Baronne de Prailly. Second row—Père Delaux, Criterion, handsome; Balmorean, Soleil Levant, Khedive, Boule d'Or, grand; Comte de Germany, and Elaine. Front row—Triomphe du Nord, Hiver Fleur, Grandiflora, Sarnia, Japonais, R. Ballantine, Aiba Plena, and Thunberg. Mr. G. Harding, gardener to T. D. Galpin, Esq., Bristol House, Putney, was second, both the incurved and Japanese being smaller, though neat and fresh. In the former class he had some good blooms of Golden Empress, Empress Eugénie, Empress of India, Emily Dale, and Yellow Perfection. In the Japanese Père Delaux was extremely good; La Nymphé, Criterion, and Fanny Bouchardat being similar in size and substance. Mr. J. Hennell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, was third with good Japanese, but small incurved blooms.

Six good stands of twenty-four incurved blooms were entered, and Mr. Molyneux was again the premier exhibitor, having substantial blooms of the following varieties—in the back row, Queen of England, Golden Empress, Princess of Wales, Jardin des Plantes, Prince Alfred, Empress of India, Mrs. Howe, and Alfred Salter; second row, Baron Beust, Beauty, Cherub, Incognito, Mrs. Heale, Mr. Bunn, Pink Venus, Mrs. W. Shipman; front row, Le Grand, Dupont de l'Eure, Alma, Princess Teck, Barbara, Refulgence, Lord Wolseley, and Hero of Stoke Newington. Mr. Harding was a close second; Mr. G. Woodgate, Warren House, Kingston Hill, and Mr. J. Macpherson, gardener to S. Page, Esq., St. Leonard's Lodge, Surbiton, third. The class for twelve incurved blooms was well filled, six good stands being entered. Mr. E. Coombe, gardener to F. A. Brown, Esq., Lawn Bank, Teddington, took the lead with neat blooms, not large but of good substance. Mr. Lync, The Gardens, Belvedere House, Wimbledon, followed, Messrs. Fyfe and Watson being third and fourth with smaller blooms. One fine collection was disqualified for containing three blooms of one variety. Messrs. Strong, Benson, and Orchard secured the prizes for six incurved blooms with good stands. For six incurved blooms of one variety Mr. Molyneux was first with Princess of Wales, charming in substance and form; Mr. Benson third with Golden Empress, rather small for this variety, but full and of good form.

Japanese varieties were shown in large numbers, the majority of the blooms being of fine quality. Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esber, had the best collection of twenty-four, and gained premier honours amongst six competitors with large richly coloured blooms of the following varieties:—Back row—Mad. C. Audiguier, Mr. Burnet, Boule d'Or, very large; Fair Maid of Guernsey, M. Delaux, M. Plancheron, Bronze Dragon, and Baronne de Prailly. Second row—Alba Plena, F. A. Davis, Mr. J. Mahood, The Sultan, Criterion, Marguerite Marrouch, Meg Merilees, and Soleil Levant. First row—Chang, Fanny Bouchardat, Magnum Bonum, Thunberg, Comte de Germany, M. Ardene, L'Incomparable, and Sarnia. Mr. J. King was a close second with similar blooms, but a few points behind. Mr. C. Herrin, Chalfont Park, and Mr. G. Woodgate were third and fourth respectively. Eight stands of twelve Japanese were in competition, Mr. Molyneux following up his remarkable success by taking the first prize with very beautiful blooms; Comte de Germany, Mad. C. Audiguier, and Criterion were especially fine. Mr. J. Child was placed second, and Mr. W. Fyfe, gardener to W. W. F. Dick, Esq., Thames Ditton House, was third, but in the opinion of many the adjudication here was far from satisfactory, as the third-prize lot was superior to the second in substance and colour, and indeed ran the first very closely. Competition was exceedingly keen in the class for six Japanese, ten stands being entered. Mr. Orchard was adjudged the premier award for substantial richly coloured blooms of Triomphe de Chatelet, Mad. C. Audiguier, M. Ardene, Criterion, Père Delaux, and Madame Le Croix. Mr. T. H. Benson, gardener to W. H. Roots, Esq., Kingston, was placed second with smaller examples, and Mr. Gibbons was third. For six blooms of one variety, Japanese, Mr. Molyneux was first with Mad. C. Audiguier, magnificent in size and colour, quite 6 inches in diameter, and nearly as much in depth. Mr. Beckett was second with Boule d'Or, also very fine, 7 to 8 inches in diameter; and Mr. Woodgate was third with Mad. B. Rendatler.

Five lots of twelve reflexed blooms were staged, Mr. Molyneux taking the first place with beautiful blooms of Golden Christine, King of Crimson, Pink Christine, Clot of Gold, Dr. Sharpe, Phidias, and Mrs. Forsyth. Messrs. Gibbon and Child were second and third. Mr. Molyneux also had the finest twelve large Anemone varieties amongst the same number of competitors, showing fine blooms of Lady Marguerite, Mrs. Pithers, Gluck, Madlle. Cabrol, and Fleur de Marie. Mr. Lync was a close and good second, Mr. Woodfall being third. Four fine stands of twelve Anemone Pompons were entered, Mr. Beckett securing the first place with Miss Nightingale, Perle, Marie Stuart, Mr. Astie, Antonius, Marguerite de Coix, Firefly, and Calliope. Messrs. Benson and Moorman were second and third. Mr. W. Clark, gardener to A. Nagle, Esq., Bijou Cottage, Kingston, was awarded premier honours for twelve bunches of Pompons amongst five competitors, his best blooms being Golden Aurora, Bronze Aurora, Phidias, Pericles, Bijou d'Horticulture, Cendrillon, Model of Perfection, and Marabout. Messrs. Lync and Beckett followed. Maiden classes were provided for six incurved and six Japanese blooms. In the former Mr. Bates took the lead, and in the latter Mr. J. Munro, both showing well. Several amateurs' and cottagers' classes were also well filled and interesting.

Plants.—The leading class for Chrysanthemum plants was for a group in which quality and effect were to be combined, and this stipulation caused the Judges some difficulty, for though the group selected for the premier shown by Mr. J. Bass, gardener to A. S. Price, Esq., Parkside, Ewell, included the finest blooms it was decidedly surpassed in gracefulness of arrangement, diversity and brightness of colour, by that from Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston Hill, which was placed second. In classes of this character it is far better to let the one quality of effectiveness stand alone, as that is the principal requirement in a group. Mr. D. Gibbons, gardener to Mrs. Beckford, Orford House, Ham, was third, his front plants being too tall; but the group was bright and contained some fine blooms. For six specimen large-flowered varieties Mr. G. King, The Gardens, Wolsey Grange, Esher, took the lead with good plants about 5 feet in diameter and well flowered. John Salter, Mrs. G. Rundle, G. Glenny, Mrs. Dixon, Prince of Wales, and Lady Hardinge were the varieties. Decidedly the finest plants in the Show were the three standards from Mr. J. Trussler, gardener to J. Strand, Esq., Fullbrooks, Old Malden. These were about 4 feet high, with finely trained conical heads of seven concentric rings of about 120 blooms, the centre one being as true as possible, and all the others arranged with geometrical precision. Mr. Sallows was a good second. For three large-flowered trained specimens Mr. Sallows was first with good plants, L'Isle des Plaisirs being about 4 feet across and profusely bloomed. Hiver Fleur was also very good. Mr. Hoskins, gardener to S. Williams, Esq., The Laurels, Putney, followed. Mr. J. Lyne had the finest six Pompons, freely trained and well-flowered examples of the Cedo Nullis and Dick Turpin being very noteworthy. Mr. King had the finest single specimen, John Salter, about 5 feet in diameter with over a hundred blooms. Mr. Sallows was second with Mrs. Dixon, having small blooms but numerous.

Miscellaneous Plants.—A class was provided for a group of miscellaneous plants arranged for effect, and three tasteful collections were contributed; that, however, from Mr. T. Glover, gardener to W. Evill, Esq., Worcester Court, Worcester Park, which gained the premier prize, was so light and graceful, so unpretentious and yet so extremely attractive, that was greatly admired by all the visitors. A few well-grown Palms, such as *Cocos Weddelliana*, *Areca lutescens*, *Dracænas*, and *Cordylines* were employed with a groundwork of small Ferns, *Primulas*, *Crotons*, and a free margin of *Panicum variegatum*, while from the body of the group numerous spikes of *Calanthe vestita* and *Veitchi* elegantly arched, giving it a most pleasing appearance. Mr. Martin, gardener to J. Ford, Esq., Elm Lodge, Surbiton, was second, and Mr. C. Attrill, Bank Grove, Kingston, a good third. Table plants were well shown by Messrs. Beckett, Lync, Buss, King, and Hoskins; *Cyclamens* by Messrs. Beckett, Bate, and Russ; while Mr. King had the best collection of "berried" plants, fine plants of *Capsicum Princess of Wales* with abundant large golden fruits.

Fruit.—There was a fairly good display of fruits, Apples and Pears. Mr. Bates had the premier collection of six dishes, which included a well-grown Smooth Cayenne Pine Apple, Blenheim Pippin Apples, Alicante and Muscat of Alexandria Grapes, both well coloured, with neat examples of Glou Morceau and Chaumontel Pears. Mr. Munro, who was second, had Alicante Grapes well coloured, and fine King of the Pippins Apples, Mr. Beckett being third with good Alwick Seedling Grapes and Beurré Diel Pears. Mr. King staged the best four dishes of dessert Pears, Beurré Diel and Duchesse d'Angoulême being very fine. Messrs. T. Glover and Beckett followed. Thirteen collections of four dishes of Apples were staged, Mr. C. Attrill taking first position with fine fruits of Beauty of Kent, Mère de Ménage, King of the Pippins, and Cox's Orange Pippin. Mr. Orchard was a close second, and Mr. J. Child third.

Special prizes were offered for buttonhole bouquets and stands of flowers and foliage, and the competition was keen in each class. Unfortunately, however, as on previous occasions, the judging gave much dissatisfaction, and it would be well if the Committee could make different arrangements for these classes. In the buttonhole class decidedly the best examples, those from Mrs. Brown of Richmond, did not receive any award, while in the stand of autumn foliage and berries the most tasteful from Mrs. Drewett was placed second.

Not for competition were some good bunches of Grapes from Messrs. T. Jackson & Son, Kingston; a group of pretty Carnations from Messrs. Hooper & Co, Covent Garden, and a number of well-grown *Primulas* of a new rich crimson-coloured variety from Mr. Wiggins, gardener to W. Clay, Esq., Kingston.

Certificates were awarded for the following Chrysanthemums:—

Roseum superbum and *Madlle. Le Croix* (Jackson), which were certificated at Kensington on the previous Tuesday.

M. Astory (Jackson).—A very handsome Japanese variety of the Elaine type, with much broader petals and more substantial pure white blooms.

Jeanne d'Arc (Jackson).—An incurved variety with deep well-built blooms; the petals broad, white tipped with pale purple. Very pretty.

Lord Alcester (Mr. E. Wills, gardener to Mrs. Pearce, The Firs, Basset, Southampton).—A fine incurved variety, a sport from Golden Empress of India. The bloom shown was 5 inches in diameter and nearly as much in depth, beautifully formed, with broad petals pale creamy yellow in colour. It has also been certificated at Southampton.

LINDFIELD, SUSSEX, NOVEMBER 15TH AND 16TH.

AN interesting Exhibition of Chrysanthemums, fruit, and flowers was held in this village on Thursday and Friday last, and ended in a complete success. The Exhibition was organised by the Committee of the Assembly Rooms, assisted by the gardeners of the neighbourhood. The principal contributors to the Show were Mr. A. J. Brown, gardener to J. Proctor, Esq. (the majority of this gardener's exhibits was in advance of the other exhibitors, as will be seen by the prize list, the group especially is worthy of commendation for the tasty arrangement and good flowers which was very much admired). Mr. Venn, gardener to W. Sturdy, Esq.; Mr. Horscroft, gardener to J. Potter, Esq., Ardingley; Mr. Hodges, gardener to W. Gibbons, Esq., and smaller group from other gardeners in the neighbourhood. The principal prize-takers were as follows:—For the best group staged for effect in a space of 39 square feet (eight entries). First, Mr. Brown, gardener to J. Proctor, Esq.; second, Mr. Horscroft, gardener to H. Potter, Esq.; third, Mr. Hodges; highly commended, Mr. Venn, gardener to W. Sturdy, Esq. For the

best two plants (Japanese), Messrs. Hodges, Brown, and Horscroft. Incurved (two plants), Messrs. Horscroft, Hodges, and Brown. For Pompons, Mr. Brookes had the best specimen plant; Messrs. Hodges and Plummer. For cut blooms (twelve Japanese), Messrs. Brown, Hodges, and Mr. Venn. For twelve incurved, Messrs. Brown, Horscroft, and Venn. For six *Poinsettias* there was one exhibit, which was deservedly awarded the first prize—namely, from Mr. Brown; the foliage was in good condition from the surface of the pots upwards, some of the bracts being nearly 14 inches across. Plants suitable for table decoration were shown by exhibitors previously mentioned, as were also Apples, collections of fruits and flowers. A fine collection of fruit, plants, and cut Chrysanthemums was exhibited by Mr. Balchin of Brighton, and was highly commended, and a collection from Messrs. Cheale & Son of Lowfield, was also highly commended. Mr. Russell, gardener to Dr. F. Descou of Henfield was awarded an extra first prize for a splendid collection of cut blooms. Some elegant table decorations were shown by Miss H. Catt and Miss Dixon, and the bouquets exhibited by Mrs. Warre were highly commended.

WINCHESTER, NOVEMBER, 19TH AND 20TH.

WINCHESTER is a city of more than ordinary historical importance, but to ourselves and our readers it possesses a special interest as being the birth-place of the *Cottage Gardener* some thirty-five years since, and which has now developed into lusty manhood as the *Journal of Horticulture*. It was in this ancient city, too, that originated the fable of forty days' rain falling after July 15th, if rain happen to fall on that day (St. Swithin's). On the occasion of a new dedication of the Cathedral some 800 years ago, St. Swithin was included as a patron Saint, and his remains exhumed from the churchyard to be placed within the sacred edifice; this removal being delayed by heavy and continuous rains gave rise to the adage which is familiar to all, but of the origin of which all may not be familiar. But we must leave the past and glance hurriedly at the latest event of importance in our sphere that has occurred in the Hampshire capital—the first Chrysanthemum Show.

This was held on the dates above mentioned in the new and handsome Guildhall, and as a first show must be pronounced highly satisfactory; indeed it is a question if any such plants and blooms have been staged at a first show anywhere as the grand-trained specimens of Mr. Wills, and the magnificent blooms of the redoubtable Mr. Molyneux. A compact well-arranged schedule was prepared, very good prizes offered, and the competition was good throughout, not a few of the exhibits being of superior quality. We can do little more than glance at the successful exhibits, and record the names of the winners of the chief prizes.

In Class 1, collection of plants arranged for effect, in space 8 by 6 feet, there was the usual conflict between quality of blooms and effective grouping; but quality having precedence in the schedule had apparently the greatest influence in the determination of the awards. The premier position was won by Mr. Neville, gardener to F. W. Flight, Esq., Twyford, Winchester, with undoubtedly the finest blooms, and equally most imposing group. Mr. Goodchild, gardener to W. Colson, Esq., Colden Common, was an excellent second with very fresh and good examples. The remaining prizes going in the order named to Mr. W. Wareham, gardener to H. Goodhall, Esq., and Mr. Prouting, gardener to Miss Butler, with pretty groups of dwarf plants, which had not been grown for the production of a limited number of blooms. Though these groups did not equal those at Putney, Kingston, and the Westminster Aquarium, they were creditable to the exhibitors at a new show.

In the open class for six specimen plants Mr. Wills, gardener to Mrs. Pearce, Southampton, easily won the chief position with grand convex examples, about 5 feet in diameter, and admirably trained, no bending of the stems being visible, and the blooms relieved by excellent foliage. The varieties Madame Berthe Rendatler, La Nympe, and Hiver Fleur were magnificent. The second prize went to Mr. Hunt, gardener to R. Moss, Esq., M.P., Weston, with tinner plants; Mr. Joy, Shirley, being third with smaller examples, but more compact, running the others very closely. There was only one entry in the class for six specimen Japanese, and a second prize awarded to Mr. Hunt. Mr. Wynyard, gardener to Mrs. Hursley, won the first prize for a single specimen Japanese with a handsome well-bloomed dwarf plant of La Nympe, 4½ feet in diameter. Mr. J. Wareham, gardener to Mrs. T. Gunner, and Mr. Hunt securing the remaining prizes with free informal plants, but not of high-class merit. In the class for a single specimen incurved Mr. Astride, gardener to W. B. Simonds, Esq., distanced all competitors with Dr. Sharpe, admirably grown, flowered, and trained; Messrs. Hunt and Joy following. In the amateurs' classes for plants the prizes were awarded to Mrs. Rembery and General Sir A. Beechen, C.B., and considering the small pots the plants were grown in they were very good, each bearing six to ten blooms of good quality.

Cut Blooms.—In the class for twenty-four blooms, sixteen incurved or reflexed and eight Japanese, Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishops Waltham, was in his usual position with large, fresh, and splendidly finished examples. Amongst the Japanese, Meg Merrilees, La Boule d'Or, Criterion, Balmorean, Baron de Prailly, Madame C. Audiguier, and Margaret Marrouch were prominent; the most remarkable of the others being Empress of India and the golden variety, grand; Queen of England, Jardin des Plantes, Barbara, Mrs. Heales, King of the Crimson, Princess of Wales, and Pink Venus being little inferior. Messrs. Dixon and Sons, Hackney, followed with excellent stands, Empress of India being of remarkable excellence; the third prize going to Mr. Wills with generally larger but rather rougher blooms. Mr. Molyneux was also first in the class for twelve blooms, incurved, with an exceedingly neat stand, Mr. Wills following; and again in the twelve Japanese class Mr. Molyneux was to the fore with beautiful blooms, followed by Messrs. Wills and Neville with admirable contributions. In the twenty-four blooms in not less than eighteen varieties the prizes went to Mr. Molyneux. The class for twelve blooms in not less than eight varieties brought out several imposing stands; Messrs. Molyneux, Cox (gardener to R. King-Wyndham, Esq., Corhampton, Bishops Waltham), and Mr. Remsbury; and in the amateurs' classes for cut blooms the last-named exhibitor and Mr. H. Guillaume were the successful exhibitors.

A noteworthy group of plants sent by Mr. Molyneux was highly commended. Several of them were in 2½-inch pots, the plants ranging from 6 inches to a foot high, with fine foliage and excellent blooms, one on each plant 3 inches in diameter.

Fruit.—Very good Grapes, Apples, and Pears were staged. In the class for three bunches of Grapes Mr. Wildsmith, gardener to Lord Eversley, Heckfield, was first with Gros Colman, Gros Guillaume, and Muscat of Alexandria, all good; Mr. Weaver, gardener to W. Beach, Esq., M.P., second, and Mr. Cox third. Mr. Wildsmith was also an easy first with two bunches of black Grapes, Gros Guillaume and Gros Colman; Mr. Dauncey, gardener to B. Staive, Esq., Basingstoke, second; and Mr. Hillier, Winchester, third. For white Grapes the prizes went to Messrs. Wildsmith and Weaver for Muscats, the former having admirably finished bunches, the latter larger examples. In the heaviest bunch class Mr. Molyneux was first with Gros Guillaume, 5 lbs. 14 ozs.; Mr. Dauncey second with Alicante, 4 lbs. 5 ozs.

There was an excellent display of both dessert and culinary Apples, several of the collections of three dishes closely approaching each other in merit. Mr. H. Fiford was first in both classes, Mr. Wildsmith being a close second in the dessert, and Mr. Wills in the culinary section. Mr. Gandy, gardener to the Earl of Northbrook, was also a prizetaker. Pears were much less numerous. Mr. Wildsmith was the foremost exhibitor, winning the chief prize with Beurré Gris d'Hiver, very good; Glou Morceau, extra fine; and Beurré Diel. W. T. Cordrey, Esq., St. Cross, and Mr. Wills had the remaining prizes. But by far the most meritorious contribution of fruit in the Show was a collection from Mr. Wildsmith, comprising four splendid Pines, with capital Grapes, Pears, and Apples. A certificate of excellence was awarded, and an extra prize recommended by the Judges. Mr. Hillier also staged a large and excellent collection of Apples.

Miscellaneous Plants for Table Decoration.—Substantial prizes were offered for groups of stove and greenhouse plants arranged for effect. The competition was very good, but as a rule the arrangements were too crowded. Mr. Blackmore, nurseryman, Winchester, was the leading prizetaker, Mr. R. Hunt being second, and Mr. Hillier third. Table plants were very neat and fresh, but some of the collections too heavy; the prizes went to Messrs. Cox, Blackmore, and Wills respectively. Primulas were creditably exhibited, the prizes for doubles going to Messrs. Hurst, Blackmore, and Prouting; and for singles to Messrs. J. Merrit, gardener to Mrs. C. Warner, Axford, and Blackmore. Mr. Axford was the only exhibitor of Poinsettias, and was awarded the first prize for six plants.

Table decorations were quite equal to the average at larger shows than this. The Misses Flight were remarkably successful, taking most of the prizes; but in one class Mrs. F. C. Birch surpassed all other competitors.

Vegetables were very good indeed, and the collections exceedingly close in order of merit, the Judges, after carefully awarding points to every dish, awarding the prizes to Messrs. Cox, Wildsmith, and Dauncey in the order named.

As we were leaving the Show in the afternoon the officials and visitors were on the tiptoe of excitement in expectation of the announcement of the Premier, not the premier Chrysanthemum bloom, but the Prime Minister of England, who was in the neighbourhood, who, if he attended, would no doubt be the chief exhibit.

The Show was admirably managed, the officials discharging their duty like veterans, and we never saw the prize cards so quickly placed when the judging was done under numbers. The promoters of the Show are to be congratulated on its excellence, and it is quite certain that if public support is given some fine autumn shows will be seen in future in the ancient city of Winchester.

LINCOLN, NOVEMBER 20TH.

UNDER most favourable auspices the first Exhibition of the newly formed Lincoln Chrysanthemum Society was held in the Corn Exchange of the old city on the date above named. An excellent and industrious directorate, with Dr. G. M. Lowe as Honorary Secretary, succeeded in enlisting the sympathy of most of the influential families of the city and neighbourhood—very practical sympathy too, in several cases, judging by the various special prizes which adorned the schedule. As a first show weak points were apparent, but the general display was effective, and better quality will come with experience.

Cut Flowers.—In the class for twenty-four incurved, not less than eighteen varieties, Mr. Udale, gardener to W. Watson, Esq., Shirecliffe Hall, Sheffield, was distinctly ahead of all competitors, and was awarded the first prize for excellent blooms; Mr. Couling, gardener to J. Ruston, Esq., Lincoln, second with neat and creditable examples; and Mr. Wipf, gardener to N. Clayton, Esq., third with smaller blooms. In the class for twelve blooms went to the same exhibitors in the order above named, ten collections being staged. For six blooms Mr. Couling was an excellent first, followed by Mr. Radford, gardener to J. Hall, Esq., North Collingham, and M. Reynolds, gardener to Lieut.-Col. Seddon, Waltham Grove, Great Grimsby. Mr. Wipf, Mr. Mitchell, gardener to W. J. Warrener, Esq., Lincoln, and W. Ashley, Esq., Limefield, Brigg, were the prizewinners for reflexed flowers, all the blooms being fresh but small. Very creditable indeed were the first and second stands of twelve Japanese from Messrs. Couling and Wipf, similar to blooms staged at the London shows a few years ago. Mr. Couling also had the premier Japanese bloom in the Show, an excellent Elaine, the corresponding award in the incurved section going to Mr. Udale for a fine example of Empress of India. Stands of Pompons were good, especially the first-prize collection of twelve from Mr. Wipf, Messrs. Warrener and Couling following, the two last-named exhibitors also securing the prizes for Anemone flowers with neat clean examples. The blooms staged in the amateurs' classes were very small. A collection of blooms was sent from the Inner Temple Gardens, London; but by far the finest stand in the Show was staged by one of the Judges not for competition.

Plants.—These were generally wanting in finish and size of blooms, the prizewinners being Messrs. Couling, Woollas (gardener to — Bell, Esq.), S. Lowe, Esq.; Worsdale (gardener to H. K. Hebb, Esq.), for large-flowering varieties, Japanese excluded; for Japanese Mr. Bell and Mr. Lowe; the best Pompons being staged by Messrs. Rowson Brothers, Torrington, but they were poor, and the only standards worth notice were neat miniatures from Mr. Mitchell.

Groups of Chrysanthemums in semicircles 10 by 5 feet had an imposing effect, eight of them being staged down one side of the hall. Mr. Ridsdale, gardener to the Marquis of Ripon, S. Lowe, H. K. Hebb, R. Swan, and J. J. Clarke, Esqs., were awarded the prizes for ordinary untrained conservatory decorative plants, defective in quality of bloom, no disbudding having been done. By far the best plants in the Show were included by Messrs. Pennell

and Sons, nurserymen, in a most effectively arranged group, which certainly excelled all others, and was highly commended, as it was not entered for competition. Mr. Close, gardener to Robert Dawber, Esq., was similarly commended for a group better than any in competition. Messrs. Pennell had also a handsome group of choice Coniferæ worthy of a place at any exhibition in the kingdom. For groups of "Chrysanthemums and other plants" equal first prizes were awarded to Messrs. Mitchell and Wipf for good arrangements. J. Ruston, Esq., had an imposing group not for competition. Mr. Worsdale received the first prize with Peter the Great as a single specimen.

Fruit.—Mr. Wipf staged excellent Grapes, and secured the first prizes for both black and white with Gros Colman and Mrs. Pearson, followed by Messrs. Seddon and Reynolds, gardener to F. J. Clarke, Esq. Apples were very good, Mr. Picker, gardener to A. S. L. Melville, Esq., Messrs. R. Grant, Bracebridge, and Ridsdale being awarded the prizes, the prizes for Pears falling to Mr. Couling; but the finest display of Apples was contributed by Messrs. Pennell, sixty varieties being staged in capital condition.

The prize for vegetables was awarded to Mr. Bentley of the Corporation Sewage Farm for examples of Celery, Potatoes, Brussels Sprouts, Onions, Cauliflowers, and Carrots, such as we have never seen excelled at any exhibition. Mr. Foster, gardener to R. Greenham, Esq., Metheringham Heath, was also worthily granted an extra prize for an excellent collection. Dr. E. M. Lowe and R. J. Ward, Esq., two gentlemen of position in the city, worked zealously throughout the Show, and a large measure of the success that has been achieved is attributable to their laudable efforts in endeavouring to improve the cultivation of the Chrysanthemum in the district, and with good public support they will succeed in their object, affording the citizens rich floral treats.

MANCHESTER, NOVEMBER 20TH.

THE above Society held their annual Show as usual in the Town Hall. The Exhibition on the whole was equal to those of past years, and in some respects superior. The Chrysanthemums in pots were not only more numerous, but on the whole of better quality. The cut blooms were much superior to what we have before seen them at this Society's exhibitions, and more numerous.

Plants.—In the class for nine plants J. Allan, Esq., Altrincham, took the lead with dwarf and fresh specimens. Thomas Statter, Esq., Stand Hall, was placed second with good plants, but the blooms of some were a little past their best. G. Howarth, Esq., Stretford, and G. H. Kenworthy, Esq., Ashton-under-Lyne, were equal thirds. For four plants Mr. G. Allan was again first with even well-grown plants. J. G. Best, Esq., Withington, gained the second place with rather taller examples. John Wild, Esq., Uplands, Stand, was third. The plants of Japanese varieties were not numerous, but of good quality. In the class for six plants G. Cooper, Esq., Timperley Hall, was first, and Mr. J. Allan second. For four Pompons T. Dickens, Esq., Higher Broughton, took the lead with large well-grown plants not too stiffly trained. Mr. J. Wild was second with less neat plants, and Messrs. Cooper and Statter were equal third. In the class for eight plants grown for conservatory decoration without being disbudded Mr. J. Allan took the lead, followed closely by Mr. J. Dickens.

Cut Blooms.—In the class for twenty-four blooms Mr. J. Warrington, gardener to T. Bright, Esq., Aigburth, was placed first with bright substantial blooms. Mr. E. Green, gardener to J. Woolwright, Esq., Mosely Hill, Liverpool, was second, but his blooms were finer in colour, size, and substance. Mr. G. Cooper was placed third with much smaller flowers and very irregular. In the class for twelve blooms Mr. E. Green was first, Mr. J. Warrington second, and Messrs. J. Allan and G. Cooper equal third. In the class for twenty-four miscellaneous blooms twelve lots were staged, which included some good blooms of Japanese, Anemone, incurved, reflexed, and Pompon varieties. Mr. G. Allan took the lead, followed by Messrs. G. Cooper, J. Dickens, and D. McCure, Heaton Mersey.

Table Plants.—Nine or ten lots were staged for the three prizes offered, and the whole were very creditable to the exhibitors. R. P. Gill, Esq., Ashton Mersey, was first with neat well-grown plants. The second award went to O. Schneider, Esq., for a little larger plant but equally well grown. R. A. Farrington was the remaining prizetaker. Primulas were not so good on the whole as I have seen them, and they need no special comment. Mr. G. H. Kenworthy was first, and S. Hazzopulo, Esq., Higher Broughton, second. Mr. T. G. S. Garnett, Bolton, was the remaining prizewinner. Roman Hyacinths were not largely exhibited, but were really fine, especially the first-prize collection staged by Mr. J. Dickens. Messrs. G. Cooper and R. A. Farrington, Wigan, were second and third in the order named. The bouquets and vases for dinner-table decoration need no special mention, the principal prizewinners being Messrs. W. Irvine, G. A. Kenworthy, and Mrs. Shaw.

Miscellaneous Exhibits.—T. W. Tatton, Esq., Wythenshawe, staged a very handsome collection of Pears and Apples grown within seven miles of Manchester on heavy soil with a subsoil of sand. Seventy dishes of the two were staged, the whole collection being most creditable. Messrs. G. and W. Yates, Market Place, Manchester, also staged a magnificent collection of Apples of about 120 dishes, some of them being of remarkable size and colour. At the back of this collection was also staged an assortment of flowering plants. Messrs. Dickson, Brown, & Tait, Corporation Street, Manchester, also contributed largely to the beauty of the Exhibition by staging a collection of Cyclamens and other flowering plants, the former being remarkably fine.

TWICKENHAM, NOVEMBER 20TH AND 21ST.

THE annual autumn Show was held on Tuesday and Wednesday last in the commodious Town Hall, and was one of the most satisfactory displays this thriving and well-conducted Society has yet held. The upper rooms were devoted to the cut blooms, of which several handsome collections were contributed, fruit, vegetables, and miscellaneous plants, all these classes being well filled and good produce staged. The large hall was occupied with the groups and miscellaneous plants, the former being very bright; and with the handsome group of Chrysanthemums and fine-foilage plants exhibited by Mr. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, not for competition, an effective display was formed. Considerable space had, however, to be reserved, as promenade concerts were held each evening which were very largely attended. Mr. H. Allfrey, the Honorary Secretary,

and Mr. Bates deserve much praise for the general arrangement of the Exhibition.

The principal class was that for a collection of Chrysanthemums arranged for effect in a space of 50 square feet, the first prize of £3 being presented by Lady John Chichester. Mr. Munro, gardener to the above-named lady, Cambridge House, Twickenham, was the successful competitor, gaining the premier award with a tasteful group of handsome plants bearing large substantial blooms. Mr. Sallows, gardener to J. J. Flack, Esq., Hampton Wick, was second with taller plants rather more freely arranged; and Mr. G. Parsons, gardener to T. Twining, Esq., Perryn Home, was third with a too loosely arranged group. Mr. Sallows had the best six specimen plants, very well-flowered specimens, L'Isle des Plaisirs being especially notable. Baskets of miscellaneous plants were well shown by Mr. Trussler, The Gardens, Thistleworth, and Mr. Fittell, gardener to J. R. Greaves, Esq., Cambridge Park, who won first and second respectively with graceful combinations of flowering and fine-foliage plants.

In the cut-flower classes the premier awards were secured by Mr. Beckett, gardener to J. P. Currie, Esq., in all the leading classes, and showed some very handsome blooms. He had the best twenty-four incurved and Japanese varieties, the best twelve Japanese, and the best twelve incurved—a fine selection of varieties admirably represented. Messrs. Sallows and Trussler secured the other chief prizes with smaller but bright and fresh blooms.

Fruit was well shown by Mr. Munro, who had some excellent Apples and Grapes, Alicantes being very well coloured; Mr. Trussler also staged some fine Apples. The chief collection of vegetables was from Mr. J. Wild, gardener to G. Macintosh, Esq., Richmond House, who had some very clean well-grown produce.

Miscellaneous collections of fruit, vegetables, and plants were numerous. Some good samples of Apples, Cabbages, Savoys, and other vegetables, with wonderfully fine specimens of Celery, were contributed by Mr. W. Poupard, Twickenham. Mr. Wright, gardener to Sir Charles Freake, Bart., had excellent specimens of Alicante and Gros Colman Grapes, with Apples. Mr. J. Howell sent a number of baskets of highly coloured Apples. Mr. W. Mann, The Warren, Whitton, showed a fine collection of Apples. Mr. J. Walker, Whitton, had a group of well-grown Cyclamens. Messrs. Hooper and Co. had a beautiful group of Carnations in pots. Mr. Bates also contributed, in addition to the central group, two stands of incurved, Japanese, and reflexed, blooms of good quality.

CLONMEL ROOT, FRUIT, AND FLOWER SHOW.

This was held on the 14th inst. in the spacious Skating Rink and adjoining promenade grounds under the management of the President, Lord Lismore, and a special Committee of the local Agricultural Society, but the head and front of the labour, and I may add success, devolved on the respected and energetic Hon. Secretary, Rev. J. R. Millington, rector of an adjoining parish. The number of entries exceeded that of all previous years, and comprised some splendid specimens. There were competitive and non-competitive collections. Take the latter first. A magnificent collection, a show in itself, was sent from Friar's Walk Nursery, Cork, by Mr. Saunders, and consisted of eighty-four different varieties of fruit, principally Apples and Pears, that elicited a "very highly commended" from the Judges, Messrs. Freeman and Benson, assisted by Dr. Hamphill. Seventy-two distinct varieties of Chrysanthemums, some really fine, and fifty cut blooms of Orchids, stove and greenhouse plants—these also received a special prize from the Judges, and right well they deserved it, remembering the time of the year and the distance from Cork, as well as their special merit. Messrs. T. Phelan, Spring Gardens, and F. Clibborn, Anner House, staged some really well-grown Chrysanthemums, incurved and Japanese being specially good; while the writer had specimens of Chou de Burghley, marked "Very highly commended," and deserving of extended culture, and was much noted by vegetable connoisseurs, to whom it was new.

I should require a special number of the Journal to do justice to those entered for competition; but before coming to these exhibits I must refer to the fine collection of some two dozen of the newer varieties of Potatoes sent by Mr. John Hunter from Dumfries, Scotland. Two remarkable varieties were Queen of the South and a coloured kidney, white eye, named Sir Garnet Wolseley, for early; Mammoth Pearl and Adirondack (coloured) for midseason; and he recommends Bresce's Peerless and White Don for the general or late crop. While Mr. Hunter deserves every encouragement, I must say I am certain none of his fine-looking varieties are likely to displace Magnum Bonums and Champions, which won first prizes in the farmers' classes, and deservedly. I grew thirty varieties last year, and for the general crop the two just named are still pre-eminent.

Taking fruit in the competitive section next, from local causes, change of gardeners, planting and transplanting, this was the only department behind other years, in the case of Apples especially. Though Ireland was not represented at Chiswick there was an abundant yield. For collections of fruit Mrs. Thomas Malcomson, Minella (gardener, Mr. John Crehan), took first prize, and had conspicuously good Gros Colman Grape, Doyenné Boussoch Pear, and Hawthornden and Ribston Pippin Apples. Lord Lismore (gardener, Mr. Fraser), Shanbally Castle, was second, and had fine specimens of Catillac Pear and Lord Suffield Apple, and what is rarer at this time of the year, a local seedling Melon. Nearly all the prizes in the sections for black and white Grapes, dessert and baking Pears, not less than two varieties, went to Mrs. Malcomson and her excellent gardener, Mr. Crehan, already mentioned. The next most important entries from a gardening point of view were the collections of garden vegetables. Here the competition was close between Lord Lismore and Capt. Moore, Barne (gardener, Mr. Heneberry), for the silver cup, which ultimately went to the former, and was won last year by the latter. The third prize went to a very select but smaller collection from C. Winston Duggan, Esq., M.A., Adelaide House. Of the thirty varieties in each collection some were admirable. Among the rest, Conover's Asparagus and Orangefield Tomatoes in the first, Carter's Dwarf Red Celery and outdoor Mushrooms in the second, and splendid Scrymgeour's Brussels Sprouts in the third. The collection from local cottagers in Cauliflowers and Onions were said by many to exceed those already referred to, and none was better pleased at this than the gentlemen themselves.

The collections of farm produce contained some things well grown, as Lucerne, Queen of the Valley, and White Elephant Potatoes, and various fine varieties of grain and roots not meet to go into the Journal. The first prize went deservedly to B. P. Phelan, Esq., J.P. The principal prize-winners in the various root classes, farm produce, were Sir John Gough, Knockeven; Capt. Bagwell, Marlfield; Abraham Denny, Tramore; Capt. Barton, Grove; Robert Coke, Kithnain; Capt. Moore, Barne; W. Tennant, Fethard; Thomas Lalor, Cregg; Thomas K. O'Mahony, W. E. Johnston, Esqs., &c. In grain the prizes went to many of the gentlemen named, and so of poultry, which I cannot intrude on your columns here. I may here fitly notice that some of the best-filled classes were for labourers' cottages—plants in flower grown by cottagers, cottagers' fowl, flannel, specimens of mending and darning, needlework, socks, hives of honey, and so on. Prizes for these several objects you will be glad to hear were offered, principally by the Benevolent Irish Peasantry Society of London, and warmly contested. I venture to say you and many of your readers will be pleased at all this good work.—W. J. MURPHY.



KITCHEN GARDEN.

Jerusalem Artichokes.—The stems may now be cut from these close to the ground, and the tubers should be all dug and stored in the same manner as Potatoes. The finest of them may be kept by themselves for use in the kitchen, and the small ones for seed.

Herbs.—These are mostly over for the year. Young Sage, Thyme, and other plants raised from seed sown last spring are dwarf plants requiring no attention at present; but old beds of these, Fennel, and such like, have much old wood about them, and this will never be any good. It should be cut off and thrown away; or if the plants are very old the tops should be cut from them and dried, then throw away the old plants and raise a new stock next spring. Tarragon and Mint should have all the stems cut level with the ground, and then a good dressing of manure should be spread over the surface to feed and shelter the roots.

Autumn-planted Cabbages.—The open weather hitherto experienced has been much in favour of these, and many of the first planted are now strong and established. In many cases weeds will show amongst them, but must be destroyed by hand-weeding or hoeing. All plants which are tall enough to be earthed up should have a quantity of soil drawn firmly up to their stems with a drag hoe. This affords them both support and protection during the winter.

Growing Crops.—Autumn-sown Onions, late Spinach, and all young crops should be kept quite free from weeds at this season, and if the Dutch hoe is run between the rows when the soil is dry it will benefit them considerably.

Salading.—Chicory roots should be lifted, potted, or placed in boxes in a Mushroom house or cellar to produce fresh growth, which is most valuable as a winter salad. Where frost is likely to injure Lettuces, Endive, &c., the plants should be lifted with a good ball of soil attached to each, and planted in frames as close as they can be placed together. The lights must not be put over them until frost comes, and then air must be freely admitted on all favourable occasions. Mustard and Cress will grow readily in any house or pit where the temperature is about 60°. The hardy winter Radish requires no protection, but previous to periods of frosty weather we have had to lift a batch of them and store them in a shed until it thawed.

Cauliflower.—These are turning in well this autumn, and we have frequently large numbers ready for cutting before they are wanted in the kitchen. This is sure to be the case in many instances, but the time may come soon when frost will make them more scarce or stop the supply altogether, and care should be taken of all that can be had now. It is a good plan to cut the heads before they become too large, take the greater part of the leaves from them, and then place them in a dark cool shed with the stem inserted in damp sand or leaf soil. We have frequently a large stock in hand in this way, and we find them most convenient and useful, as they may be kept good for three or four weeks in this way.

Leeks.—These should have more soil placed to them, as they cannot be too much blanched, and should the winter prove severe they may be frequently called for before the spring.

Cucumbers.—The summer plants will now all be cleared out, and the winter plants should have the best of treatment. The day temperature should be kept up to 70°, and at night the heat should never be less than 65° with a bottom heat of 75° or 80°. Steady temperatures are much better than having a great heat at one time and allowing it to fall at another. Weak guano water should be given them whenever they are watered at the roots. Syringe to keep down insects, and as soon as the fruit becomes large enough for use cut them off, as allowing them to hang will prevent more from forming readily.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—Attention having been paid to the directions given in former calendars, the house and trees will have been properly cleansed, and the trees tied-in ready for a start by the middle of this month, where fruit is required ripe in April or

early May of such kinds as Alexander, with Hale's Early and Royal George to succeed, all of which are fine in size and excellent in quality. Lord Napier Nectarine is a capital companion. The house being closed at the middle of the month, or if not it must not longer be delayed; but unless the weather be severe no artificial heat need be applied until the buds show signs of moving, when gentle firing for a few hours in the early part of the day may be employed to raise the temperature to 50° or 55°, which should be the day temperature, advancing 5° to 10° from sun heat, maintaining the temperature at from 40° to 45° at night. If the roots are in inside borders, as they certainly ought to be, they should be carefully supplied with tepid water until every part of the border is made thoroughly moist; then a good bed or ridge of thoroughly sweetened fermenting materials being introduced, a moist genial atmosphere of great advantage to the trees will be insured, and found sufficiently exciting in all but very severe weather for the first fortnight or three weeks. Give air on all favourable occasions (*i.e.*, between 50° and 55°) as a means of sweetening the atmosphere and securing a strong vigorous blossom. Syringe the trees, walls, and paths twice a day in favourable weather.

Second House.—The trees in this structure have been exposed to the weather for some time, and the house, trees, and everything put into thorough going order so as to be ready for a start at the proper time, which to have ripe Peaches by the middle of June should not be later for such varieties as Royal George and Grosse Mignonne than the middle of December, the house being closed at that time, and fire heat applied on the 1st of January; but if early varieties are relied upon the house need not be closed until later, as Alexander will come in four to six weeks before Royal George under the same conditions, and so will Early Beatrice, but it is far too small, whilst Hale's Early precedes Royal George by at least three weeks. The lights may be replaced and the house freely ventilated in favourable weather, keeping closed only in severe weather. The inside border should, if at all dry (as may be the case where lights are fixed), be thoroughly watered, and the outside border protected with dry fern or litter, and with a good slope to the front, so that when covered with lights or shutters the wet will be thrown off.

Succession and Late Houses.—Have all the trees pruned, dressed with an insecticide, which to be effectual must be applied in such a manner as to reach every part, and where the trees have been infested with insects they should be attended to at least twice at short intervals. The house being thoroughly cleansed, and the trees secured to the trellis, remove the loose surface soil, and replace with fresh material. Examine the borders, and if there be a deficiency of moisture in the soil give a thorough soaking, for to allow the trees to become dry at the roots when at rest is a certain means of causing the buds to drop when they should be swelling.

Pines.—During the next two months very little aid can be expected from sun heat, consequently the treatment afforded will necessarily be restricted to artificial means almost exclusively, and will demand considerable time and attention to secure and regulate the atmospheric conditions suitable to the plants in the different departments. The winter minimum temperatures should now be in force—*viz.*, 55° for suckers, 60° for succession, and 70° for fruiting plants at night. These temperatures should be regularly enforced in all but very severe weather, when a few degrees less will be better than the harsh condition of the atmosphere resulting from very sharp firing. In the fruiting department the temperature should be raised 5° to 10° higher every day, according to external influences; and successions that are expected to show fruit must be given the treatment advised for fruiting plants, but the other plants need not have the temperature artificially raised by day, or only a few degrees. Great care must be exercised in watering at this season, especially in the case of plants plunged in beds with but a slight degree of heat, and should only be given when absolutely necessary, and then in a tepid state.

PLANT HOUSES.

Allamandas.—Where plants are intended to flower for some time longer they must be in a sufficiently high temperature to keep them growing, or they will soon cease flowering. It is a good plan to top-dress the soil with some rich material, which will soon be taken possession of by the roots, and add much to the vigour of the plants, and their season of flowering will be prolonged. These plants must never be allowed to suffer by an insufficient supply of water as long as their flowers are required, but, on the contrary, should have stimulants given to them every time they require water. Any that are required for early flowering next season must be kept dry at their roots, and in a temperature that does not exceed 55° at night, so that they will receive that complete rest so essential to success. If the wood is hard and well ripened they may be pruned close back, leaving only one or two eyes of the new wood. If the plants have not attained their full size they need not be pruned so close; more of the young wood may be left. Succession plants must gradually be brought to rest by withholding the supply of water at their roots. This must be done with care until the foliage and the wood become ripe and firm, when water for a time can be withheld altogether.

Heaths.—Early-flowering kinds that were cut back late in the season, and have in consequence failed to make a good well-ripened growth, and are only flowering poorly, may now be cut over without further delay, and allowed to start into growth gradually for another year. Plants subject to this treatment at the present time are starting again before the majority are cut, and are ready early next season for placing in cold frames. Plants that flower in conservatories, and other structures that are kept gay, are often checked when they are brought out, cut down, and placed in the greenhouse that is kept several degrees cooler. This is not the case with plants that have been under cool treatment and can be cut down now, for they have every opportunity of making an early growth, which by early

autumn will be well ripened and set with flower buds. We have found it an advantage rather than otherwise when a few of the late-cut-back plants fail to flower, for they have a long season before them, and are in the best possible condition for flowering in early autumn, and seldom they fail, even if the season proves a bad one. A sharp look-out must now be kept for mildew, and directly it is discovered dust the plants or affected parts with sulphur, which must be washed off the plants after this destructive parasite has been destroyed.

THE BEE-KEEPER.

NOTES ON BEES.

PRACTICAL MANAGEMENT.

IN giving our views on bee-management we shall confine ourselves to what we consider the best method of proceeding with the particular hive which has been the subject of these papers, and give as briefly as possible an outline of the plan we pursue, beginning with the time of hiving a swarm into it. We shall presuppose that the reader is already acquainted with the ordinary details necessary for managing bees, and that our province will be merely to explain how to apply that knowledge to the plan of working here advocated.

HIVING BEES.

The hive is supposed to be prepared to receive the swarm (fitted with full sheets of foundation or narrow strips as may be preferred), and on the stand it is intended to occupy permanently. When it is known that a swarm is on the wing, withdraw the wedge front altogether and hook on the large alighting-board to the floorboard; this is all the preparation necessary. When the swarm is hived as usual in a skep, bring the bees to the hive and throw the bulk of them out on to the alighting-board, slip one hand through the cane handle at the top of the skep, and give a sharp rap or two on it with the other; this will dislodge the remainder. In the evening reinsert the wedge front and all is complete. Should the swarm be an unusually large one, or if the weather is very hot at the time, do not wedge up the floorboard till the following morning.

A second method, as follows, is perhaps the most suitable for novices or those inexperienced in handling bees. After taking off one of the four parts of the hair quilt, fold back as much of the wood quilt as is necessary, and remove five frames into the "spare frame box;" set the latter with its side close to the opening thus made, throw the bees in (the side of the box will guide the falling mass into the hive), and replace the frames gently while the swarm is running for shelter under the covered part of the frames. When all the latter are in position push the divider close up to them, lay the wood quilt over the bees, and allow the stragglers to enter by the feedhole. Do not close the roof quite down for an hour or so.

The time occupied in hiving a swarm by either of these methods need not exceed five minutes, and if there is a simpler way we have yet to learn it.

There is just one drawback to the plan of hiving a swarm by tossing it on to the alighting-board in front of the hive, and that is the slight risk of the swarm taking wing and returning to the spot where they first clustered. This will only happen when the bright sunshine glares fiercely on the front of the hive at the time; and if an umbrella is held open for a moment to screen the bees from the sun till they begin to enter, or if the swarm is hived in the evening, all will be well. As experience is gained the bee-keeper will generally practise the quickest and readiest mode.

AFTER MANAGEMENT OF SWARMS.

Natural swarms when hived on full sheets of comb foundation should have completed most of the combs and be ready for supering in about fourteen or sixteen days after hiving, that is supposing fine weather to have continued during the time. When it is seen that the honey is coming in fast, set a grate of sections on, so that they will cover nine frames on one side of the live, remove as many of the end frames as contain honey only to the *outside* of the divider, pushing the latter up towards the sections as the frames are removed. We thus crowd the bees up and make them take to the sections sooner than if the hive had not been contracted. The honey should be carefully slung from these frames, as the combs will be very tender, and they may be replaced in the hive or not, just as the season is more or less advanced, or as the queen requires room for egg-laying. Suppose four or five frames to have been removed in this way, it still leaves a fairly large brood chamber of fourteen frames, so sometimes the extracted frames are not returned at all to the hive from which they were taken, but are used to assist second swarms.

When making artificial swarms three frames of combs are removed with the queen, and eight or nine frames of comb foundation given in addition. In about a week two more frames may be added,

and in a few days, as progress is made, give the remainder. The centre entrance only is used during the first year unless in exceptionally good seasons.

We must suppose that our readers are fully aware of the necessity for feeding swarms for a few days if the weather is at all unfavourable.—W. B. C., *Higher Bebington, Cheshire.*

HOW FAR WILL BEES GO FOR HONEY?

THIS is a question that has been addressed to us by a gardener, who states that bees find their way into his Peach-house every year, and he knows of no hives nearer than one and a half mile. On this subject Mr. Pettigrew has a short chapter in his "Handy Book of Bees," which we cite:—"This question we cannot answer with accuracy. Our experience in this matter goes dead against the wonderful stories that are told in some books. We read of bees flying four, seven, and twelve miles for food! Our bees will perish and die for want of food within three miles of good pasture. Our bees here never find the hundreds of acres of Heather which cover Carrington Moss within three miles of them. In fine sunny weather bees go farther from home than they do in dark cloudy weather. But even in the best and brightest of weather in June and July very few, if any, find their way home to their old stand if removed three miles off. Moreover, the return of some bees does not prove that they travel three miles in search of food. It proves that some of them go a little more than one mile and a half from home, and finding themselves on known pastures within one mile and a half of the old place, they return thither, forgetting, as it were, where they last came from. I am therefore of opinion that very few bees go more than two miles for food.

"It is very desirable to have bees near the pasture on which they work. Short journeys are not only a saving of labour to bees, but also a protection of their lives. When compelled to fly far for honey they are often caught by showers and destroyed. In warm genial weather, with a superabundance of honey in flowers, bees will have it. They go beyond the bounds of safety for it. Gentle showers do not stop outdoor labourers. Black clouds often send them hurriedly home; but they are frequently caught, and die on the altar of their industry. Hives containing 8 lbs. and 10 lbs. of bees have lost two-thirds of their ranks by sudden showers in warm honey weather. Bees driven to the earth by showers do not die at once. If the following day be warm and fair the rays of the sun sometimes reanimate these storm-beaten creatures, and enable them to return to their hives."

TRADE CATALOGUES RECEIVED.

N. Davis, 66, Warner Road, Camberwell.—*Catalogue of New and Old Chrysanthemums.*

Joseph Unthank, 25, Spring Terrace, North Shields.—*List of Dutch Bulbs.*

W. Leighton, 89, Union Street, Glasgow.—*Catalogue of Forest Trees.*

John Downie, Edinburgh.—*Catalogue of Roses, Fruit Trees, and Conifers.*

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Hardy Herbaceous and Alpine Plants.*



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

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

Vine Roots Unhealthy (B. C.).—We have examined the roots carefully and find no symptoms of the attacks of the phylloxera. They appear to have been grown in a wet border and inert soil. Fresh soil is what they need—good loam with an admixture of bones and wood ashes, with efficient drainage to carry off superfluous water.

Chrysanthemums Sporting (T. Grant).—It is far from common to find a Chrysanthemum two-thirds yellow and one-third pink; but we have seen this more than once. It is not unlikely that your plant may throw a pure yellow sport some time or other. The one you have sent is a very near

approach to that; but the variety, at least as represented by the example before us, appears to possess little merit.

Buck's Scarlet Rhubarb (Cambridge).—We are quite unable to say from whence you can obtain roots of this variety. Those who have the true variety for disposal would do well to advertise it. It is one of the best small early sorts in cultivation.

Planting a Mulberry (E. M. S.).—We have no doubt a Mulberry would grow and fruit in your garden. It thrives quite as well near towns as Apples do. In all probability the Tea Rose Niphetos would succeed fairly well, and it is well worth trying. We had an inquiry for a few volumes of the Journal the other day. What are the dates of those you have for disposal, and the price you require for each volume?

Breeze for Stoking (A. J. S.).—Breeze mixed with coke would answer admirably for your boiler, but can only be had at the price named in or within a short distance of the colliery districts. It will be necessarily much more costly in your locality, yet much below the price of coal. We do not think it would answer in your case if not mixed with coke broken small.

Late Lilliums (H. J. G.).—Lilium auratum is extremely variable in its time of flowering, but it is usual for bulbs planted in March to flower long before November. Yours is an exception to the rule, and perhaps not unwelcome; we have known similar instances of very late flowering. We are not able to answer your other question, as we have no Tasmanian catalogue of hardy plants. You could obtain seeds of many hardy border flowers, and these we should take and raise plants from them. This would be the cheapest and readiest way of establishing a stock, and you do not say you want named varieties.

Writing to Correspondents (C. H., Antwerp).—Every week we publish a request at the head of this column that "no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense." We regret that this request has been so widely ignored that some of the most competent writers have felt compelled to hide their identity under a *nom de plume*. We repeat that all letters of inquiry should be addressed to the Editor, and the information needed will be given sooner than by any other means. We forward such letters as in our judgment should be sent to departmental writers and publish their replies; and we shall be glad if any of our esteemed coadjutors who receive letters from readers will forward the same to us, together with any reply they deem necessary for publication. So far as regards yourself your letter to "Single-handed" will be answered; but your non-compliance with our published request has caused some delay.

Leaf Soil from Oak Leaves (Subscriber).—Some of the best leaf soil we ever used was that from Oak leaves, which formed where the leaves fell. In Oak woods and coppices we have always noticed that where the Oak leaves accumulated as top-dressings among the brake there the brake grew best, and there in time was formed a half peaty-like bed that was unsurpassed for general plant-growing, and more especially Ferns. There is tannic and also some gallic acid in Oak leaves, but it is so small as not to be harmful; and you may satisfy yourself of this by examining the roots of any vegetation near or among the leaves. Moreover, tannic acid is soluble, and when leaves have lain damp in the position, and for the length of time you name, very little tannic acid will be left, even supposing it not to be decomposed, which it readily does under conditions that turn leaves to soil. But a simple way of testing whether a sample of leaf soil is unwholesome or not is to sift some with loam and sand and to strike cuttings of some plants with fleshy roots and examine these. If they root freely and, on examination, are found healthy, all is right. But even if not, it is hardly likely that tannic acid will be the cause of the mischief. Let us know whether you succeed with yours.

Climbing Plants for South-west Aspect (A. M. B.).—A mixture of deciduous and evergreen plants is the most satisfactory both for the charm of variety and for the pleasant clothing of green in winter. Four plants would suffice for your space planted in the following order:—Escallonia macrantha, with handsome glossy evergreen foliage, with deep pink flowers which come abundantly in early summer and again in autumn. We have several plants of it, some of which have still a few perfect spikes of flowers. Next to it plant Jasminum officinale, which is almost hidden beneath its thickly clustering fragrant white flowers in summer; and its free growth spreads quickly, and soon mingles with anything growing near it. Then take Berberidopsis corallina, a perfect gem among evergreen climbers, with deep green foliage and dark red flowers, which come in pendant clusters of miniature rosettes in autumn; and the sweetest of all Honeysuckles, Lonicera flexuosa.

Evergreen Shrubs for a Bank (Rus in Urbe).—If the shrubs were to be altogether under the branches of the trees your choice would be restricted to three or four sorts, but we gather from your letter that they will be partly under and partly near the trees, and therefore you may give a trial to such choice flowering shrubs as Berberis Darwinii, B. stenophylla, B. Wallichiana, Mahonia aquifolia, Diplopappus chrysophyllus, Escallonia macrantha, Garrya elliptica, Ligustrum japonicum, Ulex europæi flore-pleno, Spartium junceum, S. multiflorum, Buddlea globosa, and of Laurustinus the common form, with lucidum and Sieboldii. If the Rhododendrons answer in your soil a large proportion of the best varieties would materially enhance the beauty of your bank, and no shrub answers better than Rhododendron ponticum under the shade of trees. Vases on a wall 14 feet high are so difficult of access that the failure of your Clematis is only what might be expected, for without copious watering twice daily in the heat of summer plants could hardly live, much less thrive, in such a position. Your idea of clothing the wall with Ivy plant in the vases is impracticable. Plant the Ivy in rich soil at the foot of the wall and it will soon mount upwards in rich luxuriance, and a few branches trailing over the vases would have a graceful and picturesque effect.

Culture of the Orange (M. S. P.).—To grow the plants well, and to fruit them freely, they must be treated liberally. We have found the following mixture suit them well:—Two parts good turfy loam, one part of fibrous peat, and about the same quantity of sheep or pigeon's manure, adding to these a good quantity of sharp sand and lumps of charcoal; the whole must

be well and thoroughly mixed together. The peat and loam should be chopped with a spade into moderate-sized pieces, but upon no consideration should it be sifted. Orange trees, when growing, should be kept in a temperature of 60° or 65°, and treated to copious showers from the syringe two or three times in the day; indeed, at any time, saving when they are in flower, occasional syringing is very beneficial, though it must be resorted to in a less degree during the blooming period than in the growing season. These plants can withstand uninjured a very low temperature, but are certainly better if kept at about 48° during winter. The Citrus family must have good exposure to the sun to induce them to flower and fruit freely; yet, as the leaves will become yellow and sickly-looking if fully exposed, they must have a certain amount of shading during the brightest part of the day during summer.

Ranunculuses (J. C.).—The tubers may be safely stored in a mixture of sawdust and cocoa nut fibre refuse, quite dry or in dry sand. The best season for planting is in the early spring, as soon as the most severe frosts have passed and the ground has become tolerably dry. Some time about the end of February or the first week in March, rake the surface of the bed in the morning of the day previous to that fixed upon for planting. Supposing, then, that the weather is propitious, and all things prepared, commence by drawing with a hoe a drill across the end of the bed 1½ inch deep; if deeper the roots will be weakened the succeeding year, by forming a kind of stem nearer the surface; and if shallower, the plants are more liable to be struck with drought. The drill being drawn the right depth, plant the whole of No. 1, and press each tuber slightly down into the ground; plant them, if large, 4 inches apart in the row; if small, 3½ inches will be a sufficient distance. Draw a second drill 5 inches from the first, and so on until the bed is finished. Cover the crowns of each tuber with fine sand. This will cause the tubers, when they are taken up in July, to come out of the ground quite clean for keeping. Then, with a short-toothed rake, draw the soil over the tubers, and when it is level, with the head of the rake gently press the soil pretty closely upon them. The soil should be retentive of moisture. The best kind is the virgin mould of some alluvial soil on the banks of a river or some lowland pasture. It should be of a rather close texture, without any small stones or sand amongst it. If the situation is low, with a wet subsoil, it must be well drained; but if the subsoil is dry there is no necessity for drainage. If the soil should be thought too poor, a small addition of decayed cowdung will be advisable; but it must be so decomposed as to appear like a black powder. Let it be thoroughly mixed with the soil at the present time, and again forked over in the spring before planting.

Culture of Vallota purpurea (W. E.).—An experienced grower has described the following successful practice in these pages:—The compost employed should consist of turfy loam with a little decayed manure and leaf soil, with sufficient coarse sand to keep the soil open. In potting place three bulbs in a well-drained 6-inch pot; if bulbs are scarce have one in a 3-inch pot, but I recommend the former practice where possible, as the plants will flower profusely and make a beautiful display. In potting place some of the roughest of the compost over the drainage, then three parts fill the pots with soil, and press it down gently to prevent it sinking too much. If 6-inch pots are used place the bulbs a little distance apart to allow the growth of offsets. Tie the bulbs to a small stick to keep them steady, give a good watering through the rose of a watering can, and transfer the pots to the greenhouse, assigning them a position near the glass, and the bulbs will soon commence growing. Never permit them to be insufficiently supplied with water, and in the summer months they should be sprinkled overhead. When the pots are quite full of roots and the flower stems appearing, weak guano water may be given twice a week. After flowering remove the flower stems, as they exhaust the bulb; the pots can then be placed in any sunny part of the greenhouse, so as to have the bulbs well ripened. The soil must not be allowed to become dust-dry at any time, not even in the winter months. The Vallota is increased by offsets. The small bulbs can be taken in the spring, and are either potted singly in small well-drained pots, or placed in pans in a compost of half loam and leaf soil with a little sand, and if placed in a warm part of the greenhouse they will soon produce roots. To flower the plants well they must be rootbound, and three bulbs in a 6-inch pot will not require a larger pot for three or four years providing the drainage is open.

Names of Fruits (Arthur T. Clarke).—Very curious. You will see something like it in next week's Journal. If not the Stoup Leadington we do not know what it is. (R. A. Turriff).—1, Devonshire Quarrenden; 2, Gravenstein; 3, not known. Pear, Beurré Diel. (F. M.).—1, Winter Colman; 2, Red Doyenné; 3, Cockle's Pippin; 4, Round Winter Nonesuch; 5, Ashmead's Kernel. (Fifteen-years Subscriber).—1, Beauty of Kent; 2, Yorkshire Greening; 3, Flanders Pippin; 4, Doctor Harvey; 5, Lemon Pippin; 6, Gloria Mundi. (G. B. C. W.).—It certainly is not Fearn's Pippin, and on further examination we should say it is a local variety. We saw nothing like it at the Apple Congress. Several parcels of Apples which arrived late on Wednesday morning will receive attention in the next issue.

Names of Plants (G. Q.).—1, Cestrum aurantiacum; 2, Aspidistra lurida variegata. (J. C.).—Polyporus ajustus, a rather common species in some parts of the country.

COVENT GARDEN MARKET.—NOVEMBER 21ST.

LITTLE alteration to quote this week. Best Apples coming shorter and commanding better prices. Kent Cobs fat. Vegetables in good supply.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 4 0	Melons	each	2 0 to 3 0
"	per barrel	0 0 0 0	Nectarines	dozen	0 0 0 0
Apricots	box	0 0 0 0	Oranges	100	6 0 10 0
Chestnuts	bushel	10 0 0 0	Peaches	dozen	0 0 0 0
Figs	dozen	0 9 1 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts	lb.	1 0 0 0	" dessert	dozen	1 0 5 0
Cobs	per lb.	1 6 0 0	Pine Apples English	lb.	2 0 3 0
Grapes	lb.	1 0 3 0	Plums and Damsons	..	0 0 0 0
Lemon	case	15 0 21 0	Strawberries ..	lb.	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	lb	0 0 0 0	Mustard and Cress	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 3
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	" Kidney	cwt.	4 0 5 0
Carrots	bunch	0 4 0 0	Rhubarb	bundle	0 4 0 0
Cauliflowers	dozen	2 0 3 0	Salsafy	bundle	1 0 0 0
Celery	bundle	1 6 2 0	Scorzoneria	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	basket	1 9 2 0
Cucumbers	each	0 4 0 0	Shallots	lb.	0 3 0 0
Eudive	dozen	1 0 2 0	Spinach	bushel	2 6 3 8
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 3 0 4
Leeks	bunch	0 3 0 4	Turnips	bunch	0 0 0 0
Lettuce	score	1 0 1 6			



IMPROVED DAIRY CATTLE.

(Continued from page 434.)

AFTER having given our experience and confirmed it by undoubted authorities, amongst whom are Mr. W. Houseman, Mr. Ledgard of America, and also Mr. D. E. Wheeler of Lake View Farm, Natick. These gentlemen, together with various eminent breeders of the Guernsey cattle both in the island and in various parts of the kingdom, tell us plainly that without great care in selection of the bulls for use we may not obtain what we require—viz., the assurance of the quality of cream for butter-making as the result of the potency of the male animal in breeding from any animal either of pure blood or partially mixed breed. In selecting our bulls the type and character is of the greatest importance, and to illustrate our model we will speak of a bull shown at the Tunbridge Wells Exhibition of the Bath and West of England Society in 1881, of the pure Guernsey blood, which we find well portrayed in the *Agricultural Gazette* of August 8th, 1881, fig. 13. This animal exhibits great length of body, deep in the fore quarter, with a fine arched neck and crest, which is heavy, and finds its basis near the shoulder-top; we therefore do not expect in the male animal the same bare and narrow shoulder point which we so much value in the cows as one of the indications of true milking capacity. It often, however, that it has a tendency to lower the chine and depress the outline when bulls are the offspring of deep milking cows, but it should be understood also that it is one of the corrections or alterations we require in the conformation of our improved animal, which we have a right to expect may be the result of a cross with the Shorthorns from careful selection, and by keeping steadily in view the objects which we require.

It is now necessary to take up the question of mating the animals, for we have chosen six Shorthorn heifers of fifteen or sixteen months old, as before stated, as to colour, type, and parentage; we have also chosen two pure-bred Guernsey bulls two years of age. We have now the opportunity of mating the animals so as to obtain the advantage of correcting any slight deficiencies of form from either side by mating the animals with this object, and this idea may be carried out with the same animals if mated with judicious variations the second year. In every instance if a heifer does not prove pregnant by the first mating, be sure to change the bull (as we have two for use) in order that we may have if possible no barren or unfruitful animal, for such must be discarded when found. After all the heifers are proved or supposed to be pregnant they should be carefully kept on grass or roots and hay, without cake or artificial feeding stuffs of any kind or quality. The same moderate system of feeding should be adopted with the bulls, although they will not, or should not, be running at liberty on the pastures, as they may be soiled with green fodder, such as Trifolium, Clover, and Rye-grass in their pens.

The construction of pens for all the male animals of the Channel Island cattle requires consideration, because, although the Guernsey bulls are more docile and better tempered than Jerseys or any cross-breeds, yet the benefit to be derived, as well as the security from injury to the animals or their carer, is so great, that we always advise a hovel under cover of about 12 or 14 feet square, and an outer yard adjoining of about 16 or 18 feet square, for service when females are admitted. The plan we adopt in separating the outer part from the inner shed is to

make the severance a moveable panel, which may be drawn or closed by a handle outside the pens to be used by the herdman, in which case any operation, such as littering the pens or feeding the bull, which may be done under cover through a drawing shutter adjoining the feeding trough or rack. This affords the greatest measure of safety, for the herdman need not at any time be in the actual presence of the bull, and when not being fed or expecting company, the outside as well as inside space will be available for the health and exercise of the animal, which is far preferable to the tether. Under this style of pens the herdman is always safe, as he need not be in the company of the bull for any purpose. When, however, not tethered, bulls after two years of age frequently injure the divisions of the outside fences of the apartments with their horns, and we find no fence so suitable as fir or elm slabs or planks like railway sleepers set upon end, well secured with stout iron hoops.

After the heifers have calved their management is of great importance. First we should notice the shape and capacity of the udder, if with full-sized teats so much the better; but it must be remembered that milking them by hand, or partly so, is of the greatest consequence, not only to freeing the udder of milk entirely at each time of milking, but the learning, or so treating, the young animals to stand quietly to be milked, and especially for the first few times after calving. In fact, it is a standing rule of ours to allow the calf to suck during the time of hand-milking for the first few days, and afterwards to hand-milk away a portion of the milk, leaving enough for the calf, which will thoroughly clear out the udder at each milking, so important for various reasons. The calf, too, should always be in the presence of the heifer when milking by hand is commenced, otherwise she will not always give down her milk freely. By adopting these modes of management by a quiet good-tempered milkman, we shall soon learn the capabilities of each animal, and be enabled to reject any unsuitable ones during the first year of breeding.

In the second year of breeding the same bulls may be used, but changed for mating with such individual females as judicious selection may dictate. After the heifers have calved the second time we even then have but a few animals to select from, because some may be bull calves as usual. After selection as well we may have but a few to choose from and decide upon retaining, for in the third year of the experiment, when the first fall of heifers which have been selected for breeding the third time, we must of course mate them with bulls not previously used. This circumstance obliges the obtaining another one or two bulls, but in doing this be sure and go to the best herds in Guernsey, or the best Guernsey herd we can find; for now occurs a critical period which will extend over five or six years, or even longer, because the longer time during which our endeavours to obtain the exact style, type, and capacity is extended, and the same good judgment carefully carried out, the more likely we shall be to succeed in obtaining stock animals capable of transmitting those characteristics which we have endeavoured to secure.

If our readers have followed our statements on this subject they will notice that in addition to the absolute necessity of selecting pure-bred bulls of the Guernsey blood, and then as the offspring increases selection must still be made the only sure grounds on which to proceed, and to save or breed from no animal which has not acquired the form, colour, flesh-making, yet milking capacity, to the extent we require and have sought for. How many years it would take to obtain the desired race of stock cannot be stated, but at any rate it must not be less than seven or eight years before we could use with safety bulls raised from our selected stock of females; but it would be far better to extend the experiment over ten years at least, during which time none but the best bred bulls of the pure Guernsey stock should be used. Now to assist in the completion of our experiment it may be best to secure the help and co-operation of another person with similar objects in view, in order to meet successfully any of the various contingencies of life and position of the experimenters, so that the value of the improved cattle may be assured as much as possible for the future benefit of dairy farmers in general as for the advantages of the original breeders or experimenters.

WORK ON THE HOME FARM.

Horse Labour.—Horses have been almost continually employed up to the present time in preparing land for and seeding with Wheat, but upon anything like strong flat-lying land it has been difficult to use the horses every day, for since the dry weather broke up in October both the land intended for Winter Beans or Wheat has suffered hindrance and delay, unless upon farms where three or more teams of horses are available. In this case the land may be ploughed and worked sufficiently for the drilling of beans to follow in the same way as for Wheat, except that before drilling the beans land requires more working than it does for

broadcast sowing for Wheat, which may be ploughed land after land or ridge after ridge and may be sown and finished off. But in drilling Wheat it is not so safely done as fast as the land is ploughed, because more horse power by numbers is required to finish off the land quickly. Drilling at the wide intervals of 10 or 12 inches between the rows is an actual necessity where the land is subject to such weeds as may be indigenous to the soil, like yellow cress, black bents, onion grass, and couch, because in certain seasons when rainy weather prevails. In the spring, however, a fine interval of only a few days may be sufficient to enable the horse hoes to be used if the drilling has been done of a sufficient width for horse hoes to proceed, for with flat hoes in work they may be advantageously used. In the case, however, of broadcast seeding or close drilling the horse hoes cannot be used with success, nor can the hand hoes, which require much time for a staff of men to accomplish the work be done effectually if followed by showery weather, whereas after the horse hoes if the weeds do not die off they may be hand-picked by women. Those fields which have been steam-cultivated since harvest and have been worked down, and the couch either burned or carted away, may be ploughed to lie for the winter, whether required to be cropped with Potatoes or Lent corn in the spring, or for root crops in the early summer months. It is, however, an important question as to the best mode of ploughing and leaving the land during winter. By different farmers on various soils we shall find advocates for clean ploughing in ridges, or to lie in stetches; some parties, however, advocate the lying of the land to be left rafter-ploughed. Experience and the nature of the soil as well as the next crop required exert some influence on the mode of proceeding, but Mr. Lawes has lately informed us that a bare fallow is often the cause of loss of some fertility when washed by the heavy winter rains. It therefore appears that in case the land is not foul with twitch or couch that it may be sown with catch crops in the autumn, and tilled for roots afterward the green crops are disposed of, but in those cases where the land is foul it may well be rafter-ploughed, in which event the land will not lose much fertility, because the couch will be spindling more or less in open weather. When dry weather commences in the spring the rafters may be reversed with the plough, and cleaning of the land proceed easily so long as favourable weather continues, whether the land is intended for early Potatoes, Lent corn, or Mangold, Carrots, and Cabbage. It is, however, only on friable loamy soils that this latter method can be carried out with benefit, for on strong land if it loses fertility by a long fallow, yet fertility and an ameliorated soil will be the result if the land is lying during winter deeply ploughed in ridges or stetches about 30 inches wide. In case a long fallow is rejected Vetches may be sown and fed off during summer, or, like Mustard, ploughed in with two crops during the summer. The land will then not only be fallowed and cleaned, but will be manured also, a matter of great importance on strong land where dung-carting is not advisable, especially on fields lying away from the farmery.

Live Stock.—The weather peculiar to the month of November varies from frost to rain. Now either of these variations are bad for animals which may have to live and feed in the open fields. This applies principally to sheep, and the pregnant ewes should now be allowed the driest soil on the farm for their night lair, but nearer to lambing time a dead fold well littered. With respect of their food they should have grass only on a dry pasture, but in case of receiving a small quantity of roots some dry fodder is necessary for maintaining their health and condition. All young store cattle, either heifers or steers, will now require dry pasture for their night quarters, feeding the low-lying or water meadows not in flood only during the daytime.

OUR LETTER BOX.

Food for Milch Cows (A. G., Betturbet).—You could not give the cows better food than Cabbages and Parsnips during the winter. Both vegetables are nourishing and wholesome.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain		
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
1893.												
November.												
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sunday	11	29.821	40.4	38.0	W.	44.0	48.0	35.3	75.1	29.5	—	
Monday	12	29.814	36.7	35.0	N.	43.1	45.6	33.3	78.6	26.0	—	
Tuesday	13	30.043	36.7	35.6	N.E.	41.7	45.4	28.7	62.7	20.3	—	
Wednesday ..	14	30.224	37.9	36.8	N.	40.7	44.4	32.8	71.8	23.8	—	
Thursday	15	30.035	31.6	31.3	N.	40.2	42.3	29.3	56.0	21.4	0.235	
Friday	16	29.639	48.3	47.4	S.W.	40.0	50.2	30.9	64.3	25.6	—	
Saturday	17	29.523	42.3	40.8	S.	41.3	49.8	32.0	60.2	26.3	0.159	
		29.921	33.1	37.8			41.6	46.7	31.8	67.0	24.7	0.394

REMARKS.

11th.—Fine, bright, cold day; misty towards evening.
 12th.—Bright, fine, and cold; moonlight night.
 13th.—Thick white frost in early morning; fine throughout and cold; moonlight night.
 14th.—Bright sunshiny morning; overcast afternoon; fine evening.
 15th.—Thick white frost and rather foggy early; fine day.
 16th.—Rain in early morning; fair day.
 17th.—Rather dull generally. Squall of wind and rain 1.30 P.M. till 2.30 P.M.; fine afterwards.
 Nights generally very bright, causing great radiation, and therefore sharp frosts on grass. Temperature much below the average.—G. J. SYMONS.



COMING EVENTS

29	TH	Royal Society at 4.30 P.M.
30	F	
1	S	
2	SUN	1ST SUNDAY IN ADVENT.
3	M	
4	TU	
5	W	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.

STRAWBERRY FORCING.

IN the majority of places Strawberries are more or less extensively forced, the object, as a rule, being to have ripe fruit as early in the new year as possible, and to maintain the supply until the outdoor crops are ready for gathering. Yet, frequently the forcing of this delicious fruit has to be done upon what for want of a better name may be termed the "makeshift" principle—that is, grown in vineries, Pine stoves, Peach houses, or in any other structure where a shelf or two can be fixed. From the middle to the end of January is as early as ripe Strawberries, with the best accommodation for producing them, can be gathered from plants of Vicomtesse Hericart de Thury, which had been layered into the fruiting (6-inch) pots six months previously, and liberally and judiciously treated during the interval. A good batch of these plants, selecting those having the plumpest crowns, should forthwith be taken to the potting shed to have the bad leaves and a little of the surface soil removed, and some pulverised horse droppings and loam added as a top-dressing. The pots then, having had the drainage made efficient, should be plunged in a bed of new leaves within a few inches of the glass in a pit from which frost can be excluded. They should then have some water to settle the new soil, after which further applications will probably not be needed more than once or twice before their flower stems appear, which they will do in three or four weeks if the pit is kept close and the plants carefully tended. The pots should then be washed and placed on shelves near the glass in a forcing house. One suitable for this purpose would be a low span running east and west, having a pathway down the centre and a couple of shelves suspended on each side near the apex, the air being admitted through the front sashes (about 21 inches deep and 4 feet wide), and a box 10 inches deep and the same width fixed in the ridge, the lid being raised and lowered by means of a crank and piece of sashline. Such is the outline of one of the houses recently erected here in three divisions for growing Strawberries and Melons, and for which purpose it answers admirably. We are thus provided with a good forcing house, and without which gardeners cannot reasonably be expected to produce and maintain supplies of early Strawberries and other fruits.

In order to prevent a blank occurring in the supply of ripe Strawberries from the time the first dish is sent to table until ready for picking out of doors, it will be necessary to start a batch of plants in the manner indicated at intervals of a week or ten days, so that there shall be always a good succession of plants in various stages of growth to fill the shelves as they are vacated by plants from which the ripe fruit has been gathered.

TEMPERATURE.—In the process of forcing plants, fruits, or vegetables it is best for the cultivator to first consider the most favourable conditions under which the finest examples of such are naturally produced out of doors, noting the maximum and minimum temperature prevailing through the various stages of the plant's growth. These temperatures

should be the guide, varying them a little, if need be, to suit the other occupants of the house. Thus a night temperature of from 45° to 50° when the Strawberry plants are in flower, and 10° higher by day with fire, will be sufficient, increasing 5° or 10° by sun; but during the interval from the setting to the ripening of the fruit the night temperature should be gradually increased to 60°, or higher if necessary, with a corresponding rise in the temperature by sun.

CROPPING THE PLANTS.—As the flowers develop pass a small camel's-hair brush over them about midday when dry to assist the work of fructification, repeating the operation daily until a fair crop of fruit is set. But with the advent of spring and an increase of light and sunshine the brush can be dispensed with, as a good "set" can be obtained without its aid—the hand passed lightly over the blossoms, which will then be plentiful and strong, or a gentle spray from the syringe, being sufficient to distribute the pollen. When the fruit is set select ten or twelve of the best (crown) berries of uniform size, so that they may all swell and ripen together, when the fruit can be gathered and the plants removed to a hardening-off pit or house. Having selected the best berries, a few, more or less, according to the strength of the plants, remove the superfluous parts and all flower spikes that show between this and the ripening of the crop should be kept pinched out, otherwise the result will be unsatisfactory.

ATMOSPHERIC MOISTURE AND VENTILATION.—No hard-and-fast line can be laid down in the distribution of moisture in forcing houses, for, like the admission of air, it must be regulated in accordance with the character of the weather and time of year, temperature of the house, and stage of growth at which the plants and fruits may have arrived. However, we may say that Strawberry plants started under the influence of fire heat will require to be syringed once or twice on most days until they come into flower. A somewhat dry and buoyant atmosphere must then be maintained until the fruit is set, when the syringe can again be brought into use, using it, however, with judgment and somewhat sparingly during the dull months of December, January, and February. After the fruits are set and until they commence colouring the plants may be syringed three or four times a day in bright weather, the last time just before dark. By so doing the foliage will remain damp all through the night, and in the morning have the appearance of having been exposed to a heavy dew, which is then their natural condition. When the plants are in flower, and again when the fruit is approaching maturity, it will be necessary, especially so in air-tight houses, to leave a little ventilation at night and to ventilate freely (weather permitting) during the day.

WATERING THE PLANTS.—Give no slight surface watering, but a thorough drenching to the roots when they require it, and from the time the plants throw up their flower scapes until the fruit commences colouring they should have weak liquid manure alternately with clear water. Peruvian guano, about a 3-inch potful to ten gallons of water, is an excellent fertiliser, the use of which imparts perhaps a higher colour to the fruit than any other liquid manure, but it should be used with caution and judgment. Care should be taken in watering the plants not to pour it indiscriminately over the fruit and crowns, but pour it in at the side of the pot.

VARIETIES FOR FORCING.—A knowledge of the varieties of Strawberries most suitable for forcing being almost as necessary as that of their culture, I will give the names of the best and most reliable varieties for this purpose, which should be started in the order in which their names appear—viz., Vicomtesse Hericart de Thury, La Grosse Sucrée, Keens' Seedling, President, Sir Joseph Paxton, and a few of James Veitch, the latter variety more for the size than the quality of its fruit.

INSECTS.—*Red Spider and Green Fly.*—In early forcing establishments red spider is the most troublesome and destructive insect (excepting the three plagues, phylloxera,

mealy bug, and Pine scale) that gardeners have to contend with, and its presence on the Strawberry and other plants should be prevented by judiciously balancing the temperature and atmosphere of the house; but should it attack the plants, it must be repelled by a vigorous and well-directed use of the syringe and clear water. The application of sulphur in a liquid state to the flue or hot-water pipes to arrest the ravages of spider should be the last resort. Respecting fly, a slight fumigation with tobacco paper a couple of evenings in succession before the flowers expand, and again after they have set, will be sufficient, should the syringe not do so, to rid the plants of this pest.—H. W. WARD.

P. S.—In my remarks on wintering Strawberries in pots, in the Journal (p. 420), four lines from the bottom of the note on this subject, for "32 feet" from the wall, read "3 feet."—H. W. W.

LILIUMS.

(Continued from page 414.)

L. Szovitzianum, Fisch.—A very elegant Lily, very frequently met with under the names of *L. colchicum* and *L. monadelphum*, but more generally known by the one here adopted. It grows from 2 to 5 feet high, reaching the maximum height only when established, with stout stems well furnished with lanceolate leaves, and terminated with a raceme of flowers from two to twelve, rarely more in number; perianth nodding, from 2 to 3 inches across, clear sulphur-coloured spotted inside, with a very strong perfume. Native of the Caucasus and Northern Persia, flowering towards the end of June and July. It is a very beautiful species, thriving well planted out in rich loamy soil. I have known it frequently to die away in two or three years when planted in peaty soil, but in loam it will stand and improve much longer; in fact, I know of some clumps which have been in their present position eight years, and they were magnificent this season.

L. testaceum, Lindl.—The Nankeen Lily, often met with under the aliases of *excelsum* and *Isabellinum*. It is one of the most distinct of all the species of *Lilium* as far as colour goes, very much in habit like the old white garden Lily. Stems from 4 to 6 feet high, copiously clothed with dull green foliage. Flowers from three to ten, umbellate or racemose, the perianth 2 to 3 inches across, of a yellowish buff colour, and sweetly scented. Mr. Baker thinks it may be a garden hybrid between *L. candidum* and *chalcedonicum*, and it is said to have been first observed in a bed of seedlings at Erfurt. It is really a charming Lily and greatly appreciated, thriving well in light well-drained soil well enriched with manure, flowering towards the end of July and August.

L. Thunbergianum, Schultes, fil.—Very frequently called *elegans*. It represents a very large series of dwarf extremely showy Japanese Lilies, very serviceable either for pot culture or for beds and borders. It is extremely difficult to describe the normal form, as there is such a diversity even in specified varieties. I will simply enumerate a few of the best varieties now well known in our collections—*alutaceum*, pale apricot, with rather large flowers, very dwarf; *armeniaceum*, flowers bright orange, not dotted; *atrosanguineum*, perianth deep blood red, spotted below, with very broad segments; *fulgens*, deep red, scarcely spotted, very free-flowered; *Van Houttei*, deep red, with a distinct yellow blotch in the centre of each segment, with very open and broad perianth; and there is the duplex variety, which is very dwarf, with deep-coloured semi-double flowers. All these and several others are well worth growing, and as they are most easily managed and very cheap there is no reason why they should not be much more extensively planted than they now are.

L. tigrinum, Gawl. (the Tiger Lily).—A well-known old garden Lily, growing freely under most conditions, and flowering copiously. It is too well known to need description. As well as the typical form, there is a very fine variety under the name of *splendens*, which flowers much later, and the flowers are very much larger, set with larger dots; and there is the double-flowered kind, which is very handsome and lasting when in flower. This should especially be sought and planted.

L. Washingtonianum, Kellogg.—A very noble Lily. It grows from 3 to 5 feet high, with the slightly glaucous leaves in whorls. Flowers numerous, in rather close racemes, large, white when first expanded, some becoming shaded with pink inside; very sweetly scented, with the segments revolute at the top. Native of California, occurring on the western slopes of the Sierra

Nevada. This magnificent species grows freely in rich loam soil in a well-drained position, flowering in July and August.—T.

SEAKALE.

IN the culture of Seakale, like many other things, there is more than one road to success. Your correspondent "B." (page 415), gets his supply by planting out the old stools that have been forced, and forcing them year after year. Like "B.," we have long since abandoned the old plan of forcing in the open ground, but obtain our supply of Seakale by a very different mode of procedure. Your correspondent says—"This is not the time to enter into the preparation of the plants," while we are now (November 19th) preparing our next year's stock. We lift the whole of our crop as soon as the leaves are dead, cut them about 8 inches long, and lay them in in a border where they can be covered with leaves, so that they can be easily obtained when wanted, even in hard frost. The long thong-like roots that have been cut off are then cut into 6-inch lengths, and laid in thickly amongst some light sandy soil in a warm corner, and covered with about 6 inches of leaves. By the 1st of March these will be showing signs of starting, and the leaves must be removed, but in the event of sharp frost they will have to be protected at night. As soon as the land is in good condition after the middle of March, we plant these out in rows 2 feet apart and 8 inches between the plants, and we never fail to have a good supply of roots for forcing. When planted out a little ridge of coal ashes is placed over the rows. This keeps off slugs, and the young growths have rarely to be thinned out, as only one or two of the strongest get through the ashes. Some years ago we used to plant old stools, but never do so now, finding young stock more to be depended on.—R. INGLIS.

PELARGONIUM v. GERANIUM.

I WILL endeavour to help "H." out of his difficulty because many others, perhaps, are in want of an easy distinction between these genera. There need be no confusion whatever. In general terms Pelargoniums are sub-shrubby, while Geraniums are herbaceous, having annual stems, and some species are annual plants, though there are a few exceptions so rare that they need not be regarded. They do not even belong to the same tribe, and the floral differences are extensive enough. Some of the tribal differences are that the flowers of Pelargonium are irregular and have no glands, the flowers of Geranium being regular with glands alternating with the petals. Then there is a difference in the number of fertile stamens, with other generic characters we do not want now for the present purpose, after putting these genera so far apart. The derivation of the names has no bearing whatever upon this question. The broad and clear line of distinction desired by "H." lies for all practical purposes in the difference of habit, that being the difference there is between a Michaelmas Daisy and a Monthly Rose. It is to no great extent a question of what people call things, for popular errors are not very uncommon; but there is some reason for the popularity of speaking of Pelargoniums as Geraniums. It is a survival, I suppose, from the time of Linnæus, who had only his genus Geranium, in which he included the plants since separated by L'Héritier, when knowledge increased, under the title of Pelargonium. This, I believe, without research, is the history.

The "confusion" between Viola and Pansy does not lie on the same lines, because they are all equally Violas. Gardeners used Viola cornuta and V. lutea some years ago for bedding, and the derivatives obtained by crossing with the Pansy they called Viola. They were so called for convenience, and there was no error, but it would be equally correct to call the Pansy Viola. Viola in this application has become a popular name, and it is useful as pointing out the hybrids. If gardeners will hybridise (in doing which they are perfectly right), they can but obliterate original landmarks, and so it has been in this case.

By the way, it is not a bad illustration, when "H." would have botanists classify on broad lines that can be seen at a glance, to point out that in a certain sense the whole of the vegetable kingdom is like these Violas with no lines drawn anywhere. If botanists could do as "H." proposes, what happy men they would be! Had life been created for this to be possible we could never have had a Darwin, and if the systematic botanist existed at all, it is difficult to conceive the kind of man he would be. I do not say that there are no plants which are not separated by broad and clear lines from all other plants. To be understood, let me compare the vegetable kingdom to the land of a continent. There are some plants so different from all others that they stand away like islands, but the majority of plants group together like the countries of a continent. Then the genera are counties if you like, and the species are parishes; but when you come down to hybrids and other forms like these Violas, you can only liken them to fields, which are as like in themselves as they can be. Nature cares nothing about these arbitrary boundaries and frontiers, but, on the contrary, is free as the wind, and cares nothing about the limitation of a species which, in the abstract, is not real but purely imaginary. You had very good lines of demarcation between the original Pansy and the other species of Viola before the hybridist came and levelled them down, but now there are two or three adjoining parishes without hedge or ditch, and you get from one extreme end to the other by insensible gradations. Now in this question of Pelargonium versus Geranium, "H." evidently wants to put the sheep on one side and the goats on the other, but let me ask him, supposing that these genera were more closely related than they are, as many suppose, why there should not be a meeting-point around which

the species might be as correctly referred to one genus as the other. It is not the case here, but it is the case with other genera. If "H." will lay down a broad and clear line between the vegetable and animal kingdoms he will never be forgotten, for Nature has not even done that.—R. I. L.

A NEW GARDEN.

THE KITCHEN GARDEN.

Drainage.—Roughly stated, enough rain falls annually in this country to cover the entire surface of the soil to a depth of 2 feet. What becomes of all this water? In most cases it disappears as it falls, being promptly absorbed by the soil; the plants growing in it take up a certain quantity, but the bulk of it sinks down in undrained soil to a depth determined by the nature of the subsoil, which is generally so compact that it retains much water near the surface, where it becomes stagnant and unwholesome. The baneful effects of such shallow water tables are clear and unmistakable, and may thus be explained:—

- 1, The soil becomes sour and unfit for the food of many plants.
- 2, Its temperature is so low even at midsummer that growth is slow and crops backward.
- 3, This lowness of temperature arises from the accumulation of so much stagnant water near the surface, its temperature at a depth

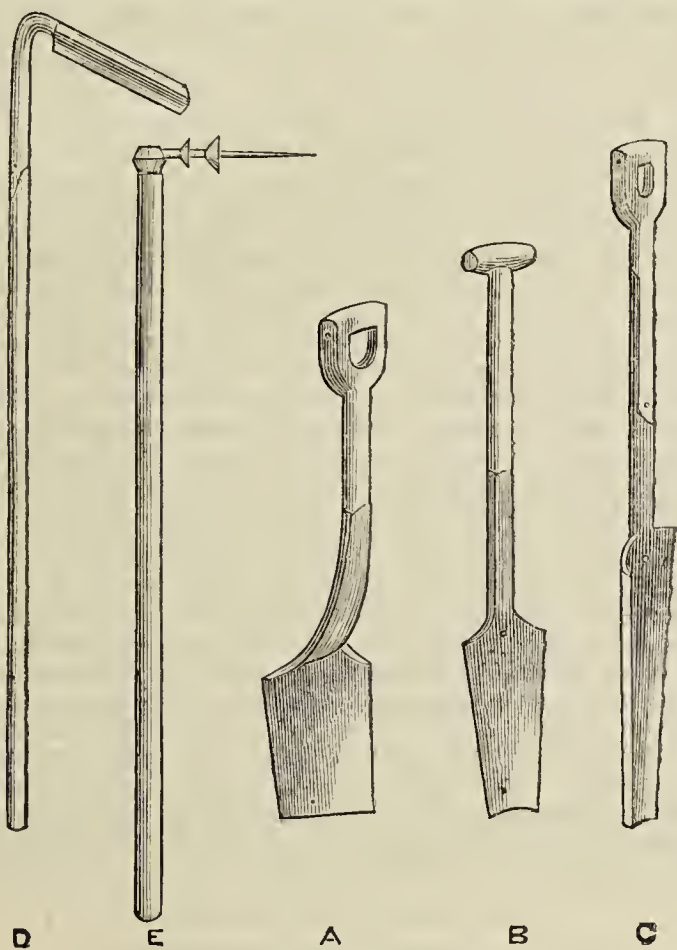


Fig. 89.

of 2 feet being only 47° in the heat of summer. It chills the soil above it, as it constantly ascends by capillary attraction. It chills the atmosphere by evaporation so much that frosts at midsummer are by no means uncommon. Early frosts in autumn destroy tender vegetables prematurely. The frosts of winter are of exceptional severity, and are proportionately destructive, and with the late frosts of spring hopes of a fruit crop repeatedly vanish.

Soil that is thus, in the words of quaint old Tusser, "with water opprest," is certainly in an unsuitable condition for a kitchen garden, and must be drained before anything else is done. Considerable diversity of opinion exists as to the position and depth of the drains; but it is not at all a matter of mere opinion, for we have the sure evidence of practical results for our guidance. As a general rule the best depth for drains is 4 feet from the surface, because by keeping the water table at this depth we get rid of all hurtful upward spreading of water by capillary attraction, and the attendant mischievous evaporation which I have already explained, and no water can then accumulate in the soil permeated by the roots of vegetables or fruit trees. "How can I have drains 4 feet deep," said a gentleman to me once, "when I have only 3 feet of soil upon a bed of granite?" I know, too, a garden with a shallow soil of less than 2 feet upon chalk. But neither of these nor similar cases at all affect my position. Thirteen years ago the site of the new garden here was drained with 2-inch pipes at a uniform depth of 4 feet, and with the drains 30 feet apart running into a main 4-inch drain. Now, the soil consisted chiefly of silica in such minute particles that its

tenacity closely approached that of pure clay, water passing through it so slowly that much remained upon or near the surface for a considerable length of time after a heavy shower of rain. But then the fact of its certain subsequent improvement for the growth of vegetables and fruit pointed so unmistakably to a radical change in which mechanical division must be so thorough that superfluous water would sink to the drains quickly even at that depth, and no hesitation was felt in doing it. Certainly nothing could be more satisfactory than the result. From the first the drains have acted well and since the soil has been improved it becomes dry so quickly, even, after heavy rain, that successional cropping can always be done in due season. A rich, friable, warm, fertile soil, in which many half-hardy plants pass unscathed through the severity of winter weather now exists where once its cold, sodden, inert, and almost barren condition gave very little promise of successful cultivation, the first and most important step towards which was undoubtedly the drainage.

Warmth and dryness are not, however, the only benefits which the soil derives from thorough drainage. A certain degree of fertility also naturally results from it, for the vacuum made by drains beneath the surface gives admission to air laden with fertilising gases, such as carbonic acid, oxygen, and ammonia; not, it must be owned, in sufficient quantity for the requirements of gross-feeding vegetables, but still in some degree promoting the soil's fertility.

Turning now to the actual details of the work, it will be well to explain them so fully that a beginner may be enabled to see clearly what to do and how to do it. With very few exceptions, then, the drains are to be 4 feet deep and 30 feet apart, and each drain must run from the higher to the lower part of the garden into a main drain. Take, for example, the kitchen garden here, which slopes gently from north to south. The first drain was made 15 feet from the west wall and parallel to it, starting from the foot of the north wall and running down to the main drain 10 feet from and parallel to the south wall. The second drain is 30 feet east of and parallel to the first, and the other drains follow regularly at the same distance throughout the garden, all of them being of ordinary land drain pipes 2 inches in diameter and 1 foot long, except the main drain, which is of similar pipes 4 inches in diameter, without socket or flange of any kind, but quite plain, as shown in B, fig. 90. In digging the trench for the drains three spades are required like A, B, C, fig. 89, the top spit being taken out with A, the next with B, and the bottom with C, thus avoiding all unnecessary removal of soil. The bottom of the trench is then cleaned and hollowed with the scoop, D, fig. 89, and the trench is then carefully examined before a single pipe is put in it in order that any faulty work may be set right. This is important for the drains are usually made by the perch, and unless the workmen are closely looked after the work will not be well done. The pipes are laid with E, fig. 89, and the soil put back again, the drain then being complete as shown in the section A, fig. 90. When the garden has no slope it sometimes proves difficult to give the drains the necessary gradient to carry off the water quickly. A good way of overcoming this difficulty is to make several short diagonal branches emptying into a main drain, so as to secure the few inches of fall without materially lessening the depth of any of them.—EDWARD LUCKHURST.

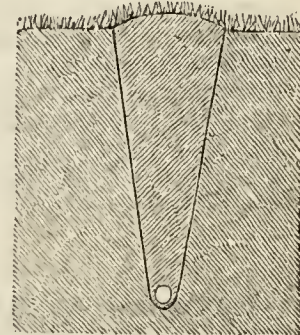


Fig. 90.

(To be continued.)

CYPRIPEDIUMS.

AMONG *Cypripediums* there are many varieties; and while there are some with nothing particularly beautiful about them, there are others that command much admiration for their striking and beautiful appearance. The old *C. insigne*, though now considered common and therefore not so highly prized as otherwise it would be, has qualities of beauty, freedom of flowering and long-lasting, that entitle it to a place in every collection. Then there are the improved forms of *C. Chantinii*, *C. Maulci*, and *C. punctatum violaceum*, all of which are extremely fine, the last being a real beauty, and still high-priced. *C. Dominionum* and *C. caudatum* present forms both curious and beautiful, and exemplify some of Nature's wonderful versatility. *C. villosum*, and the improved variety *aureum*, are varieties that combine beauty with a certain massive appearance—when large specimens are concerned—that go far to make them striking features in a collection. Turning from these large handsome varieties, *C. niveum* presents an appearance of delicate *petite* beauty that makes it a great contrast to *C. villosum*. A good pan of *C. niveum*, with twelve or eighteen blooms on it, is really an attractive object, and seldom fails to be admired by all who see it. Then we have the bright-flowered *Sedeni*, almost always blooming, and adding much to the colour of a house of Orchids. *C. Spicerianum*, when first introduced

became at once a favourite, and seems to be fast becoming one of the most—if not the most—admired of the family.

The varieties of *Cypripedium* are being added to, either by importations or crossing—some fine forms having been produced by the latter agency—so that those intending to begin forming a collection are sometimes at a loss to know which to select. No one can, however, err in obtaining all the varieties named, and if they possess these kinds they are sure to admire them and seek to add further to their collections.

Most of the *Cypripediums* are of easy culture, and when not in bloom have the advantage, which too few Orchids possess, of handsome foliage. When cut and placed in water the blooms of many last for six weeks or two months, which is another great recommendation. Altogether they form a group of Orchids that have so many good qualities that no praise that can be bestowed is undeserved.—INSIGNE.

CRICKETS AND COCKROACHES.

"J. W. R." should get a box of Hughes' tropical beetle powder, and use as directed—simply to place a little on some pieces of tile or slate, fresh every night, about the floors of his houses. I have used it, and advised others to do so, with good and satisfactory results. Of course it will require repeating, as fresh broods are hatched almost daily. I never found toads interfere with either of them, although very useful for destroying woodlice.—S. TAYLOR, *Acacia Gardens, Leeds*.

In reply to "J. W. R." respecting the above troublesome pests, I find the best thing to get rid of them is to feed them for a few nights with oatmeal, and when they eat it, add a little arsenic to some oatmeal by slightly damping the meal to make the arsenic adhere to the oatmeal; then spread it thinly on small pieces of thin board or slate, and place it of an evening where they abound, removing it in the morning out of the way of cats and dogs. This will soon clear off all crickets and cockroaches.—N. CAMPANY.

In reply to your correspondent, page 445, I have seen a very successful capture of these in a very plain and easy manner. Place a bowl containing a small quantity of sour beer, or any strong-smelling liquid, with two or three pieces of wood to act as bridges or gangways, up which the beetles will crawl in large numbers. They fall into the liquid but cannot get out again, the sides being too smooth to obtain any foothold. I have seen the bowl half filled in one night—at least 200 beetles in it. They may be killed by pouring hot water over them.—JAS. THOMSON, *Kelso*.

WATERING PLANTS.

THERE can be no doubt that watering plants is often done in a most negligent manner, and it is frequently regarded as an easy and trivial operation of minor importance. This is not always the result of ignorance, but is often due to the fact that young men will not take the trouble to carefully examine the plants they have charge of. Watering is a very important operation, and much of the success that attends plant growing is due to a judicious use of the water pot. Those who make themselves masters of this operation are indeed valuable assistants.

Explanations and advice may be given from time to time on this subject, but it is most difficult to lay down any hard-and-fast lines or even to teach the exact time when and how watering should be done; in fact, it is a knowledge that can only be attained by intelligence and experience. To merely tell a man to be careful with a certain class, say of hardwooded plants, or that you are particular about the manner in which they are watered, is insufficient. With remarks similar to these they often allow the plants to become thoroughly dry before they apply water, and more hardwooded plants are sent to the rubbish heap through being kept too dry than from almost all other causes. To water these plants properly the soil in their pots should never be destitute of moisture, or they will be seriously injured, and months of careful watering afterwards will not repair the damage done by neglect on one occasion. Their delicate fine fibry roots are destroyed in a few minutes after the soil has become thoroughly dry. Their leaves soon turn a sickly yellow, eventually fall, and no after treatment can restore the plants.

In watering these plants an intermediate state should be provided as far as possible. It is, I am aware, impossible for them always to be kept in this stage, but overdryness can and must be prevented if any success is to be attained. Water should be applied just before the soil becomes dry, and if this is insufficient they should have a second or even a third application to soak thoroughly the whole mass of firm soil. During summer these plants may with safety be watered before they approach so dry a stage as is necessary at this season of the year. In summer, when examining these plants, they may scarcely be sufficiently dry to need water, but with one or two hours' bright sunshine they would in all probability suffer. These might safely be watered at that season of the year. At the present time plants in the same condition would stand one or two days, and later in the season perhaps for nearly a week, but the weather must be taken into consideration.

During the period when these plants have completed their growth and resting they must never be allowed to suffer by the want of water. Dryness at their roots while at rest is one of the greatest mistakes that can be made in the culture of these plants.—W. B.

PROTECTING OUTDOOR CAULIFLOWER AND BROCCOLIS.—For several years back I have grown Cauliflower plants outside on a sunny border

during winter, and in nine winters out of ten the vast majority of them did better than if grown and coddled in a frame, and of course give no trouble whatever, except the trifle I am going to tell of how the thing is best done. I sowed Carter's Dwarf Mammoth, Early London, and Early Defiance—this last as an experiment, as it is more tender than the others, and of finer quality—on small beds in the end of July. They are now strong, have been dusted with fresh soot to scare away slugs a week since, and yesterday have had what, for want of another better word, I must call a top-dressing of dry loam between the plants. The object of this top-dressing is to cover the stalks, for I find if the generally long stalks are safe the leaves and hearts are secure. I shall pit those now against the most carefully watched and air-given frame plants, and, what is important, I never find them to "button."—W. J. MURPHY, *Clonmel*.

GLADIOLUS THE BRIDE.

It is difficult to say how long this beautiful plant has been known in English gardens: one thing is certain, until very recently its merits were not appreciated. Whether re-christening of the old *G. Colvillii* alba with the attractive designation heading these notes has influenced public taste, is a matter of little moment. Happily it is becoming much better known and very largely employed for its intrinsic value in floral decorations. Wherever white flowers are in great demand this is one of the most useful plants possible to cultivate. There are several reasons why I make this assertion. The colour and substance of the flowers is precisely what is requisite; it can be forced readily, and can be had in bloom over a very lengthened period, and it increases freely even under pot treatment if liberally grown. As large as has been the demand for this *Gladiolus* in some quarters, I am in a position to know that at the present time it is absolutely unknown to a large number of gardeners; and when we take into consideration the multitude of amateurs whose garden is only secondary to the chief business of life, most of whom are unacquainted with it, there is ample reason why the pages of the Journal should be the medium of bringing it at the present very opportune season before the notice of the flower-loving community. Of course, at the very mention of *Gladiolus*, more than half the world think you are referring to some half-hardy plant which requires to be coddled in some warm cupboard during the winter, and ever carefully watched after being planted in the spring; whereas this variety is perfectly hardy, increasing rapidly in the open ground, and should be planted or potted in autumn in preference to the spring, as they are subjected to unnecessary and most prejudicial drying if bottled up through the winter out of the ground. What few corms I have out of the ground or pots will be speedily transferred to their permanent quarters, and I recommend all the readers of the Journal desirous of trying it to secure their stock without delay, either for pot or border culture. Several clumps of bulbs which were not raised in early autumn are pushing up the narrow leaves through the soil, and will be able to hold their own against winter's cold. If required for forcing several corms should be put in a pot, when they should be placed in a cold frame or plunged outside in ashes of cocoa fibre until root-action is fully resumed, when they may be subjected to a higher temperature, finally placing them in the forcing pit as required to be in flower. No plant is more easily managed in this respect. During this year I had them in flower from March until September, and they were greatly admired when employed with other plants for decorative purposes, while the flowers were equally appreciated, and constantly being asked for. Yes, The Bride was really a general favourite. I hope these remarks will secure for her a wider circle of friends.—T.

SIX MONTHS IN A VINERY.

THE principal leaves are larger than when I made my last note. Many of them now measure 11 to 12 inches across and 12 to 13½ long. The side shoots or laterals have extended too—*i.e.*, the stems measure further from leaf to leaf, so that they overlap slightly where the rods are not more than 4 feet apart. Most of the sub-laterals have been stopped once, and in some instances where they made a second start the second bud has been taken clean out with the thumb-nail, for although the roof is not yet entirely covered it will be as much so as is desirable by the time the growths already allowed have stretched out to their fullest extent.

Tying down has now been completed, not from choice, but from necessity, as the space above the trellis is too limited. The bunches, which are fast approaching the flowering stage, have strengthened satisfactorily, and are rebelling against their unnatural pendent position, which the horizontal tying of the laterals has brought about by turning up their points to the light. These will come down again when the fruit has grown sufficiently heavy to bring them down naturally by its own weight.

On the 25th February we had a bright, clear, and mild morning. A little air was given by sliding down four of the lights a couple of inches each at 8.30, increasing to double that amount at 9 o'clock and closing at 1 p.m. No more air was needed till the 1st of March, when the management was about the same. The next day we had some sunshine with a bracing east wind—too bracing, we thought, to admit more into our vinery than could go through the laps. On the 3rd and 4th, although there was a little frost, the air was not quite so

harsh, and we again admitted some of it at 8.30, closing at 1 o'clock. No air was given on the 5th, as it was not bright long at a time.

The morning of the 6th opening brightly, we gave a little ventilation at 8 A.M., and closed the house again at 10 on the appearance of clouds.

The 7th was the beginning of a very cold spell of weather. Our minimum thermometer outside registered 26° at 4 feet from the ground, and the one on the grass 24°; not a great amount of frost certainly, but the wind was brisk, and coming as it did after so much mild weather it was very trying.

There were occasional glimpses of the sun to warm up our house, and yet not sufficient to make it necessary to open the ventilators, so that altogether as far as foreing was concerned it was a beautiful day.

The next day was very much like it, only with the minimum temperature one degree lower, and on the 9th it was one degree lower still—viz., 24°, while that on the grass was down to 21°, and the wind was bitterly cold. Outside vegetation is very much cut up, but happily we have not been obliged to open our ventilators since the 6th.

This morning (the 10th) it is to be hoped the weather has reached the climax. Our minimum thermometer registered 17½°, or 14½° below the freezing point, and that on the grass has been down to 11°. There is ice inside the glass of all our houses, and in the vinery a few of the leaves which press up against the glass are frozen to it. The lowest temperature as indicated by a registering thermometer in this house was 54°, which is within one degree of the present regulation temperature, and is quite high enough for such severe weather. The mischief is owing to the trellis being too near the glass; it never ought to be less than 18 inches, and I much prefer a space of at least 2 feet. The sun unfortunately came out brightly as soon as it rose, and touching the leaves while they were still frozen, a few of them show the effects of these sudden changes, portions of them being reduced in appearance to tinder, but on the whole we have escaped apparently without much damage. We gave a little air at 7.50, or almost immediately the sun touched the house, and increased it at 8.30, it being very bright and calm at this time. About 10.30 some pieces of broken cloud appeared and the wind was a little brisk; we therefore reduced the ventilation, although the temperature of the house was about 80° and rose a little afterwards, and at 12 o'clock we closed it altogether with the mercury at 78°, which figure was maintained for a couple of hours later.

As there is every appearance of the frost continuing we decide to put a little litter on the outside border, which hitherto, owing to the winter being mild, has had no covering. A little of the driest litter we can procure is now spread lightly over the border, which has become quite hard on the surface, and ought certainly to have been covered before last night's frost. We shall remove this litter during sunny days and take it away altogether as soon as the weather changes.

The inside border was watered on the 7th and 8th, the area is about equal to a perch, and this received 840 gallons. 3 lbs. of two star crown manure, which is supposed to contain a considerable quantity of potash, was applied after it had received half the quantity of water, and the water was used at about 60°.—WM. TAYLOR.

SWEET PEAS.

As free-growing, profuse-flowering, pleasing-coloured and deliciously fragrant plants Sweet Peas will always command a place in our gardens, but considering their great value it is rather surprising that they are not cultivated to bloom much longer in the year than is generally the case. In an ordinary way when the seed is sown in the open ground in March the plants will bloom in June and continue until October, but later in the autumn and earlier in the spring they are not to be seen, and it is in this respect there is so much room for improvement. By sowing the seed in pots we have had them flowering freely until Christmas, and by sowing again in January they have bloomed in April, and at all times they are most acceptable. They do not require much heat to bring out the flowers; and for late blooming they should be specially prepared by sowing the seed in August, and not allowing the plants to bloom until October; and for conservatory decoration at this time they have few equals. There is yet another mode of growing them which I will point out for the benefit of those who have no glass houses. This is to sow the seed at once in the open ground, and grow the plants so obtained on as we might do the Peas for the kitchen. Seed sown in good soil in drills 3 inches deep now will soon germinate and produce plants which will flower well in May next, or before that time if the winter and spring are mild.—A KITCHEN GARDENER.

MEALY BUG AND SCALE ON VINES.

PERMIT me to say a few words respecting these, as the time is now commencing for cradicating this great pest. I should like to know if any reader of the Journal has tried Murray's Vine Composition for bug and scale on Vines and Peaches. It is the best I have ever used. I saw it last winter applied to some Vines which were very badly affected

with these insects and they are now perfectly clean, although the same had in previous years been dressed with various compositions without effect. I find it a first-class dressing for Peaches affected with scale, being quite harmless to the buds and a most effectual exterminator, and one which should be in every Vine and Peach-grower's hands, as we all experience enough trouble with these pests.—M. A. S.

CHRYSANTHEMUMS AT THE SLOUGH NURSERY.

ALL lovers of the Chrysanthemum, where the possibility exists, should visit the magnificent display Mr. Turner has provided for all comers. Having seen the annual display of Chrysanthemums at Slough for some years past, I think it safe to say the present Show has never been equalled. Certain it is the exhibitions at the Temple and other metropolitan centres do not reach the high quality to be found there. Three houses are filled with the plants, the square conservatory containing Japanese varieties only; a span house, over 100 feet long, with central path, being filled chiefly with large-flowering incurved varieties, forming sloping banks on either side of the pathway. The front lines are finely finished off with dwarf plants of the rich crimson Julie Lagravère and pure white Sœur Melanie in quantity, which has a very pretty effect. Another house, 50 feet long, contains more incurved varieties, and there are some of the largest flowers. Among these I noticed as being particularly fine, Jardin des Plantes, Bronze ditto, Barbara, Mr. Bunn (very fine), Refulgence, Beethoven, Beauty of Stoke, Prince Alfred, Princess Beatrice, Queen of England, Empress of India, Golden Empress of India, Mrs. Heale, Lady Hardinge, Beauty, the Rundle trio, Nil Desperandum, Novelty (fine), Yellow Formosa, and Jeanne d'Arc, a pretty variety having the waxy petals of White Venus faintly striped with violet, and finely incurved.

Among the Japanese extremely good were Madame C. Audiguier, large deep pink, of exquisite form, Fair Maid of Guernsey, Hiver Fleur, Madame Rendatler, Peter the Great, Comte de Germiny, La Nympe, Bouquet Fait, Criterion, Triomphe de Chatelet, Lady Selborne, Oracle, The Daimio, Royal Soleil, Meteor, and Duchess de Gerolstein.

A few very effective new varieties were M. Desbreaux; Safrano, pale primrose with yellow centre; F. A. Davis, fine crimson-red; Japon Fleuric very dark crimson, and Duchess of Albany. All the above varieties are well adapted for conservatory decoration, also for exhibition blooms. The collection throughout is in fine health, with foliage to the pot's rim, and promises to be in good condition for another fortnight.—C. H.

EARLY PURPLE-TOP MUNICH TURNIP

IN reply to the inquiry of "W. D. W." respecting this Turnip at page 429, I beg to say that it is the earliest and handsomest variety I am acquainted with, and on this account it is invariably grown by exhibitors of vegetables at the metropolitan and provincial early summer shows. It is, however, inferior in other respects to the Early Snowball and other early varieties, being tough and wanting in flavour.—H. W. WARD.

IN your issue of November 15th, "W. D. W." writes for others' experience of the above-named Turnip. I have grown this variety for three seasons. It is the earliest Turnip I am acquainted with, and it requires to be used in a very young state, or it loses its flavour and becomes pithy. The first season I grew it I made several successive sowings on a north-east border during spring and summer, but as I found the flavour of it inferior to many other varieties, I now only grow one small batch of it for early work. The best Turnip I am acquainted with for general crop is Veitch's Red Globe. It is of good flavour, handsome shape, remains a very long time fit for use, and stands the winter well.—N. CAMPANY, *The Gardens, Thedden Grange, Alton.*

PANSIES AND VIOLAS.

ABOUT the year 1874 Mr. Williams of London raised a true cross between a Pansy named Imperial Blue or Prince and the common Viola cornuta, which I believe was named Perfection, and is well known. Interested as I was at the time by his success, I repeated the cross, and obtained a pod of seed, from which I raised twelve plants which flowered the next season, the produce resembling Perfection, but the plants were rather dwarfer than that variety, but as regarded flowers were precisely similar. I crossed this hybrid, which I named at the time Viola "True Blue," with the pollen from various coloured Pansies, and had a considerable number of seedlings to bloom the following season. From the seeds so raised Violas became the fashionable flower, and the Floral Committee of the Royal Horticultural Society of London invited raisers to send their seedlings to be bedded out at Chiswick. When the beds were in their best state in June the Floral Committee went round and awarded certificates to the most meritorious. Of course the members had no knowledge of the raisers, as the beds were numbered. Messrs. Dean of London, Dickson & Co. of Edinburgh, Fromow, Robertson & Galloway, and myself competed. Five first-class certificates were awarded to Mr. Dean, four to Messrs. Dickson & Co., I was awarded six, and the other raisers also had several.

Great diversity of opinion existed at this time as to what were the distinguishing features of a true Viola, and the same difference of opinion seems to exist still. I have described exactly how my strain was obtained. They are true hybrid cornutas, rather long in shape, with the long spur or horn projecting behind the footstalk. Many of

the so-called Violas of the present day are simply bedding Pansies selected for their floriferous character and bright telling colours. I am not sure but those of my friend, Mr. Grieve of Messrs. Dickson & Co., in these respects excel any I have ever raised as hybrids. For dwarf habit and continuous flowering the hybrids are difficult to treat. In the months of June and July, however, few plants of any kind can equal the grand mass of blue seen in Messrs. Dickson's Tory, or the golden yellow of their Sovereign. These varieties have more of the character of the Pansy than the Viola, and most of their strains are of a similar character. Mr. Grieve and I have had many discussions on the subject, and I do not suppose he even maintains that there is much of the cornuta character in his Violas. In order to prevent my Violas becoming like Pansies I grow no Pansies in the same garden, and in that way have succeeded in perpetuating a true and distinct strain of dwarf, hardy, free-flowering bedders, which resist our harsh climate better than any plants I am acquainted with.—CHARLES STUART, M.D., *Hillside, Chirnside, N.B.*

WINTER KING GRAPE.

I SEE in the report of the Fruit Committee held at Kensington on the 13th, that Mr. B. S. Williams exhibited a Grape called the Winter King, but that confirmatory evidence was required of the way in which it was obtained. I am pleased to be able to confirm the account given of it, as I saw the bunches on the Vine a fortnight before it was exhibited, and must say that a finer Grape for winter could not well be seen. Fancy a Grape with the colour of an Ickworth Impératrice Plum, and with every quality which a winter Grape ought to possess, and we have that which has long been wanted.

For bold and striking individuality Winter King Grape is the most handsome in cultivation; in colour it is deep blue-black, which makes it stand out conspicuous from any other Grape known, and gives it a rich appearance hanging on the Vine. It is of robust constitution, a free setter, colours freely, rich, juicy, with a slight aroma similar to a well-finished Black Hamburgh. The way in which it was stated it was obtained was correct in every particular. A more striking effect of the stock upon the scion could not well be conceived.—J. GADD, *Gardener to Sir T. B. Lennard, Bart., Belhus, Aveley.*



WE regret to announce the death of MR. JAMES GRAY, the well-known hothouse builder of Chelsea, which occurred on the 24th inst., at the age of 73. Mr. Gray caught a cold last Thursday week, when returning from a meeting of the Committee of the Gardeners' Royal Benevolent Institution, with which he had for many years been associated, and this turning to bronchitis resulted in his death. Mr. Gray, originally a gardener, was a native of East Lothian, and being a good draughtsman and designer he, after practising his art, entered the works of the late Mr. John Weeks of Chelsea, where he was engaged for some years. Eventually he began business on his own account, along with Mr. Ormson, and they for many years carried on a very successful business, and afterwards they parted, each of them being the heads of large establishments. We are glad to know that Mr. Gray's works will be continued by his son, Mr. Alfred Gray, to whom we wish every success. Mr. Gray was grandnephew to the celebrated Johnnie Dowie, immortalised by the poet Burns and the Edinburgh literati of the last century as the keeper of that tavern which was their social haunt, and who was himself a man of no indifferent attainments. His funeral takes place this day (Thursday) at the Brompton Cemetery at 3 P.M.

— A LECTURE was delivered in the Parkes Museum, Margaret Street, Regent Street, on Thursday evening last, by Mr. Murray, on the POTATO DISEASE. The lecturer treated the subject in an able and practical manner, giving a life history both of the Potato and the disease. The lecture was illustrated by eleven diagrams. No hopes were given of exterminating the disease, but the introduction of a new species of Potato was favourably spoken of. Mr. Murray seemed to give most favour to the unpopular system of consuming or destroying all the Potatoes of one season, and obtaining seed from another locality and introducing them from a locality or country where they were free from disease. The lecture was followed by a short discussion.

— A LARGE sale of ORCHIDS IN FLOWER was held in Messrs. Protheroe & Morris's Auction Rooms, Cheapside, and a number of Orchid growers were present. Quite a bright display was produced by the number of flowers, *O. ontoglossum Alexandræ* being especially

notable, one splendid variety of which was sold for nine guineas, and a small plant in a 60-size pot of a dark-coloured form of *O. punctatum* was purchased for fifteen guineas. Some fine *Oncidium*s and *Phalænopsis*s were included, together with a large number of the distinct *Eucharis Sanderi*, which was flowering very freely.

— IN the pleasure grounds at Kew the common Strawberry Tree, *ARBUTUS UNEDO*, and its varieties, notably *A. Unedo Croomii*, are well worth notice at this dull season. When grown in sheltered positions, which is almost essential to the production of fruit in quantity in this country, the contrast between the creamy white flowers and the rich scarlet fruits is very attractive.

— THE lakes in the same establishment, which are always a source of much enjoyment to visitors, have within the past few weeks undergone a much-needed alteration. The end nearest the Palm house, which was hitherto inconveniently narrow, has been considerably widened and the edges made more irregular. The bed, too, has been cleared of the *Potamogetons*, *Myriophyllums*, &c., with which it was infested, with, we believe, a view to introducing Water Lilies and other aquatics of a more ornamental character.

— THE EALING AND DISTRICT CHRYSANTHEMUM SHOW, held on the 21st inst., was a great success in the number and quality of the exhibits; plants, blooms, fruit, and vegetables being well represented. An interesting class was provided for cooked Potatoes, and the competition was very keen, about two dozen dishes being staged. An excellent collection of Apples and Potatoes was exhibited by Mr. R. Dean, Ealing, and Messrs. Lee & Son, Hammersmith, contributed a large and beautiful group of Chrysanthemums.

— MR. ROBT. D. LONG, Cranbourne Court, Winkfield, Windsor, writes respecting *CHOU DE BURGHELY* as follows:—"As much has been written from time to time in favour of the above, we were induced to give it a trial. We commenced cutting it a month ago, and after repeated trials in cooking do not find it in any way superior to the ordinary Cabbage. We shall leave a portion of the plants to stand through the winter, for if they will form heads of Broccoli later on, will be most useful in that way."

— A CORRESPONDENT writes—"In your report of the LLWES CHRYSANTHEMUM SHOW in last week's Journal a slight error has occurred owing to a transposition of names. In the open class for twenty-four cut blooms you state that Mr. Barchard, gardener to C. Cornwell, Esq., was third. It should read—Mr. C. Cornwell, gardener to F. Barchard, Esq. I know the latter gentleman, who is locally famed for his skill in Chrysanthemum culture."

— THE second number of the "SCIENCE MONTHLY" contains several interesting and instructive articles, and if this periodical is continued as well as it has been commenced it will undoubtedly become very popular. The principal subjects are "The Aurora," "Disease Germs," "Some Account of New Guinea," a paper read before the British Association this year by Mr. Coutts Trotter; "The Transmission of Energy," "Lessons from Common Plants," and the Biography of Sir John Lubbock, Bart., with a portrait.

— RELATIVE to the LINCOLN CHRYSANTHEMUM SHOW, reported in our last issue, Mr. Wipf informs us that the first prize for six incurved blooms was awarded to him, also the second prize for twelve blooms, and not to Mr. Coulling. The errors occurred through some of the prize cards being accidentally placed on the wrong stands, but afterwards rectified. The collection of blooms shown at this Exhibition, and stated in our report, page 451, to be from the Inner Temple Gardens, London, were, we are informed, shown by Mr. Wright, gardener at the Middle Temple. Mr. J. J. Lowry writes:—"In your report of the Borough of Hackney Chrysanthemum Exhibition, James Macanderson, Esq., and J. Lewry, gardener, should be read James Macandrew, Esq., and J. J. Lowry, gardener."

— "YORKSHIRE" writes—"I notice there has been some correspondence in the Journal lately respecting FUEL FOR HEATING BOILERS. I have the last month been using breeze coke, which I procured from a colliery through a friend of mine, and which cost me 11s. 6d. per ton, carriage paid to any station in the East Riding of Yorkshire. As gas coke with me is very dear, I find this breeze coke comes in at about the same price, while the pieces are about the right size for use, thus saving the labour of breaking, and occupying less room. It is also harder and

more solid, and lasts longer than the ordinary gas coke, so that I really believe it is much cheaper."

— THE GLASGOW AND WEST OF SCOTLAND HORTICULTURAL EXHIBITION next year will be held in the City Hall. The Spring Show on Wednesday, 26th March, 1884, and the Autumn Show on Wednesday, 3rd September, 1884.

— OUR correspondent, "W. J. M., *Clonmel*," urges the desirability of growing CHRYSANTHEMUMS OUTDOORS more generally for supplying flowers, cutting in October and November, and sends us specimens of Golden Christine and Fingal, under the impression that we have seen few finer blooms. They are attractive, but we have seen many far superior from plants grown in the open air; indeed really fine blooms can be had, especially when the plants are generously treated and judiciously disbudded, and the growths trained to walls and fences. We doubt if the variety sent as Fingal is correctly named.

— THE same correspondent sends us sprays of FUCHSIA CORALLINA from "a plant grown in the open bed, where it has had no protection, except a mound of coal ash in December, and has been blooming since July. These blooms are but a mere fraction of the size of those cut hitherto." They are as good as from plants grown under glass.

— REFERRING to a class in the schedule of the SOUTHAMPTON CHRYSANTHEMUM SHOW, which was provided for twenty-four blooms, sixteen incurved or reflexed and eight Japanese, Mr. Moorman remarks that it is advantageous, as by "placing the eight Japanese in the back row the other two rows of a stand are filled with flowers that are larger in size than if the whole twenty-four were all to be incurved. The effect is materially improved also, as the Japanese row at the back are set higher and are larger in themselves than the incurved varieties. Further, it is easier for an exhibitor to fill a stand with good blooms, for all exhibitors well know the strain it is to sometimes procure twenty-four good blooms, while from sixteen to twenty can readily be found. This class has been a leading feature in the Southampton shows for several years, and I strongly recommend its adoption in societies of smaller pretensions, especially in new societies."

— No. 86 of the third edition of the "ENGLISH BOTANY" continues the description and plates of the Ferns, the species and varieties of Cystopteris and Asplenium occupying the chief portion of the space. The plates are beautifully executed, life-like in the minutest details. The descriptions are also very full and accurate.

— MESSRS. J. CARTER & CO. have had for some time past a very extensive display of CHRYSANTHEMUMS at PERRY HILL. Some hundreds of plants are grown, representing all the leading varieties, many new, and some of the old and rare sorts that are now seldom seen. They have been well grown and have a great number of blooms, some being large and bright in colour. Incurved, Japanese, Anemones, and Pompons are all in strong force and produce a very pleasing show.

— THE CHELMSFORD CHRYSANTHEMUM EXHIBITION was held on the 21st inst. in the Corn Exchange of that town, all the classes being well filled. Specimen Chrysanthemum plants were well shown by Messrs. Saltmarsh & Son; J. Burrell, gardener to W. W. Duffield, Esq.; J. Tunbridge, gardener to Wm. Bott, Esq., Broomfield; and cut blooms were similarly well staged by the same exhibitors, with Mr. J. Clark of Writtle. In the fruit class Mr. Henry Lister, gardener to Lord Brooke, Easton Lodge, Dunmow, was very successful, staging some handsome Apples. Mr. Smale, gardener to R. Woodhouse, Esq., and Mr. W. Green, Romford, were also prizetakers in these classes. Miscellaneous exhibits were largely contributed, and added much to the attraction of the Show.

— THE second meeting of the MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY was held on Thursday evening, the 22nd inst., in one of the rooms of the Old Town Hall, King Street, when Mr. Abraham Stansfield read a paper on the mode of reproduction in Ferns. Mr. B. S. W. Williams was voted to the chair; the room was crowded with members. Mr. Stansfield pointed out in his paper that the secret of the reproduction in Ferns was discovered by an amateur. He described some of the phenomena of reproduction in the Fern, and in some general remarks said the botanist and horticulturist were inseparably connected with each other, and no horticulturist without some knowledge of botany would proceed clearly in his work. On the other hand, a botanist could derive many hints from a horticulturist. He believed thoroughly in a practical acquaintance with things, and in

nothing that was not capable of demonstration. A botanist was a man who had helped gardeners in their business. We knew what a Cabbage was, a Turnip, a Pear, an Apple, and a Gooseberry; but a botanist could tell us what they had been. He searched and ransacked the world for new species, and the gardener cultivated them. With reference to Ferns, the number of varieties, especially British, had multiplied amazingly; nothing like it was known, and he thought that one principle ought to be laid down with regard to naming new varieties, which was that the name given should be in some way descriptive of the plant itself, not a simple laudation of some individual. He urged upon his audience the importance of studying the different varieties of Ferns and how they developed. The Chairman, Mr. W. Swan (Honorary Secretary), Mr. R. Astley, Mr. Lunt (Stamford Park), Mr. Birkenhead (Sale), Mr. W. Plant (Sale), and Mr. T. Rogers joined in the discussion which took place, and a vote of thanks was passed to Mr. Stansfield for his paper.

— THE CHRYSANTHEMUM SHOW of the Royal Jersey Agricultural and Horticultural Society, held in the Odd Fellows' Hall, Don Street, St. Helier's, on November 14th, was a great success, and one of the best the Society has held for some years past, both plants and cut blooms being remarkably good. The following were some of the principal prizetakers:—In the "silver eup" class for twelve plants, four each of large-flowered, Japanese, and Pompons, Dr. Hooper (R. Thorne, gardener), was a good first with medium-sized plants, well flowered, and fresh alike in foliage and bloom, Judge Falle (Mr. Allix, gardener) was second, and Captain J. F. De Carteret's (Mr. Druce, gardener) third. For eight Japanese Mr. G. Ereaut obtained first and the bronze medal; they were handsome, fresh, and well-bloomed plants. For a single specimen Japanese Mr. G. Ereaut was first with Fair Maid of Guernsey, a very fine plant; Mr. G. De Quetteville second with La Nympe, a fine large plant; equal second Judge Falle with a fine plant of Early Red Dragon; third, Dr. Hooper. Judge Falle, Mr. Morris, Captain J. F. De Carteret, Mr. G. De Quetteville, Mr. G. Ereaut, and Dr. Hooper were the chief prizewinners for Pompons. The cut-flower classes were good. For eighteen pairs, twelve large flowers and six Japanese, Mr. G. De Quetteville was awarded first and the bronze medal for superior blooms; Mrs. Fothergill (gardener, Mr. Beckford), was a good second with a well-matched even set of blooms; Mr. G. Thorne was third. Twelve Japanese, one variety, first Mr. Morris with extraordinary blooms of Madame C. Audiguier; second, Mr. G. De Quetteville with wonderfully fine Peter the Great; third, Miss Ainge, very good. For twenty-four bunches of Pompons Mr. E. Collas (gardener, Mr. Dingle) was first with very clean handsome bloom, second Mrs. Fothergill. Twelve bunches Pompons, first Mr. R. Robin (gardener, Mr. Randell), second Captain J. F. De Carteret, third Miss Ainge. Extra prizes were awarded to Dr. Hooper for a small but very fresh, healthy, and well-flowered piece of Ixora; to Mr. Morris, Anemone-flowered Chrysanthemum, and to Mr. G. Ereaut for twenty-four Japanese cut blooms. Mr. Morris also showed some fine-foliage plants and Ferns, and Mr. G. De Quetteville specimen trained Chrysanthemums, not for competition.

FRUIT TREES IN POTS AT EWENNY PRIORY GARDENS.

IN the remarks concerning these trees, page 433, there was a slight error regarding the number, and it may be well to give the exact number, also the size of our orchard houses. Our lean-to house is 40 feet long by 14 wide, 6 feet high at the front, and 13 feet at the back. Trees are planted and trained against the back 1 foot from the wall. A trellis path 3 feet wide runs lengthways; in front of this are the trees in pots. This being the early house it has a flow and return pipe along the front. All the trees in pots are taken out in autumn, and the house filled with Chrysanthemums. Two Vines are also trained up the rafters, and there is a shelf running the whole length at the back for Strawberries. The span-roof house is 45 feet long by 12 feet wide, 5 feet 6 inches high at the front, and 8 feet high in the centre. A 3-foot walk runs through the middle of this house, which has no artificial heat. Late Peaches and Nectarines are grown there, Pears, Plums, Cherries, and Apricots. All the trees in pots grown in both houses are placed in this one during winter, and they now amount to over eighty. The pots, when placed in this house in winter, are covered with straw to prevent frost breaking them. In spring, when the early Peaches and Nectarines commence blooming, I remove a sufficient number of the earliest to fill the lean-to house. I should advise every lover of trees in pots to obtain Mr. Rivers' book, which is full of sound instruction. I syringe more than many do when the trees are in bloom instead of using insecticides for green fly. My system of pruning also differs from that some practise, but I may write on this subject some other time.

The following is a list of some of the best varieties grown here in pots:—

Pears.—Beurré de l'Assomption, Beurré Diel, Beurré Easter, Beurré Superfin, Doyenné du Comice, Durondeau, Duchesse d'Angoulême, Marie Louise, Louise Bonne of Jersey, Pitmaston Duchess, Souvenir du Congrès, and Brockworth Park.

Peaches.—Barrington, Conkling, Bellegarde, Hales' Early, Grosse Mignonne, Noblesse, Royal George, Waterloo, Alexandra Noblesse, Crimson Galande, Dagmar, Early Louise, Early York, Gladstone, Osprey, Lady Palmerston, Princess of Wales, Rivers' Early York.

Nectarines.—Downton, Elruge, Hardwick Seedling, Pitmaston Orange, Violette Hative, Albert Victor, Newton, Pine Apple, Rivers' Orange.

Plums.—Belgian Purple, Coe's Golden Drop, Green Gage, Denniston's Superb, Reine Claude de Bavay, Transparent Gage, Lawrence's Gage, Prince Engelbert.

Cherries.—Governor Wood, May Duke, and Bigarreau.

Apricots.—Moor Park and Peach.

Some other sorts are grown, but those I can rely on as sure croppers, and they are good-flavoured.—GEORGE HAWKINS.

STOUP LEADINGTON APPLE.

ONE of the most curious-looking Apples shown at the National Apple Congress at Chiswick was the Stoup Leadington, a Scotch variety of

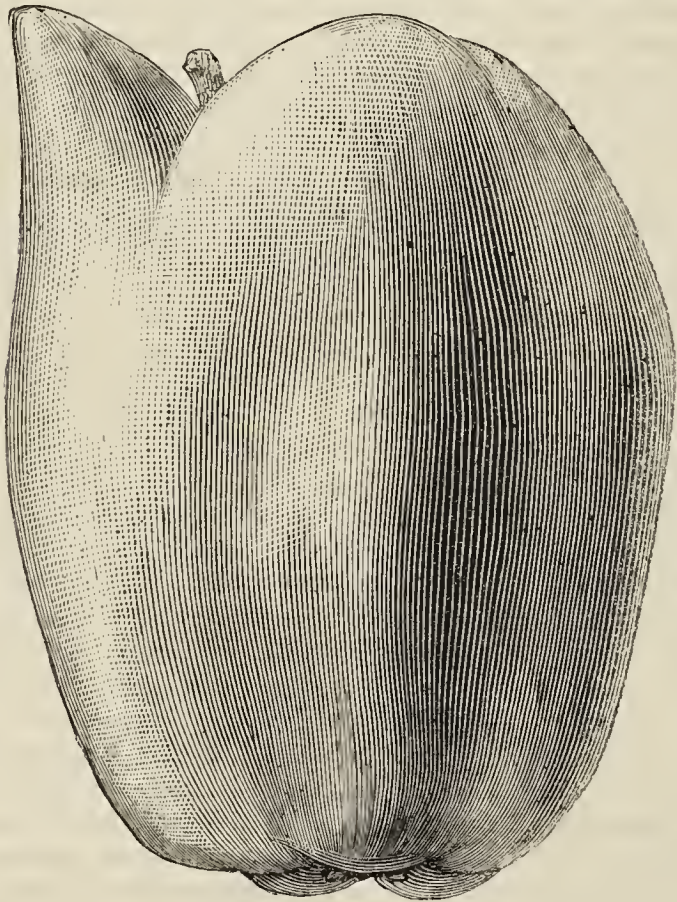


Fig. 91.—Stoup Leadington Apple.

ancient reputation, and we have thought that an illustration of it would be acceptable to our readers.

The fruit is medium-sized, about $2\frac{1}{2}$ inches wide and 3 inches high; tall and angular like the Catshead. It is distinctly five-sided, with five corresponding angles. Skin dark grass-green, becoming yellowish after being kept for some time. Eye with divergent segments, set in a deep angular and plaited basin. Stamens median; tube conical, very wide and deep. Stalk short, inserted by the side of a large and prominent growth, which projects from the fruit in the form of the lip of a jug. Flesh greenish, juicy, very acid; cells elliptical, abaxile.

A kitchen Apple of good quality, in use from November till January. It receives its name from the likeness of the fruit to a stoup or pitcher for holding liquids, which it certainly resembles when stood upon the eye, the stalk being upwards.

ANEMONE JAPONICA ALBA IN POTS.

"W. B." (page 436) writes interestingly on this plant, but his remarks would have been more valuable had he named the time his early and late plants flowered. There is no word of this, and we cannot tell whether his early plants may bloom in October and November, and the late ones in December and January, or when his treatment results in this. Indeed, this is one of the most interesting facts we could have been told on the subject, and probably your correspondent may be induced to give us dates. Apart from this, however, I have to confirm his observations respecting the value of this plant. It is one of

the best anyone can possess. I grow it both out of doors and under glass, and it does admirably in both positions. The open air plants are grown like Phloxes, but the heavy rains we frequently have in October spoil the flowers on these so much that it is mainly on this account I was induced to plant it under glass, and the result is a great success. They are planted in a border in an old-fashioned cool conservatory. In June the leaves are produced in profusion, and about the end of August the flowers begin to appear, and from then until now there is a constant succession.

The advantages of having them under glass are very apparent, as they bloom much more freely than in the open, and for a longer time, and the blooms are vastly superior to any we can get outside. We never trouble very much about its propagation, as under glass the roots extend like those of Mint, and when we wish to increase our stock these are cut off and planted elsewhere.—M. M.

ARTIFICIAL v. STABLE MANURES.

M. VILLE'S THEORIES EXAMINED.

I MUST suppose that you know M. J. Ville's celebrated work on artificial manures. He professes that stable manure can altogether be dispensed with and chemical agents be substituted. Do you share this opinion? or at least do you think that for the managing and manuring of a plantation of Red and Black Currants, Gooseberries, and Morellos, this would do?

I am just now preparing some twenty-five acres of land for making a culture such as I mention. The question of manure is all-important, and I try hard to get every possible information. If chemical manure would be available for such a purpose another question arises, which is for each of the trees planted the "dominant" (the principal required agent)? Has this been studied already, or should experiments be made?

A gentleman near Antwerp has succeeded in using chemical manure to bring to a successful issue the rearing of Pine trees in the sands of the Campine, whilst all his neighbours failed. The use of chemical manure would be such an economy of transport and saving of trouble on ordinary manures, such as blood, liquid manure, cow and horse droppings, &c., that it would be highly desirable. Only, can it well be done, has it been tried before, and are the formulas known?—C. HAVENITH, *Antwerp*.

[The above letter, by request of the writer of it, was sent to our correspondent "Single-handed," who has sent the following reply:—

Although M. Ville maintains that with artificial manure alone equal, nay superior, results may be obtained compared to what ordinary manure will yield, it should be remembered that he is only one, and by no means the greatest, of modern experimenters, who maintain anything so extreme. All the evidence goes to prove that the proper place for artificial manure is as a supplement when other manure is scarce. M. Ville has made a large book by reiterating his fallacy again and again; but though his iterations are strong his evidence is weak, for he fails to recognise some of the most potent factors that secured the results which he attributes wholly to the ingredients supplied. Decayed vegetable matter he considers valueless, hence his sneers at common manure. Others, of a much higher authority than he, give it a high place, and that in countries where it disappears much less rapidly from the soil than in France. If you have read what I have said on this subject there will be no need for me to repeat it here.

As for a "formula" being wanted in any case, it really is all nonsense. If anything has been proved at all, it is that what is absolutely necessary in one spot may be altogether superfluous in another, M. Ville, with all his exact and many multiplied "formulas" to the opposite notwithstanding. It is impossible to prescribe for this, that, or the other crop without knowing something more than the names of the plants. The state of the soil is of far more importance. You may trust M. Ville's formulas—any one of them. He takes care that a very great deal more shall always be present than enough. But if your soil is like some here in England it would be sheer waste of money to give plaster of Paris (calcic sulphate). If like some soils we know of in this country, it would be equally foolish to give potash. Even supposing it were necessary, if you keep dairy stock (as we presume you do, seeing you mention "liquid manure"), the liquid from the stables would supply a rich source which it would be a mistake to neglect in favour of artificials. The question thus is not so simple as M. Ville would put it, and his formula for "garden stuff" is only a wild guess.

Doubtless artificial manure, especially for the trees named, might almost wholly take the place of ordinary manure, especially if every leaf, every bit of vegetation (and you might raise a crop on purpose by sowing Rape and digging it in) be used. You can hardly go wrong in giving a good dressing (such as Ville recommends, so far as quantity is concerned) of super-

phosphate now, and such dressings of sulphate of ammonia and nitrate of soda as he recommends early in summer, after growth has commenced, and just before rain if possible. This, if the soil be otherwise good, especially if there be enough lime in it, will almost certainly cause luxuriant growth followed by the best crops. But possibly potash may be needed too—it may be absent from the soil; but dressing a portion of the land only will tell you that. If an addition causes more luxuriant growth, it is necessary; if it makes no difference, it is not. There is one thing, potash and nitrogen have a very favourable influence on Currants. Always apply dressings right over the roots, where they will be sure to find it. We should very much prefer to give one spade of ordinary well-decayed manure to each plant to secure a thorough start.—SINGLE-HANDED.]

WHITE ELEPHANT POTATO.

SOME speak well of this Potato, but many have been disappointed in it. It is certainly a wonderful variety to produce a heavy crop of large tubers, but this is all that can be said in its favour. We have grown it two seasons, and each time it has been very prolific. The finest of the tubers have weighed 22 ozs., but the quality when cooked might be termed sixth-rate. In flesh they are not white when boiled nor yet are they mealy, but a dull unattractive colour, and altogether disagreeable when compared with other varieties, such as the Queen, Paterson's Victoria, and Schoolmaster. I consider many advertisements I have seen in favour of this sort quite misleading, as, although it may excite curiosity in the way of producing a heavy crop, the quality will never give satisfaction. As to its being a good poor man's Potato, I would not class it as such. If it could be boiled and relished with salt alone, as all good Potatoes can, then it would have every quality to recommend it to the poorest of cottagers, but there is no hope of seeing it in this condition. Respecting disease, it must be named with those varieties very liable to be affected in its worst forms.—J. MUIR.

ROYAL METEOROLOGICAL SOCIETY.

THE first meeting of the present session was held last Friday evening at the Institution of Civil Engineers, Mr. J. K. Laughton, M.A., F.R.A.S., President, in the chair. The Earl of Dalhousie, K.T., T. H. Davis, D. E. Embleton, M.R.C.S., J. Hargreaves, and T. L. Lewington, were elected Fellows of the Society.

The following papers were read:—

1, "Report on Temperatures in two Different Patterns of Stevenson Screens," by E. Mawley, F.R.Met.Soc. The screens employed were an ordinary Stevenson screen obtained from Casella, and a new Stevenson screen made in accordance with the recommendations of a Committee appointed by the Council of the Society. The new screen is 2 inches wider and deeper than the old screen. It has also an upper sloping roof, and, at a little distance below, a flat inner roof pierced with holes for ventilation; while the old screen has a single flat roof with only a narrow slit beneath on each side for ventilation. Observations were made during the three months, July to September, and the results are given in the paper. From these it appears that the new screen is, of the two, slightly cooler and better ventilated, and retains the heat of the sun for a less time than the old screen; also, having a double roof and overlapping boards below, it is better suited for extreme climates.

2, "On the Storm which Crossed the British Islands between September 1st and 3rd, 1883, and its track over the North Atlantic," by C. Harding, F.R.Met.Soc., of the Meteorological Office. This storm caused considerable havoc in the south-west and south of England, owing not only to its exceptional violence, but also to its occurrence before the completion of the harvest. The storm is traceable in the first instance to two centres of disturbance, one being first shown at about 450 miles to the south of Bermuda on the 26th of August, and the other to the east of the Rocky Mountains on the 27th; these two disturbances afterwards merged on the 29th at about 300 miles to the north of Bermuda, and formed one great and destructive gale, which continued to grow in violence as it crossed the Atlantic until it reached the coast of the British Islands. The average speed at which this storm crossed the Atlantic was fully forty miles an hour, which is more than double the usual speed of storms which traverse that ocean.

3, "On the Influence of the Moon on the Height of the Barometer within the Tropics," by Robert Lawson, Inspector-General of Hospitals.

4, "The Great Ice-storm of July 3rd, 1883, in North Lincolnshire," by J. Cordeaux. The direction of the storm was nearly south-east to north-west, and travelled from Caistor along the higher ridges of the hills to Barton-on-Humber. The storm commenced at about 9.20 P.M. with heavy drops of rain, and increasing to a downpour, speedily followed—amidst the blaze of lightning and the constant roll of thunder—by the rush of hail or rather lumps of ice. An eye-witness remarked that they were not like hailstones but "salt-cellar;" another that they resembled "duck's eggs;" in fact, they were solid lumps of ice of every shape and size, weighing from 2 ozs. to 6 ozs., and some were measured 6 inches in circumference. The injury done to the growing crops cannot be estimated at less than £20,000.

STORED-UP SAP IN VINES.

MR. TAYLOR'S attempt (page 438) to explain and reconcile things, which he confidently asserted as facts, to "the best of his ability," is very unsatisfactory. He ought to be ready with his reasons as well, and give them plainly. I decline entirely to accept his own unsupported explanations of the "analogous" functions of the roots and stems; but he clears the ground a little when he says he regards "root-extension and

root-action as synonymous terms." He is in error there, however, for root-action no more means root-extension than "leaf-action" means leaf-growth. But, accepting his meaning as he gives it, will he tell us what he meant by implying that his Vines were "dependent" on the stored-up sap of the previous autumn till the shoots were long and had leaves 5 inches broad? In the meantime what became of the sap coming up daily and hourly from the roots? How came it also that those dark patches of colour did not begin sooner under these circumstances? The fact is, the "root-extension" explanation seems to present a ready loophole for your correspondent to escape from an untenable position.

There is really no such thing as storing up sap in the sense Mr. Taylor states in plants like the Vine. Only bulbs and tuberous roots store food, for reasons apparent to anyone. I still assume that few or no experienced gardeners believe that Vines are dependent on the stored-up sap of the previous autumn till they reach the stage Mr. Taylor says, but if there be any will he produce them, and their reasons for such belief? It does not seem to have occurred to your correspondent that the darker colour in the Vine leaves was due to their advancing growth and the more light they were receiving.

Dr. Lindley's explanation of the phenomena of the sap is the right one, and is still accepted by all. He says, pages 26 and 52 of his "Theory and Practice," "There is no period of the year when the roots become altogether inactive except when they are actually frozen. At all other times during the winter they are perpetually attracting food from the earth. . . . The tubes are nearly empty at the fall of the leaf (this is the period, according to Mr. Taylor, when they have completed their store of sap). During winter the roots absorb water from the soil and fill the tubes again. By the arrival of spring they are filled almost to bursting, and then if the stem is cut it bleeds." This is a clear statement, and I commend it to Mr. Taylor, especially the statement that there is no period of the year in which the roots are "inactive"—i.e., not "in action," and that it is "food" they are drawing up. For fuller corroboration I refer him to the book itself.

If Mr. Taylor would put his theory on the subject into plain language, or give us facts instead of surmises in proof of it, I would accept his opinions as readily as any other person's; but that is exactly what he has not done, while his replies are full of invidious and imaginary references to those who venture to differ from him. Will he, in as few words as possible, tell us clearly what he does mean by "stored-up sap" in the Vine, when the Vine stores it, where it is stored, and what the difference is between this stored-up sap and that which is continually rising from the roots? His teaching on this subject is very loose indeed. It is an old and excellent maxim, recognised as fair and honourable by all scientific and educated authorities since the time of Bacon, that a man is bound to substantiate, what he advances as facts, with proofs, and to meet all fair questions in the same spirit. I therefore ask Mr. Taylor to do this, and above all to keep to the point, take up the questions one by one as they are put, and answer them in as few words as possible. I want to take up your space and his time as little as possible.—A NON-BELIEVER.

HISTORICAL JOTTINGS ON VEGETABLES.—No. 10. THE TURNIP.

DR. TANNER of fasting notoriety, if the American press is to be believed, has experimented with some vegetables to ascertain the effect they had upon the disposition of those who ate them. Turnips, he believes, induce amiability, for instance, and French Beans considerable sharpness of temper; having given the latter vegetable to an individual in his household, when he found irritability so decidedly developed that this person "threw a jug at his head." He then hastened to administer Turnips, but found it took some time to overcome the unpleasant influences of the Bean. The amount of nutritive matter Turnips contain is certainly less than that in any variety of Bean. According to Dr. Lyon Playfair, 90 per cent. in an average Turnip consists of water, and therefore, where the vegetable is largely consumed, we might suppose irritative matter would be washed out of the system! The Greeks, who first grew the Turnip, appear to have thought the best use of this vegetable was as a cataplasm or outward application to relieve pains and lessen swellings, but the Romans appreciated the somewhat insipid root, and, being fond of tasty dishes, they devised a variety of modes of dressing it, which have not been rediscovered by our modern cooks. Pliny and Columella agree that as a vegetable the Turnip should be placed next to the cereals, and feeding cattle with the roots, though occasionally practised, was secondary to their use amongst mankind. A choice Turnip grown in the land of the Sabines was worth a sestertius—say 2d. or 3d., at one period.

Fields, waste lands, and roadsides in Europe and the temperate districts of Asia afford samples of the Turnip (*Brassica Rapa*) growing wild, with rough, dark green radical leaves, and if two years old, a flower-stalk, surrounded by smooth leaves exceedingly like that of the Cabbage. Ancient Gaul is said to have supplied to Greece and Italy the first Turnips grown in those countries, but in fact nobody knows. The Romans were accustomed to manure the ground thoroughly before sowing

their crops; the best time, the older naturalists state, is the end of July and the first half of August, but Turnips were also sown by them in spring where warm and moist positions could be found for them. When we remember how long the Roman occupation of Britain lasted, and the ease with which suitable spots for planting this and other vegetables might be obtained by the Romans near London and at various stations of theirs, I think there can be little doubt they were the first to grow Turnips on the soil of England. That the vegetable subsequently died out here is also evident, nor did Saxon, Dane, or Norman bring it over again; probably we owe its reintroduction to the Flemings or Walloons, who came over in parties at different times during the sixteenth century. By the reign of Elizabeth both gentle and simple had become acquainted with the Turnip, cooked by boiling or roasted in the ashes upon the hearth. It would seem, also, from a passing remark in Shakspeare's "Merry Wives of Windsor," that when balls were not at hand Turnips served as a substitute in some popular games, for Mistress Anne Page sincerely declares that rather than be mated to a fool she would be willing to be bowled to death with Turnips! The name in our vernacular has undergone no change; "nip" is the Saxon *næpc*, in fact the representative of the Latin *napa*, but no maker of dictionaries has been able to discover the origin of the "tur."

From old Gerard's comments upon this vegetable it may be surmised he did not grow Turnips himself; he speaks of having purchased them at the Cross in Cheapside of the women who brought them from their gardens near Hackney village. Although much of the land thereabout was low and marshy in Gerard's day, as in ours, there were some hills of gravel and sand, since levelled to some extent, upon which nobles, citizens, and others had gardens yielding choice fruit and vegetables. Here were the nursery and orchards of the famous Lord Zouch, who astonished his contemporaries by his skill in transplanting trees; and the repute of Hackney as a locality for horticulture centuries ago is proved by an antique silver token, which has on one side a figure of Time, with a pile of books on his right and a garden plot on his left. Besides Hackney, such suburbs as Hoxton, Islington, and Stepney probably had some Turnip fields before the outbreak of the Civil Wars, and after the Restoration there was an increased demand for the vegetable, as cattle were fed with the roots, at least partially, during the winter months. Also in some years, when the supply of corn was insufficient, Turnips were used as an admixture with the flour. After they were boiled the water was removed by pressure, or most of it, and an equal bulk of flour worked in. This Turnip-bread, however, had few admirers, if many had to submit to eat it. As Gerard observes—that the peasantry in Wales ate the Turnip uncooked, we have proof that it was grown commonly about the western districts of England while he was living, though Parkinson hints that it was only here and there Turnips were cultivated in 1629; but he may have had a prejudice against them. For some fancy or other they were not unfrequently planted in vineyards or between the rows of Hops. As Westminster increased its population; the gardeners of Pimlico, Chelsea, and Knightsbridge began to cultivate Turnips, and in the Georgian era they might have been seen growing upon what was then the "Five Fields," now an aristocratic suburb, or along the sides of the road leading to courtly Kensington. But one great objection to this plant, in the estimation of the London market gardeners, was the time it occupied the ground; a rapid succession of crops has always been a desideratum with them because it pays best.

But although Sir R. Weston had recommended the British farmer to grow Turnips extensively, little was done in this direction till late in the reign of George I., the practical prompter being Lord Townshend. As a natural consequence he became the butt of an abundance of jokes, for the small wits of that day called him "Turnip Townshend," and there may have been a ludicrous element in his enthusiasm about his favourite topic. When in Hanover he observed that much land there, resembling some upon his own estate at Rainham, yielded an abundant crop of Turnips, and he procured a supply of the seed, which he distributed amongst his tenants and other persons. The result was more important than could have been anticipated. A great change came over the agriculture of the county, and not only Turnips, but other valuable produce was raised upon land that had previously been left waste. So great was the prejudice against the Turnip as a food for sheep, that many farmers declared, in the teeth of facts, either that the animals would not eat the vegetable, or, that when they did, it had an unwholesome effect upon them. Swedes are stated to have been introduced to this country by a Mr. Knox of East Lothian, who removed to Gottenburg, from whence he sent the

seeds to Scotland. It was soon perceived that the Swede was valuable on account of its hardiness, and the tops, eaten as greens, came to be much in request, as offering an agreeable variety. In our time it is rumoured one use to which Swedes are put is the furnishing a certain proportion of the so-called orange marmalade sent into the markets. Sugar is contained in the Turnip, and it has been separated therefrom, but rather for experiment than with the expectation of profitable results.

Big Turnips, like gigantic Gooseberries, have served to furnish paragraphs for our newspapers in the dearth of items more important and more novel. It was thought a remarkable thing in October, 1828, to produce a Turnip weighing about 20 lbs., but this has been outdone since, for roots of the Purple-top Mammoth have been shown weighing just upon 30; yet Pliny tells us the Romans grew Turnips still larger, and describes single roots that weighed 40 lbs., a statement open to doubt, unless that people had some huge kind of Turnip we do not possess, or had a special skill in its culture surpassing ours. Miller, in enumerating Turnips, mentions a long yellow sort approaching the Parsnip in shape, which appears to have lost favour, though once much liked.—J. R. S. C.

WEBB'S NEW NUT, DUKE OF EDINBURGH.

ONE of the finest Nuts we have ever seen has been sent us by Mr. T. O. Cooper of Calcot near Reading. We believe it is one of the many



Fig. 92.—Nut Duke of Edinburgh.

seedlings raised by the late Mr. Webb, Mr. Cooper's father-in-law, and 't adds to Mr. Webb's reputation both as a raiser and a cultivator. This and Davianum, another of his seedlings, are possessed of high merit. Husk finely downy, but not hairy, about one-fourth longer than the nut; in some cases entire, but generally coarsely though not deeply cut. Nut large, the largest seven-eighths of an inch wide and $1\frac{1}{2}$ inch high; ovate. Shell not so thin as in Davianum, rather dark brown—approaching mahogany colour, faintly striated. Kernel full, covered with a pale brown pellicle, firm, and well flavoured.

This is a very excellent Nut, and ought to be cultivated wherever Nuts are grown. It was awarded a first-class certificate by the Royal Horticultural Society, October 9th, 1883.

There are several other of Mr. Webb's seedlings that are cultivated by Mr. Cooper for sale, some of which we have not seen, but which are described in a "Descriptive List of Prize Cob Filberts and other Nuts Grown at Calcot Gardens, near Reading," in which are instructions for the cultivation and management of the Filbert.

Mr. Cooper, who has succeeded his father-in-law, Mr. Webb, makes a speciality of the culture of Nuts, and he informs us that he has added nine acres to the original gardens for extending the cultivation of the plants, which are exported to all parts of the world, even to Manitoba and Germany.

CAMELLIAS IN WINTER.

FROM now onwards for the next four or five months there will be no flowers which can be produced in a greenhouse or conservatory more valued than a constant and good supply of Camellias. They are highly

attractive when seen on the bushes, and when cut and placed in glasses in sitting-rooms or on the dinner table they have always a charming appearance. By starting the plants into growth early in the season there is no difficulty in having them in bloom in August and September; but unless there is some very special object in having them then it is best not to flower them quite so early, as Camellias are undoubtedly more winter than autumn flowers, and their value at that season cannot be over-estimated. A few of our blooms have opened during October, but the bulk of them are to come, and we will now induce them to open as well and regularly as possible. No attempt should be made to force any small plant which has only been budded for two or three years, and it is a mistake to give any but the most natural treatment to sickly plants. Small plants crowded with bloom are very beautiful, but it injures them to cut many of the blooms from them, especially if a good piece of wood is taken with each bloom, and the best of all to cut flowers from are large established plants. Camellias planted out in beds always make much more wood than plants in pots, and those wishing to secure and cut large quantities of bloom throughout the winter should try to have a number of planted-out specimens to work with; but however they may be grown now, the object will be to obtain flowers, and it is on this point I will write.

Camellias are not like many softwooded plants. They will not be forced into flower rapidly by a brisk heat and in a humid atmosphere, and if many liberties are taken with them three parts of the buds may fall without showing the slightest sign of swelling or making any attempt to open. This habit, as habit it undoubtedly is with many plants, puzzles not a few, especially of amateur growers, and it is generally produced by some sudden change of treatment. Excessive dryness at the roots is one fertile cause of bud-dropping. A long period of dryness is not necessary to accomplish this. Once for a few days is quite enough, but no Camellias should ever become too dry that are constantly under the care of one person. It is only through carelessness that excessive dryness occurs as a rule. If the pots or borders in which Camellias are growing are well drained and the soil is in a sweet condition, it is almost impossible to injure them with water at the root, and the danger of giving them too much need never be taken as an excuse for giving them too little. Camellias have a decided dislike to a dry atmosphere, and this will make the leaves curl and the buds become brown.

In houses where there is no artificial heat there is of course no danger of this occurring, but where they are close to the hot-water pipes, and especially to old brick flues, as they still are in many old conservatories, the greatest care must be taken to keep the atmosphere humid. It need not be steaming, nor should a hot flue be damped to give off much moisture all at once, but the bushes should be syringed daily, and when the blooms are open and the branches cannot be syringed without spoiling the flowers, the bottom foliage near the ground should be damped and the surface of the soil under the trees should always be moist. We attach the utmost importance to this syringing, and we would advise all to practise it now and continue with it.—M. M.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

I HOPE it will not be thought from what I have written on page 402 that I wish to cast any reflections on anyone connected with the management of this Society, as such was far from my intention, neither did I write on behalf of my friend. I merely stated the case, thinking, as I said at the time, that it had been treated quite in accordance with the Society's rules, and as an example of the information I wanted to get for others' benefit as well as my own, as I know many gardeners could better afford to pay down a sum of ten guineas at once than to keep up an annual subscription of one guinea until they are sixty years of age if each gave equal advantages. I am very pleased to hear from Mr. Bardney that they do so, consequently the mistake was not made by my friend when he paid his subscription, as I was afraid it was. As soon as I can get the information required from my friend I will forward it to Mr. Cutler, when he will be able to see where the mistake has occurred.—W. H. DIVERS, *Burghley*.

MUSA ROSACEA.

THIS species is a native of the Mauritius, and is very ornamental in the stove, though, no doubt, it might also be grown in the open air during the summer months. *M. rosacea*, like the beautiful *M. coccinea*, does not belong to that section of this genus which is prized for its fruit-bearing qualities. Its estimable features are a noble habit, handsome flowers, and a growth from 10 to 15 feet in height. These plants are stemless, although they are generally described by the majority of people as having stout and tall stems, which in reality are composed of the very long and compact sheathing bases of the leaves. The blade of the leaf in the species here figured is dark green and oblong, with a prominent midrib. The bracts of the flowers—the special objects of attraction in this plant, are a beautiful, long-lasting, rosy pink, and, combined with the noble appearance of its leaves, produce a splendid effect in any group of plants with which it may be arranged. I would strongly urge upon every grower of stove plants

who does not already possess this *Musa*, to add it at once to his collection, if sufficient height can be allowed for its accommodation.

The cultivation of these plants is extremely simple. When young pot them in about equal parts of good rich loam, well-decomposed manure, and leaf mould, with a little sharp river or silver sand added. After they have attained to some size a little less manure should be given, for as fruit is not expected of them, the withholding of a little nutriment will only induce them to flower earlier. They enjoy copious waterings, and in the case of the fruiting varieties liquid manure is extremely beneficial, though I have never used it for this species.

In a young state *M. rosacea* forms a beautiful object for the decoration of apartments, and even when it grows too large for vases in the drawing-room, it may be used with advantage for halls or staircases, or when any



Fig. 93.—*Musa rosacea*.

special decorations for grand parties are required. This species is not used economically in any way, but several of this genus are extremely useful. One in particular, *M. textilis*, yields what is known as the Manilla Hemp, and is largely cultivated in the Philippine and other islands for its fibre. The finest portion of this is used for shawls.—W. H. G.

CHRYSANTHEMUM SHOWS.

WIMBLEDON, NOVEMBER 20TH.

WITH the small amount of funds at their disposal it is surprising what an excellent display is annually made at Wimbledon, and this season it was more than usually attractive. Mr. Lyne, gardener to A. Schlusser, Esq., Belvedere, filled the whole of the platform of the Lecture Hall with a magnificent group of miscellaneous plants, consisting of Palms, Dracænas, and other fine-foliage plants, with a number of Calanthes set in a groundwork of Ferns. This group was the admiration of everyone. Mr. Thompson, The Wimbledon Nursery, also staged a well-arranged group of ornamental-foliaged plants, which was much admired. This, as well as the Belvedere collection, was not for competition.

In the competitive classes Mr. W. Smith, gardener to J. F. Schwann, Esq., Oakfield, was awarded the first prize for an admirably flowered collection of natural-grown plants arranged in a space of 40 superficial feet. Mr. Newell, gardener to Sir E. Saunders, Fairlawn, was a very good second, and the Rev. A. Malan, Eagle House, Wimbledon, was third. But there were not many points difference between the first and second-prize collections; the former had both variety and abundance of flower, as well as a good finish in front, while the latter was more lightly arranged, but had a very badly finished front. The third-prize collection was a long way behind the other two. There were several collections of twelve cut blooms, incurved, distinct. Mr. C. Gibson, gardener to J. Wormold, Esq., Morden Park, was awarded the first place with John Salter, Barbara, Golden Empress of India, Princess Teck, Lady Carey, Hero of Stoke Newington, Chernub, Countess Granville, Golden Queen of England, Princess of Wales, and Nil Desperandum. Mr. Woodgate, gardener to Mrs. Hammersley, Coombe, was indeed a very close second, and Mr. Hepburn, Argyle Lodge, Wimbledon, a good third. For twelve Japanese blooms, distinct, Mr. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, Mr. Woodgate, and Mr. Gibson shared the honours, all showing well. Mr. Beckett's comprised Fair Maid of Guernsey, M. Delaux, Boule d'Or, Baronne de Prailly, Triomphe de Châtalet, Meg Merrilees, Bronze Dragon, Mons. Planchenau, Peter the Great, Sultan, and Fanny Boucharet. In the class for six blooms the competition was very close, Mr. Hepburn being placed first, and Messrs. Woodgate and Beckett second and third respectively. Amateur collections were well contributed, Mr. Rolt, the energetic and courteous Secretary, was first for twelve blooms; and for six, Messrs. A. Moore, Northover, and Rolt were placed in the order of their names.

Messrs. Jackson & Sons staged a collection of new varieties, not for competition, the best being Henri Jacotot, Jeanne d'Arc, and Mdle. Lacroix, varieties which have been already described.

Table plants are usually exhibited well at Wimbledon, and on the present occasion they were very handsome. Mr. Beckett was awarded the first prize for elegant examples of *Aralia elegantissima*, *Cocos Weddelliana*, *Pandanus Veitchii*, and *Crotons angustifolius* and *picturatus*. Mr. Smith took second honours; and Mr. Bentley, gardener to Sir Thomas Gabriel, Edgcombe Lodge, third. Primulas, fruit, and vegetables were well and numerous contributed by Messrs. Bush, Bentley, Hurn, and several others, which collectively made a very attractive display.

The Exhibition was well attended, and Mr. Rolt, to whose efforts the Exhibition is mainly due, is to be congratulated on its success.

WORCESTER, NOVEMBER 20TH.

THE third annual Exhibition of Chrysanthemums and fruit in connection with the above Society was held at the Shire Hall, Worcester, excelling those of previous years in the quantity and quality of the exhibits. Groups of plants arranged for effect, and which are a notable feature of all the Worcester shows, were well represented, and were arranged in a circular form down the centre of the hall. First honours were taken by Mr. Green, gardener to Capt. Castle, Hawford House, for a very tasteful collection of healthy and well-grown materials. Mr. Cowan, gardener to H. Walker, Esq., Perdiswell Park, was second, his group being rich in foliage, but not having so much bloom to relieve it as the preceding. Mr. Helman, gardener to H. Bramwell, Esq., Crown East Court, was third, also with a good group.

Chrysanthemums in Pots.—The competition for twelve plants was limited to two exhibitors—Mr. Cowan and Mr. Helman, and the Judges placed them equal first; the former had some well-grown plants well bloomed, Meg Merrilees, To Kio, Blonde Beauty, Hilda, and Mrs. Parnell being especially fine. Mr. Helman's plants were more formally trained, but they included some good specimens, White Christine, St. Patrick, and Gluck being very good. For nine plants the same exhibitors were again equal first with similar plants; Mr. Payne, gardener to F. Parker, Esq., third. For six plants Mr. Cowan was first, Mr. Downes, gardener to T. Southall, Esq., second. His plants, with the exception of being supported by neat sticks, were untrained and had not been disbudded; they presented a marked contrast to the other plants in the Show, being profusely bloomed, but they were a little past their best. Single specimens were well shown by Mr. Cowan and Mr. Helman.

Cut Blooms.—These showed a marked improvement upon last year. For twelve incurved Mr. Barker, gardener to Sir H. Allsopp, Bart., Hindlip Hall, was well ahead, having Queen of England, Empress of India, Golden Empress, Princess of Wales, Princess Teck, John Salter, Jardin des Plantes, Hercules, Barbara, Venus, White Venus, and Cherub. Mr. Robbins, gardener to Sir E. A. H. Lechmore, Bart., Rhydd Court, was second, Alfred Salter, Queen of England, and Guernsey Nugget being his best blooms; Mr. Helman was third. Mr. Barker was also first for six incurved, Mr. Robbins second, and Mr. Cowan third. For twelve Japanese Mr. Barker again secured first honours with a splendid stand, some of the blooms being 6 and 8 inches in diameter. The varieties were Fair Maid of Guernsey, Madame C. Audiguier, Comte de Germiny (a grand bloom), Baronne de Prailly, Ile Japonaise, Thunberg, Elaine, G. Delaux, Soliel Levant, Flambeau, L'Incomparable, and Bend Or. Mr. Cowan was second and Mr. Helman third. For six varieties the same exhibitors were first and second, Mr. Robbins third. Some very nice wreaths and crosses were shown, also bouquets for a ballroom, Mr. J. S. Haywood being first in each class.

Fruits.—The display of Apples and Pears was magnificent, the majority being of large size and highly coloured. Prizes were also offered for single bunches of black and white Grapes, the first prize for white going to Mr. Barker for a compact and well-finished bunch of Muscat of Alexandria; Mr. Child, gardener to Earl Coventry, Croom Court, being second with the same variety, Mr. Cowan third with Trebbiano. For black Grapes Mr. Barker was first with a fine cluster of Alicante, Mr. Child second, Mr. Robbins third. The best six dishes of Apples came from Mr. Hughes, gardener to R. A. D. Gresley, Esq., who had splendid examples of Blenheim Pippin, Beauty of Kent, Mère de Ménage, Summer Queen, Ribston Pippin, and Cox's Orange Pippin. Mr. Child was second, his fruit being smaller, but beautifully coloured; Mr. Barker was third. Over twenty collections were staged in this class. For three varieties Mr. Hughes was again first. Single dishes were numerous and good. For six dishes of Pears Mr. Child was placed first with an excellent collection, Glou Morcean, Althorp Crassane, and Easter Beurré being very fine. Mr. Barker was second, and Mr. Robbins third, with collections little inferior to the first. The same exhibitors were first and second respectively for three dishes. Doyenné du Comice from Mr. Barker

was placed first in the single dishes. The three heaviest from the same exhibitor were Catillac, weighing 3½ lbs.

Messrs. R. T. Smith & Co., St. John's Nurseries, exhibited a large collection of Apples, all the leading varieties being represented in good condition. A collection of 150 varieties of Apples and Pears from Mr. Haywood, nurseryman, Worcester, was also highly meritorious. From Mr. Humphries, Pershore, came a very good collection of Apples. Collections were also sent by Archdeacon Lea, Droitwich, and Messrs. Rowe & Co., Barbourne Nurseries. All these collections were much admired, and being correctly named proved very useful to the numerous visitors. All the arrangements of the Show were well carried out, and great praise is due to Mr. J. Hill White, the Hon. Sec. to the Society, upon whom these duties fell.

BRISTOL, NOVEMBER 21ST AND 22ND.

THERE are few older societies than this, and few committees succeed in arranging better exhibitions. Not only are Chrysanthemums generally well shown, but nearly all kinds of fine-foliaged and flowering plants as well as fruit in season are equally well represented. The Victoria Rooms, Clifton, are particularly well adapted for the purpose of holding horticultural exhibitions, and on this occasion especially the arrangements left nothing to be desired. Everything seemed to be in its right place, and each section received the space and position they were entitled to. All large plants, including many immense Palms and Crotons, were grouped round the sides of the hall instead of the centre where they used to completely overshadow the fine show of bouquets and fruit always to be seen at these meetings. A narrower central table is now employed, the raised centre being filled with a beautiful assortment of table plants, and the lower surrounding space with the fruit and bouquets left plenty of space for the visitors, and was in every respect a welcome change. There were twenty special classes in which the prizes were presented by gentlemen and nurserymen in the neighbourhood, and all were closely contested. The Committee are all gardeners, and with their practical Hon. Secretary, Mr. W. G. Webley, deserve great credit for their successful endeavours to provide a most pleasing Exhibition.

Plants.—The silver cup offered for the best six large-flowered varieties was again won by Mr. J. Bradner with medium-sized but extremely well-flowered specimens of Hero of Stoke Newington, White Globe, Mrs. Dixon, Mrs. Forsyth, Prince of Wales, and Guernsey Nugget. Mr. E. T. Hill, gardener to T. Pease, Esq., was a very close second, his six including a fine dwarf-trained Mrs. Dixon, and a splendidly bloomed standard of Barbara. Mr. W. Smith, gardener to A. Shipley, Esq., was third with large roughly trained plants. In the class for three specimens Mr. Vowles, Brislington, succeeding in defeating the veteran grower and hitherto almost invincible Mr. Bradner, with excellent examples of the Rundle family. Mr. Bradner was a good second, and was closely followed by Mr. W. Lintern, gardener to W. Bentley, Esq. The latter exhibitor was first with six Pompon Anemone-flowered varieties, these consisting of neat and beautifully flowered examples of Marabout, Marie Stuart, Calliope, Mr. Wyness, Rosinante, and Antonius. Mr. Bradner was second with larger plants lacking freshness, and Mr. E. T. Hill third. Messrs. Lintern and Bradner were respectively first and second for four Pommans. With two standard-trained Japanese varieties Mr. E. T. Hill took the lead, his informally trained specimens of Bertie Rendatler and Fair Maid of Guernsey being exceptionally fine. The last-named was rightly adjudged the bronze Banksian medal of the Royal Horticultural Society. The other successful exhibitors in this class were Mr. Davis, Bedminster, and Mr. J. Lee, gardener to T. M. Miller, Esq. Mr. W. Vowles had the best single pyramid specimen of a large-flowered variety, the remaining prizes going to Mr. H. Smith, gardener to A. Shipley, Esq., and Mr. E. T. Hill; and in the corresponding class for flatly trained specimens the prizewinners were Messrs. E. T. Hill, T. M. Miller, and H. Smith. Trained standards of large-flowered varieties were well shown, Mr. E. T. Hill taking the lead with finely flowered specimens of Prince Alfred, Jardin des Plantes, and Mrs. Rundle. Mr. H. Smith, followed, his three including a good specimen of Mrs. Dixon, and the third prize went to Mr. Bradner. Several of the above exhibitors took other prizes for specimen Chrysanthemums, and Mr. Monkley was also successful.

With six fine-foliaged plants Mr. W. Rye, gardener to J. Derham, Esq., took the lead, his group including very large healthy specimens of Crotons, *Cycas revoluta*, and *Cocos Weddelliana*. Mr. W. J. Mould, Bath, was a good second; Mr. J. H. Stevens, gardener to S. Budgett, Esq., a close third, while to Mr. W. C. Drummond, Bath, was awarded an extra prize. In the corresponding class for four plants Mr. E. Miller, gardener to F. Tagart, Esq., was first with large specimens, the best being Croton undulatum and *Lantana borbonica*. Messrs. J. H. Stevens and W. Rye well won the remaining prizes. Messrs. F. Perry, gardener to H. C. Miles, Esq., W. C. Drummond, and H. K. Ward were the prizewinners in the class for a new or rare plant. There were two classes for six stove and greenhouse Ferns; in one case Messrs. W. J. Mould and H. Bannister, gardener to H. St. Vincent-Ames, Esq., were the prizewinners, and in the other Messrs. E. Miller, W. Rye, and H. K. Ward were successful, all staging large well-grown specimens of choice well-known kinds. Poinsettias were well shown by Messrs. E. Miller and J. H. Stevens; Primulas by Messrs. W. Bannister, C. Saggett, and B. Castle; Celosias by F. Perry and W. Bannister; berried plants by Messrs. W. Lintern, H. K. Ward, and T. West; Bouvardias by W. Rye and J. H. Stevens, and Pelargoniums by C. Saggett and J. Lysaght, who were awarded the prizes in the order named, the competition being also good in each instance. The plants suitable for dinner-table decoration were highly creditable, and notably the first-prize six staged by Mr. J. H. Stevens. Among these Croton Johannis, *Pandanus Veitchii*, and *Dracænas* of the auriantica type were particularly good. The other prizewinners were Messrs. W. K. Wait and H. K. Ward. Several excellent groups of miscellaneous plants were arranged. Mr. W. Rye was placed first with a charming mixture, in which were *Calanthes*, *Cypripediums*, *Oncidium varicosum* Rogersi, *Zygopetalums*, *Cattleyas*, and other Orchids, *Epiphyllums*, and many other choice flowering and fine-foliaged plants. Mr. F. Perry took the second prize for a better arranged group, in which Orchids also figured conspicuously.

Cut Blooms.—All the various classes for these were well filled, but though generally good, we have yet seen finer blooms at previous Bristol Shows. Mr. J. Baylis, Winterbourne, staged the best twenty-four large-flowered varieties (Japanese excluded), among these being fine blooms of Guernsey Nugget, Princess of Wales, Pink Perfection, Cherub, *Rotundifolia*, *Plutus*,

Barbara, Mrs. Heale, White Venus, Bronze Jardin des Plantes, Golden Empress of India, and Prince Alfred. Mr. T. Hobbs was second with smaller but otherwise good blooms, among which the best were Princess of Wales, Mrs. Crossfield, Barbara, and Princess of Teck. Mrs. F. Perry was third. In the corresponding class for twelve varieties Mr. E. S. Cole, gardener to W. Pethick, Esq., was a good first, his most noteworthy blooms being of Miss M. Morgan, Golden Empress of India, Cherub, John Salter, Empress of India, Mrs. Halliburton, and White Venus. Mr. J. Waite, Frampton Cottrell, was a good second, and Mr. W. Carpenter, gardener to J. G. Livingstone, Esq., third. With six blooms Messrs. Baylis, G. Milliner, gardener to Miss Richardson, and E. S. Cole were the prizewinners in a very good class. Messrs. E. S. Cole, J. Baylis, and T. Hobbs took special prizes in the order named for twelve large-flowered varieties with blooms generally good, and the same exhibitors were also successful with large Anemone-flowered. Japanese varieties were well represented. Of these the best twelve were staged by Mr. W. Carpenter, the most noteworthy being The Daimio, Bronze Dragon, Gloire de Toulouse, Parasol, Cry Kang, Fair Maid of Guernsey, and Comte de Germany. In Mr. E. S. Cole's second-prize stand were fine blooms of Meg Merrilees, Red Dragon, Sarnia, Baron de Prailly, and Grandiflorum. Mr. Carpenter was also first with twelve Japanese in not less than six varieties, the selection being similar to those above enumerated. Mr. J. Baylis was a good second, his stand including fine blooms of Golden Dragon, Bertie Rendatler, and Yellow Dragon.

There were two classes for hand bouquets, and in these there were seventeen good exhibits. As a rule the competitors appeared to have too many choice flowers available, and as a consequence made their bouquets too tight and too neat. Mr. M. Hookings was first in both classes. Messrs. E. S. Cole and J. H. Stevens each took a second prize, and thirds were won by Messrs. R. Symes and Stevens. As a central flower Mr. Cole had in his bouquet a magnificent bloom of Maréchal Niel Rose. The vases of cut flowers were also creditably shown, the prizewinners being Messrs. Hookings, E. T. Hill, and J. H. Virgo. Very beautiful were the baskets and vases filled with outdoor autumn foliage and berries. Of these the successful exhibitors were Miss Wetherel, and Messrs. Virgo, Hill, and Hookings.

Fruit.—The best collection of six dishes was staged by Mr. Nash, gardener to the Duke of Beaufort, and consisted of good Lady Downes' and Muscat of Alexandria Grapes, Blenheim Orange Melon, Medlars, Beurré Diel Pears, and Ross Nonpareil Apples. Mr. W. Bannister was second, and Mr. H. K. Ward third, both staging creditably. Mr. A. Miller, gardener to W. H. Long, Esq., Rood Ashton, took a first prize for a large and handsome well-ripened fruit of Charlotte Rothschild Pine Apple, the second prize going to Mr. A. Patison for a good-sized and rather over-ripe Queen. Messrs. Bannister, G. Bright, and J. Bradner were the successful exhibitors of Black Hamburgh Grapes, and Mr. Bannister received a first prize for fairly good bunches of Muscat of Alexandria. In the class for two bunches of any black variety of Grapes Mr. Nash had splendid examples of Black Alicante, and in addition to receiving the first prize was awarded the silver Banksian medal of the Royal Horticultural Society. Mr. W. Rye followed with two good heavy bunches of the same variety, and Mr. H. K. Ward took the third prize also with Black Alicante in good condition. Lady Downes' Grapes were well shown by Messrs. J. Marshal, gardener to M. Whitwell, Esq.; J. Loosemore, gardener to W. Cooper, Esq., and E. S. Cole. Mr. Nash was first with four bunches in two varieties, staging very fine Black Alicante and fairly good Muscat of Alexandria. Mr. Bannister was a good second, and the third prize was awarded to Mr. W. Sweeting. Pears were largely shown, and but few poor dishes were to be seen. Mr. W. Rye was first with six dishes, having very fine examples of Beurré Diel, Glou Morceau, Leon le Clerc, Doyenné du Comice, Duchesse d'Angoulême, and Beurré Bachelier. Mr. W. Bannister was a good second, and Mr. A. T. Hall third. Mr. Rye was also first with four dishes, the remaining prizes going to Mr. M. Cole, gardener to R. B. Cater, Esq., Bath, and Mr. J. Aplin, gardener to W. M. Baker, Esq. For a single dish W. Derham, Esq., was first with very fine fruit of Marie Louise. A splendid lot of Apples were shown; of these the best six dishes of dessert varieties were staged by Mr. Bannister, these consisting of Worcester Pearmain, Cornish Gilliflower, Cox's Orange Pippin, Scarlet Pearmain, Kentish Pippin, and Ribston Pippin. Mr. Aplin was a close second, and Mr. A. T. Hall took the third prize. Mr. C. Saggett was first with four varieties, these being handsome; fruit of Sturmer Pippin, Cornish Gilliflower, King of the Pippins, and Cox's Orange Pippin. Messrs. E. T. Hill and Bannister were the other prizetakers. In a large class for single dishes Mr. E. Miller won first prize with Cox's Orange Pippin; Mr. M. Cole following with Blenheim Orange, and Mr. Virgo was third with Ribston Pippin. Fewer kitchen Apples were shown, but all were good. Mr. Aplin took the lead with heavy examples of Malster, Waltham Abbey Seedling, Blenheim Orange, Lord Derby, Hanwell Souring, and Royal Russet. The remaining prizes were taken by Messrs. E. T. Hill and A. T. Hall. A very fine dish of Blenheim Orange staged by Mr. Aplin was adjudged the best in the single-dish class, Mr. E. T. Hill following with the same variety, only slightly smaller, and Mr. Bannister took the third prize for fine fruit of Emperor Alexander.

Vegetables.—Several good collections of nine varieties of these were staged. Mr. Bannister won with very good examples of Filbasket Tomatoes, Veitch's Red Globe Turnips, Danver's Yellow Turnips, Pragnell's Exhibition Beet, Lapstone Kidney Potatoes, Autumn Giant Cauliflowers, Veitch's Exhibition Sprouts, Student Parsnips, and Mushrooms. Mr. E. T. Hill was second, and Mr. O'Brien, gardener to Mrs. R. P. King, was third. The prizes for Cucumbers were won by Mr. M. Cole, Capt. Halcock, and J. H. Stevens.

BIRMINGHAM, NOVEMBER 21ST AND 22ND.

SPLendid plants have invariably been exhibited at the annual Chrysanthemum shows of the metropolis of the midlands; but cut blooms have never been seen of nearly equal merit until at the Exhibition under notice. Recognising the weak point of their shows the directorate wisely endeavoured to remedy the defect, and with this object provided a series of liberal prizes, that for forty-eight blooms being especially encouraging, for not only was the first award of substantial value, but the second, third, and fourth were of fairly graduated amounts. Viewed in this respect this was the best provided for and best balanced class of the year. It was also fairly responded to, every prize being taken, and with blooms proportionate in merit as indicated by the sums apportioned—£10, £7, £4, and £2: every exhibitor, therefore, had a just reward for his productions.

As was briefly recorded last week the prizes in the premier class referred to—twenty-four incurved and twenty-four Japanese varieties—were awarded in the order named to Mr. Tunnington, gardener to C. McIver, Esq., Calderstones, Liverpool; Mr. Jellicoe, gardener to J. H. Gossage, Esq., Liverpool; Mr. Comfort, gardener to G. A. Everitt, Esq., Knowle; and Mr. Neal, gardener to P. Southby, Esq., Bampton, Oxon. These were the only competitors, and some disappointment was expressed that no metropolitan growers had entered the lists. A disposition exists to increase the value of the prizes for cut blooms another year, in the hope that Birmingham, being so central and about equally accessible to southern and northern cultivators, will witness stronger competition and more widely representative examples of culture.

For the chief prize under notice the real contest was between the two Liverpool gardeners, and the veteran won by the superiority of his incurved flowers, his Japanese not being any advance on those of Mr. Jellicoe. Both collections, however, were highly meritorious, and for comparison we give the names of the flowers and their arrangement in each case, reading the rows from left to right as in reading these lines.

Incurved Flowers.—Mr. Tunnington's stand.—Back row: Bronze Jardin des Plantes, Princess of Wales, Alfred Salter, Mrs. Heale, Emily Dale, John Salter, Queen of England, Empress of India; a grand row, rarely equalled, and perhaps never surpassed. The second row comprised Venus, Jeanne d'Arc, a splendid bloom of a promising new variety; Golden Empress, Sir Stafford Carey, Hero of Stoke Newington, Jardin des Plantes, Prince Alfred, and Beauty, all fine. Front row: Mrs. Halliburton, Nil Desperandum, Isabella Bott, Barbara, Princess of Teck, Refulgence, Mrs. Shipman, and Eve. The finest blooms, and magnificent they were, were Alfred Salter, Mrs. Heale, Queen of England, Empress of India, Jeanne d'Arc, Barbara, and Refulgence.

Mr. Jellicoe's stand.—Back row: Mr. Howe, Mrs. Heale, Miss Mary Morgan, Princess of Wales, Empress of India, Prince Alfred, Golden Empress, and Queen of England. Second row: White Beverley, Alfred Salter, Mr. Bunn, Pink Venus, Cherub, Beauty, White Globe, and Refulgence. Front row: Lady Hardinge, White Venus, Prince of Wales, Barbara, Lady Slade, Eve, Little Pet, and Jardin des Plantes. Particularly good, indeed about perfect, were Princess of Wales, Refulgence, Barbara, and one of the finest examples of Eve ever seen staged. This was a very excellent stand, but the other was heavier, Mr. Tunnington staging in his best form—that is better than he has ever done at Kingston.

Japanese Flowers.—Mr. Tunnington's stand.—Back row: Soliel Levant, Sarnia, Ethel, Oracle, Fair Maid of Guernsey, Japonais (orange-red, effective), Madame C. Audiguier, and Elaine. Second row: Meg Merrilees, Bismarck, L'Ardoise, Hiver Fleur, Chang, Baron de Prailly, Peter the Great, and La Nympe. Front row: Rosa Bonheur, Album striatum, Patria, Criterion, Mdlle. Moulise, Flambeau, Delicata, and Striatum. The leading blooms were Soliel Levant, Meg Merrilees, Peter the Great, and Rosa Bonheur. Mr. Jellicoe's stand.—Back row: Peter the Great, M. Ardene, Criterion, Elaine, Comtesse de Beauregard, Meg Merrilees, Golden Dragon, and Sultan. Second row: La Nympe, Triomphe du Nord, Baron de Prailly, La Boule d'Or, Ducal, Bismarck, Dr. Macary, and Fair Maid of Guernsey. Front row: Mons. Lemoine, Madame B. Rendatler, Gloire de Toulouse, Sarnia, Apollo, Hiver Fleur, Flambeau, and Bronze Dragon. Very superior were Elaine, Golden Dragon, and La Nympe. These two stands were of about equal merit, but neither of them so good as the best collections at the metropolitan and Southampton shows.

Mr. Comfort was an excellent third, his stands containing many blooms of merit, including the best example of Jardin des Plantes in the Show if not of the season, also Baron de Prailly and M. Ardene in grand condition. Mr. G. Neal had smaller yet neat fresh blooms, Cherub and Triomphe de Chatelet being the gems of the stands. In the open class for twenty-four blooms five capital collections were staged, the prizes going in the same order as in the preceding class; and for the prizes offered for eighteen blooms four stands were placed in competition, Mr. Tunnington being once more to the fore, followed by Messrs. Comfort and Shingler, gardener to T. B. Salter, Esq., West Bromwich. The blooms in these collections were similar in character to those in the premier class.

The first prize for a stand of twelve reflexed varieties in six varieties was won by Mr. Jellicoe with handsome blooms of Golden Christine, King of the Crimson, Mrs. Forsyth, Chevalier Domage, Beauté du Nord, and Lilac Christine, Mr. Neale being a creditable second with neat flowers. Those exhibitors were placed in the same order with twelve Anemone varieties, the competition being extremely close. Gluck in the first-prize, Emperor in the second were very fine indeed. An admirable stand of twelve Japanese blooms was exhibited by Mr. Neale, which easily secured for him the first prize. Triomphe de Chatelet was splendidly represented in the stand. Messrs. Comfort and Shingler followed in the order named with bright and effective collections.

Specimen Plants.—These were grandly exhibited. In the chief class for nine specimens Mr. Dyer, gardener to W. Showell, Esq., Edgbaston, won the cup with splendid examples, Prince of Wales, John Salter, Bronze Jardin des Plantes, and Lady Hardinge being very striking. The plants were about 2 feet high from the pots, convex, 4½ feet in diameter, bearing from eighty to 100 grand blooms each, relieved by excellent foliage. There was only one fault in one or two of the plants—the stems had been bent too near the top, giving a laced appearance, which always detracts from their merit, still the group was a grand one. Mr. Crook, Edgbaston, was second in this class with fairly good examples. Mr. Dyer was far ahead of other competitors with six plants similar to the cup collection; Mr. W. Doughty, gardener to H. H. Hill, Esq., Edgbaston, was second, Empress of India being very striking; and Mr. Brasier, gardener to T. Martineau, Esq., Edgbaston, third with larger plants but smaller flowers. The prizes for single specimens were won by Messrs. Dyer and Brasier in the order named, both staging Mrs. G. Rundle, fine plants, but the flowers too small.

Pompons.—Mr. Dyer won the chief prize for six plants with specimens of remarkable merit, about 18 inches high from the pots, shaped like inverted saucers, 5 feet in diameter, covered with fine blooms and foliage, with not a stake to be seen. Rose Trevenna, with Mdlle. Marthe and Cedo Nulli (including the Golden variety first in the single-specimen class) have not been equalled at any show we have seen this year. They were indeed marvellous examples of culture. Mr. Brasier was an excellent second in

both these classes. Mr. Day, gardener to H. Elkington, Esq., Edgbaston, took the lead with three plants; Mr. James, gardener to W. C. B. Cave, Esq., Edgbaston, following with creditable examples.

Groups.—These were not of striking merit. The best was undoubtedly that of Mr. Hughes, gardener to F. Ostler, Esq., Edgbaston, which was awarded first honours; Mr. Shingler being second with smaller and less vigorous plants. These groups were not nearly equal to those at metropolitan shows, nor were the specimen plants of Japanese varieties, which were so weak that we did not take the names of the exhibitors of them.

Miscellaneous Plants.—In the class for nine specimen stove and greenhouse plants Mr. Jones, gardener to C. E. Matthews, Esq., Edgbaston, was first with an excellent group; *Gleichenia Mendelli*, a globe 7 feet in diameter, *Erica hyemalis* 5 feet, and *Chorozema cordata splendens* 4 feet, being the most notable examples, and fine they were. Mr. Doughty was an excellent second, *Thrinax elegans* and *Clerodendron Balfourianum* being very telling; and Mr. Shingler third. In the class for six specimens Mr. Brasier was first with very healthy and well-grown plants, *Callicarpa purpurea* attracting much notice by its long arching branches covered to the length of 2 feet with clusters of purple berries. Mr. Jones was second; and Mr. Cooper, gardener to the Right Hon. J. Chamberlain, M.P., third with fresh neat examples.

Primulas.—These plants are always well and extensively shown at Birmingham, six classes and upwards of twenty prizes being provided for them. Mr. Caldecott, a first-rate grower, appeared to be the most successful exhibitor. First prizes were also won by the Rev. E. H. Kittoe, Sutton Coldfield, for doubles, and by Messrs. Dyer and Pope for singles, with very fine examples. Mr. W. Matthews and Mr. Clarke, gardener to Lady Edwardes, Ashbourne, were also prizewinners with very creditable collections. Other classes were occupied with *Epiphyllums*, *Mignonette*, *Cyclamens*, and *Poinsettias*, but we are compelled to pass them through the great pressure on our columns. But we must not omit to mention that Messrs. Pope & Sons, Hans Niemand, and Vertegans contributed effectively to the Show; the first-named by choice and well-grown Zonal *Pelargoniums* in 4 and 5-inch pots; the second by a handsome group comprising good *Poinsettias*, *Cyclamens*, *Bouvardias*, and the charming *Adiantum Victoriae*, and the third-named exhibitor by healthy table plants, Ferns, and *Calanthes*.

Bouquets were very good indeed, Messrs. James, Harborne, and Perkins, Coventry, being the chief prizewinners; but perhaps the finest arrangements were those not in competition by Messrs. Hans Niemand and Pope & Sons. *Epergnes* were comparatively inferior.

Fruit.—Of this the display was extensive, Grapes, Apples, and Pears being very good. The collections of six dishes were the weak point. The first prize went to Mr. Coysh, gardener to E. Wood, Esq., Rugeley, one dish being Quinces, which we do not remember ever seeing before in a premier collection. Messrs. Freeman, gardener to Z. Walker, Esq., J. Bannister, gardener to H. St. Vincent Ames, Esq., Bristol, had the remaining prizes, the collection of the last-named exhibitor being probably as good as any on the table, but the Judges had evidently a difficult task in determining the awards. Messrs. Fraser, Ledbury, and Tunnington secured the prizes for Pines. For three bunches of black Grapes the prizes went as follows:—First, Mr. Fraser with Gros Colman; second, Mr. Clarke, Ashbourne, with Alicante; third, Mr. Muncaster, gardener to W. H. Wynn, Esq., Selly Oak, with Mrs. Pince, all exhibiting well. Gillman, Ingestrie, was first in both the classes for Muscats with superb examples, followed by Messrs. Comfort and Clarke. Mr. Gillman secured the chief honours also in the non-Muscate class with Trebbiano, very good indeed.

Of Apples there was a great display, Mr. Edwards, gardener to H. Higgins, Esq., Thinghall, winning premier honours with grand dishes, followed by Messrs. Ashman, Slade, and Mitchinson, all staging superior produce. Pears were splendidly staged by Messrs. Comfort, Freeman, Ashman, Bannister, Fraser, and Mitchinson, who received the prizes. Messrs. Cranston & Co., Hereford; Smith & Co., Worcester; and James Dickson & Son, Chester, were awarded certificates for admirable collections, the new variety, Taylor's Kernel, a fine new conical Apple from the first-named exhibitors attracting attention; and Mr. Mitchinson, gardener to the Hon. A. C. G. Calthorpe, Perry Hall, Birmingham, staged a good dish of *Vicomtesse Héricart de Thury* Strawberries in various stages of ripeness, showing its continuous bearing character.

Altogether the Show was an excellent one, and admirably conducted by Messrs. Latham, Stacey, with other members of the Committee, and Mr. Redfern the Secretary.

NOTTINGHAM, NOVEMBER 21ST AND 22ND.

THE first Chrysanthemum Show in connection with the Nottingham Horticultural and Botanical Society was held in the fine room of the Mechanics' Institute on the 21st and 22nd inst. The hall had a cheerful appearance, the groups arranged for effect being disposed in circles with plenty of room for visitors to pass between and around them. In the centre was an effective miscellaneous group from Mr. German, gardener to T. B. Cutts, Esq., Malvern House, comprising a very fine *Cordyline*, Ferns, &c., while at the end of the room S. Thacker, Esq., Ball Street, St. Ann's, had an attractive arrangement of very choice plants. The groups of Chrysanthemums in competition were composed of ordinarily grown plants which had not been disbudded, except the first-prize arrangement of Mr. German, which far excelled the others exhibited by Mr. Massey, gardener to Capt. Lambert, Mapperley Hall, and Mr. G. Commins, Coal Pit Lane, who had the remaining prizes in the order named. There is abundance of room for improvement in this class, and still more in the classes for specimen plants, which we never saw so inferior, the only examples worth notice being those of Mr. German.

The cut blooms were the feature of the Show, not only because of the intrinsic merit of many of them, but by the method of exhibiting. For the encouragement of small amateurs as many as thirty-six prizes were offered in three classes—namely, for six, four, and three blooms, the amounts ranging from £1 to 1s. The blooms in competition were cut with a foot of stem attached, thus showing the foliage as well as the flower, each stem being inserted in a wine bottle, the names of the varieties either being stuck on the bottles or pinned to a leaf according to the taste of the exhibitor. The dozens of bottles and blooms neatly arranged had a remarkable effect, not a few of the flowers being of considerable merit, for though not large they were particularly neat. A great favourite is Lady Slade, of which there

were many charming examples, one of which was selected as the champion of the Show. *Le Grand*, a fawn-coloured counterpart of the above, we never saw so numerous at any show, and seldom so neat and good. *Barbara* and *Cherub* were also excellently represented, as was Mr. Bunn, finer blooms of which were perhaps seldom seen. Messrs. Whitechurch, 38, Dickinson Street; Grundy & Land, Beck Street; Jackson, Welbeck Street; Church, Bloomfield Street, were amongst the foremost prizetakers, and a warm word of commendation is due to them for the excellence of their exhibits.

In the larger classes the blooms were not of equal merit, though some good examples were staged. Mr. Attewell, 273, St. Ann's Well, secured the first prize for twelve blooms shown on stems a foot long with excellent foliage—a good and effective stand, Mr. Bunn being very fine indeed. Messrs. J. & H. Hickling, Loughborough, were second with neat examples shown in boxes, and Mr. Commins third, but the flowers being almost lost in their much-too-large paper collars. In the class for twenty-four blooms the prizes went to Messrs. Hickling, Commins, and German respectively. The best twelve Pompons were staged in small handfuls by Mr. Edington, gardener to H. Ashwell, Esq., Woodthorpe Grange, who was worthily awarded the first prize, followed by Mr. Webb, Kelham Hall, with creditable examples. Mr. German was awarded the first prize for twelve Japanese blooms, neat and bright, but only about half the size of first-class examples. Mr. Wooton, gardener to Major Robinson, Widnespool Hall, had the best *Primulas*; followed by Messrs. Edington and Meadows, gardener to C. Cox, Esq., Rock House, Barford. The first-prize six were compact, the second in remarkable colours, the third large but coarse. There is room for improvement.

Fruit and Potatoes were excellent. Mr. Webb, Kelham Hall, was deservedly awarded the first prize for a collection of six dishes of fruit, consisting of a plump Pine, good Alicante and Muscat Grapes, fine Pitmaston Duchess and Fondante de Cuene Pears, and Ribston Pippin Apples. For two bunches of black Grapes the first prize went to Mr. Edington with good bunches, but rather small yet well-finished berries; Mr. Anderson, gardener to B. Clifton, Esq., Clifton Hall, being second with smaller bunches but finer berries, and Mr. Webb third. In the class for white Grapes Mr. Edington was first with neat examples of Golden Queen. A very fine collection of Grapes was staged by Mr. Goodacre of Elvaston not for competition, and was highly commended.

Large and fine collections of Apples were staged by Messrs. Ingram, Belvoir Castle; Goodacre, Elvaston; and Pearson, Chilwell, which were deservedly very highly commended by the Judges, each exhibitor having a hundred dishes. Very good dishes were also placed in competition, also splendid Pitmaston Duchess Pears by Mr. Anderson.

Potatoes were of great excellence, several being too large perhaps, but clean and symmetrical, and better examples of culture were seldom seen than those staged by Mr. Bellis, Newstead Abbey, and Messrs. Adland, Middleton, and Browne. We have made no pretence to give a full report of the Show, our object being to indicate its general character as clearly as possible in the brief space at our disposal; and, except the Chrysanthemum plants, the display was deserving of a greater crush of visitors than attended. The date was, however, possibly a little late, and a number of smaller shows had been held previously. The Committee of the Society, with Messrs. Don and Steward, the Honorary Secretaries, deserve support and the success they have so laudably endeavoured to win in seeking to establish a good general autumn Show in Nottingham.

NORTHAMPTON, NOVEMBER 21ST AND 22ND.

THIS flourishing Society held their twelfth annual Exhibition in the Corn Exchange, Northampton, on the above dates. Groups and specimen plants were arranged around the sides of the building, while long lines of tabling were disposed down the centre, on which the cut blooms, *Primulas*, table decorations, fruit, and vegetables were abundantly exhibited, and the whole of the sixty-three classes were almost without exception well filled. The Show was admirably arranged by the Hon. Sec., Mr. Draper, who was ably assisted by their Chairman, Mr. Gulliver, and others of the Executive.

Plants.—For six large-flowering incurved, distinct varieties, open, five collections were staged, and first honours were secured by Mr. Gwilliam, gardener to T. Sheppard, Esq., Billing Road, for medium-size evenly trained examples of Lord Derby, Mrs. Dixon, Guernsey Nugget, Prince of Wales, Mrs. G. Rundle, and Mr. G. Glenny. Mr. W. Rollings, gardener to the Rev. A. A. Longhurst, Abingdon Rectory, was a close second, one or two plants being fine, but others were past their best; and Mr. T. Ingram, gardener to W. Butler, Esq., Durston House, was a good third. In the class for four plants, open to all amateurs, there were six competitors. G. H. Percival, Esq., Abingdon Road, received the premier prize with medium-sized and profusely flowered examples. Mr. L. Spencer, 88, Lower Thrift Street, and Mr. Manning, 20, Lower Mount, occupied the second and third positions with very creditable collections. Japanese, upright-trained plants were well shown. Mr. W. Rollings worthily gained the first prize with Mons. Lemoine, *Espérance*, Madame Bertie Rendatler, Fair Maid of Guernsey, La Nymphy, and Elaine, very fine. Mr. J. Green, gardener to W. Shoosmith, Esq., Billing Road, was a good second, and Mr. J. W. Abrahams, gardener to Mrs. Howes, 9, Spencer Road, a close third. Upright-trained incurved plants were also represented by several collections, Mr. Green again taking the premier position with Lady Hardinge, Mrs. Dixon, Mrs. G. Rundle, and John Salter. Messrs. Rollings and Abrahams were second and third respectively. Mr. Abrahams was also placed first for four reflexed varieties, exhibiting a highly creditable collection. Specimen Pompons were of good quality, Mr. Gwilliam being placed first in the class for four plants, Mr. W. Rollings second, and Mr. J. W. Abrahams third, all exhibiting neatly trained and evenly flowered plants, the best examples being *Mlle. Marthe*; Brown, Lilac, and White Cedo Nullis, and Dick Turpin. Mr. Green and Mr. Gwilliam are first and second respectively for a single trained specimens.

Prizes were offered for standard specimens. These were poorly represented, the Judges only awarding one third prize in the two classes set apart for them. Several classes for plants followed for amateurs of Northamptonshire only. For six Japanese Messrs. Percival, Manning, and Dunkley were placed first, second, and third respectively; and in the remaining classes Messrs. Spencer, Lear, and Dunkley were the principal

prizetakers, the whole of which collections were highly creditable to them. Groups were represented by five collections, arranged in a space 6 feet by 8 feet. Mr. Green was placed first for a tastefully arranged group, the colours well blended and the blooms of fairly good quality. Mr. Abrahams followed, but his plants were crowded; and Mr. Dunkley, Hardington Lodge, third.

Cut Blooms.—These were decidedly in advance of those in past years both in numbers and quality. In the open class for twenty-four incurved, distinct, for which the prizes were—first, four guineas; second, two guineas; and third, one guinea, there were four competitors. Messrs. S. Dixon and Co., The Amhurst Nurseries, Hackney, were awarded the first position for a fresh and good collection, consisting of Empress of India, Queen of England, Golden Empress of India, John Salter, Lord Wolseley (fine), Mr. Corbay, Princess Teck, Hero of Stoke Newington, Barbara, Jardin des Plantes, Rev. J. Dix, Enamel, White Venus, Eve, Cherub, Nil Desperandum, Venus, Golden Eagle, Mrs. G. Ruddle, Mrs. Shipman, Prince Alfred, Angelina, Golden Queen of England, and Princess of Wales. Mr. Berry, Roehampton, was awarded the second honours with a neat and bright collection, his best flowers being Baron Beust, John Salter, Queen of England, Golden Empress, and Antonelli. Mr. A. Walter, gardener to A. B. Loader, Esq., third with a good lot.

In the open class for amateurs, twelve distinct, incurved, Mr. Fowkes, 30, Cyril Street, Northampton, out-distanced all other competitors with a neat stand of well-formed flowers of Empress of India, Golden Empress of India, Queen of England, Prince Alfred, Jardin des Plantes, Princess Teck, Princess of Wales, John Salter, Barbara, Prince of Wales, and Hero of Stoke Newington. Mr. Robert Hart, 20, Cyril Street, was awarded the second prize, and Mr. Dixon, Gayton, was third. For eighteen Japanese varieties, distinct, five collections were staged. Mr. Walter was a very good first with bright and clean flowers of Comte de Germiny, Rosa Bonheur, M. Delaux, Comtesse de Beaugard, Elaine, Rubrum striatum, L'Incomparable, Cossack, Ethel, Madame Lemoine, Dr. Macary, Nuit di Automne, Lady Selborne, Tendresse, Agreement de la Nature, James Salter, and Rêve de Printemps. Mr. Green and the Hon. Mrs. Eykyn were placed second and third. For six Japanese, one variety, Mr. Green was first with Elaine, Mr. Abrahams second, and Mr. J. Garfirth, gardener to P. Phipp, Esq., M.P., Collingtree, third, the first-named showing Fair Maid of Guernsey, and the latter Soleil Levant.

In the class for twelve incurved, open to the gardeners in Northamptonshire only, several good collections were staged, Mr. Green being to the fore with Queen of England, Golden Empress of India, Princess Teck, Princess of Wales, John Salter, Empress of India, Mr. Bunn, Mrs. Dixon, Hero of Stoke Newington, Barbara, Mrs. Heales, and Cherub. The Hon. Mrs. Eykyn and Mr. Abrahams were placed in the order of their names for fairly good collections. For six blooms of one variety Mr. Green staged six grand blooms of Princess Teck in the class open to gardeners, and Mr. Fowkes had splendid examples of Queen of England for first awards in the amateurs. Mr. Fowkes was also well to the fore with twelve cut blooms, distinct, with John Salter, Princess of Wales, Empress of India, Golden Empress of India, Mrs. Heales, Baron Beust, Venus, Barbara, Angelina, Princess Teck, Hero of Stoke Newington, and Lady Slade. Messrs. Ford and Hart were second and third respectively, exhibiting very creditably.

Upwards of 200 Primulas were arranged on the several tables, the whole of which were splendid examples of culture. Messrs. Rollings, Green, and Lewin were the leading prizetakers.

Fruit and vegetables, as well as collections of Potatoes, were abundantly shown and of good quality. For Messrs. Sutton & Sons' prizes for the best collection of six distinct varieties Mr. Stephens, Great Houghton, staged a most meritorious collection, consisting of Aigburth Brussels Sprouts, Veitch's Autumn Giant Cauliflower, Elcombe's Improved Parsnip, Snowdrop Potato, Dobbie's Golden Ball Turnip, and Walker's Exhibition Onion. The same exhibitor, although an amateur, also secured the first prize for six dishes of Potatoes, three kidney and three round, open to all in Northampton, in which class about twenty collections were staged.

SHROPSHIRE GARDENERS AND AMATEURS, NOVEMBER 22ND.

The above Society held their first Show of fruit and Chrysanthemums in Shrewsbury on Thursday last. The Society has scarcely been in existence twelve months, and held a successful Rose Show in July, and the fruit and Chrysanthemum Exhibition held on Thursday was another success. The plants were rather weak, but cut blooms and fruit were admirably represented. The following were the chief prizetakers:—

Plants.—For six large-flowering plants Rev. J. D. Corbett (gardener, Mr. Milner) was first with good plants of Mrs. G. Ruddle and George Glenny; second Mr. J. Watson (gardener, Mr. Pursar). Three large-flowering plants, distinct, first Mrs. Burton (gardener, Mr. Turbelle); second Mr. George Townsend. Three Pompons, first Rev. J. D. Corbett (gardener Mr. Milner). For large-flowering standards, first Rev. J. D. Corbett, and second Dr. Burd. Three ditto distinct, first Mrs. Burton; and second Mr. George Townsend, an amateur.

Cut Blooms.—These were grand and the competition close. For twenty-four cut blooms, large-flowering varieties, distinct, Mr. Lambert was first with Sarnia, Fair Maid of Guernsey, Hiver Fleur, Peter the Great, Prince Alfred, and M. Lemoine very fine, and other good varieties. Second Mr. Beatie (gardener, Mr. Bremmel); third Mr. Milner. For twenty-four Japanese, distinct, not less than eighteen varieties, Mr. Lambert was first with Soleil Levant, Ethel, Elaine, Chang, Madame C. Audiguier, Curiosity, Cry Kang, and Fair Maid of Guernsey, and others equally fine. Second Mr. J. Beatie with blooms scarcely inferior; third Rev. J. D. Corbett. For twelve cut blooms, distinct, first Col. Wingfield (gardener, Mr. Lambert); second J. Beatie, Esq.; third Rev. J. D. Corbett. For twelve blooms (amateurs), first C. M. Campbell, Esq. Twelve Primulas (open), first Rev. J. D. Corbett. Six Primulas (amateurs), first Mr. G. Townsend.

Fruit.—For three bunches of black Grapes, one variety, first Col. Wingfield. For three bunches of white Grapes, first J. Watson, Esq. (gardener, Mr. Pursar) with splendid bunches cut from Vines fifty years old; second Col. Wingfield. For four bunches of Grapes, four varieties, first Rev. J. D. Corbett with beautiful bunches of Lady Downes', Muscat of Alexandria, Pearson's Golden Queen, and Black Alicante; second Col. Wingfield. For two bunches of black Grapes (amateurs who employ no gardener). These

were little inferior to the professional classes, and were very creditable to the growers. First Mr. W. Humphreys; second Dr. Burd. Two bunches of white Grapes, first Mr. W. Humphreys. For the best collection of Apples and Pears there were three exhibitors, who staged about sixty dishes each, all showing remarkable examples. First Rev. J. D. Corbett; second Col. Wingfield. For twelve dishes of Pears, first Rev. J. D. Corbett with a fine collection, but unfortunately not named; second Col. Wingfield. For six dishes of Pears, first J. Watson, Esq., with splendid fruit of Marie Louise, Passe Colmar, Beurre Clairgeau, Winter Nelis, Doyenné Gris. Second Col. Wingfield. For three dishes of Pears (amateurs), first Mr. G. Harries; second Mr. C. M. Campbell. For one dish dessert Pears, first C. M. Campbell, Esq.; second G. Harries, Esq. Twelve dishes of Apples, distinct, first Col. Wingfield with Orange Pearmain, Waltham Abbey Seedling, Peach Apple, Hawthornden, Blenheim Pippin, Dumelow's Seedling, Claygate Pearmain, and Ribston Pippin—all grand fruits. Second Rev. J. D. Corbett. For six dishes of Apples, first J. Watson, Esq.; second Col. Wingfield. For three dishes of Apples (amateurs), first Mr. T. Wood; second Mr. George Townsend. For one dish of dessert Apples, first Mr. E. W. Pritchard; second Col. Wingfield.

Plants and fruit were sent not for competition by J. Watson, Esq.; Mrs. Burton, Longner; and Messrs. Jones & Sons, Coton Hill, exhibited a large group in the centre of the room, also a large collection of fruit and Chrysanthemum blooms, a wreath and cross, and two of their noted bouquets. Great praise is due to the Committee, and Treasurer (Mr. E. N. Pritchard), and Secretaries (Messrs. H. & S. Jones), all of whom worked hard and gratuitously. The Society intends holding a two-days Rose show next July, at the same time as the visit of the Royal Agricultural Society to the town.

READING, NOVEMBER 22ND.

FIRST attempts are always entitled to a certain amount of leniency in criticism, and as this applies equally to flower shows as to other matters, the initiatory efforts of a young Society to establish an exhibition—whether for spring, summer, or autumn—cannot always be expected to result in unqualified success. For this reason we should be inclined to regard the first Reading Chrysanthemum Show in a spirit of moderation; but as it was held in connection with the experienced local horticultural society, it is scarcely entitled to this allowance for its shortcomings. In number of exhibits there was no room for dissatisfaction, but as regards the quality we have reluctantly to record that it was one of the worst we have seen this season. With the exception of the groups there was not a first-rate plant in the whole Exhibition, and there were some that it was a disgrace to the cultivators to show. Blooms, too, were scarcely more than third-rate as compared with those at Kingston, the Royal Aquarium (Westminster), Stoke Newington, and other exhibitions, and it is rather unpleasantly evident that local growers of the Chrysanthemum have very much to learn. So great a degree of skill has now been attained with this popular plant that an exhibition must, to secure adequate support, be fairly representative of the best examples of practice, and it thus becomes instructive in a considerable degree. It is to be hoped for the credit of the district that at the Show in question the best growers did not compete, and that at the next trial a more meritorious class of exhibits will be staged. It is not easy to account for this comparative failure; for though the fixture was late, several other southern shows were equally so and yet well maintained their credit, as, for example, Tunbridge Wells. Perhaps the chief fault was in the schedule, the prizes being small, and in more than two-thirds of the classes only two prizes were offered; in fact, the schedule generally seemed to have been rather carelessly framed, and in several classes there was a want of clearness that was very confusing. For instance, a class was provided for "twelve cut blooms, Japanese, incurved, distinct kinds," and another for a "large-flowering group of twelve in pots, not exceeding 8 inches, to carry three blooms each"—neither of which is very definite. In some classes the word "kinds" is employed, in others "varieties," the former being apparently confined to the Japanese, and it would therefore appear that the Committee is deficient in those practical matters whose advice is so valuable in such cases. With more energy and more careful and liberal arrangements there is no doubt that a highly satisfactory display of Chrysanthemums may yet be seen in Reading; indeed, there is no reason why it should not rank amongst the leading shows of the kind, and thus gain a position proportionate to the fame of the town in the horticultural world.

The handsome Town Hall was devoted to the Exhibition, and it is only fair to state that the plants were well arranged, producing a good effect generally, especially the groups. In the large organ hall, which was used as a promenade, however, the plants were few, and it would have had a very bare effect without the handsome and extensive group of Palms and Chrysanthemums contributed by Mr. Phippen, which was arranged in elliptical form, the plants being mostly freely flowered and tastefully disposed.

Plants.—The best class was that for a group of Chrysanthemums, arranged for effect in a space of 12 feet by 10 feet, in which there were seven competitors. Mr. Baskett, gardener to W. J. Palmer Esq., Reading, secured the first position with a bright and tasteful group, the blooms mostly of good substance and bright in colour. Mr. Turton, gardener to J. Hargreaves, Esq., was a close second, having a larger proportion of Japanese varieties. Mr. Lees, gardener to Mrs. Marsland, The Wilderness, was third with a graceful and attractive group, an extra prize being adjudged to Mr. House, gardener to J. V. Taylor, Esq., Reading. These were placed at one end and one side of the large hall, and furnished the chief attraction of the Show. Mr. Baskett were also the premier exhibitor of four large-flowering and four Japanese, in both cases showing healthy plants. In other classes the principal prizetakers were Messrs. J. Bridge, gardener to J. F. Hall, Esq., Earley Court, Mayne; Miss Moon, Reading; Turton, Lees, and Hermon, F. Skurry, Esq., Reading. In one case the Judges had considerable difficulty in awarding the second prize, as in both collections the plants were very poor, and each included a plant that was nearly dead; and after calling in a third person the decision was, in our opinion, given in favour of the inferior plants, though both lots might have been excluded.

Cut Blooms.—Competitors were numerous in the cut bloom classes, and the majority showed small samples. Nine lots of twenty-four blooms were entered, Mr. Kendall, gardener to H. C. Holland, Esq., Templeton, Roe-

hampton, taking the first place with fairly neat blooms. Mr. Jennings, gardener to J. Freeman, Esq., Farnborough, was second, and Mr. Elliott, gardener to J. Hibbert, Esq., Braywick Lodge, third with small blooms. Mr. Kendall also had the best twelve Japanese, of moderate size, but fresh. The same competitor led in the mixed class for twelve Japanese and incurved, followed by Mr. Tranter of Upper Assenden. Mr. Elliott had a good stand of twelve reflexed blooms, which included fine samples of King of the Crimsons, Dr. Sharpe, Chevalier Domage, Christine, Mrs. Forsyth, and Ariadne.

Fruit was moderately shown, Mr. Bennett taking the chief position with a collection of six kinds, comprising Black Alicante Grapes well coloured, Maréchal du Cour Pears, and Golden Noble Apples being of good size. Mr. Hunt, gardener to Dr. Wills, Reading, was second with a collection of Apples mostly of good size.

TUNBRIDGE WELLS, NOVEMBER 22ND AND 23RD.

It is always pleasant to record success, and this we have to do in regard to the Tunbridge Wells Chrysanthemum Show, for it was undoubtedly one of the best the Society has held, and some of the plants and blooms, but the former especially, were very highly creditable to the growers. It is evident, indeed, that the Society is well managed. There is a great local interest in it, substantial support is afforded, and the result was an Exhibition of great merit and beauty. The large Skating Rink was filled with the contributions, the specimen plants and groups being remarkably fine, and arranged as they were near the walls, produced a brilliant display of colour. The effect was still further improved by having raised stages at each end of the hall upon which the plants were placed in tiers, the pyramidally trained specimens at the top and the dwarf-trained examples below. Two broad centre tables extending the whole length of the building were filled with blooms, Apples, Pears, collections of fruits, Primulas and table plants, all of which were shown in large numbers and of good quality. The general arrangements were very satisfactorily conducted by the Hon. Sec., Mr. E. Charlton, and the energetic Committee.

Plants.—One of the most interesting classes in this section of the schedule was that for eight Chrysanthemums in pots not to exceed 12 inches in diameter, for which the silver cup, value three guineas, was offered by the tradesmen of the town. Mr. A. Stringer, gardener to R. Cunliffe, Esq., Stoneleigh, Newell Park, won this honour with superbly grown and admirably trained specimens, some of which we have not seen surpassed this year. Five of the plants were dwarf-trained, about 3 to 4 feet in diameter, and were as nearly perfect in form, breadth, size and number of blooms as could be desired. Miss Mary Morgan in particular was very handsome, Prince Alfred was similar in merit, Baron Beust and Mrs. Halliburton being a trifle smaller. Three tall pyramids at the back, 5 to 6 feet high, were equally praiseworthy, the varieties being Inner Temple, Mrs. G. Rundle, and Robert James. Mr. R. Bealby, gardener to W. H. Tindall, Esq., Hollyshaw, Camden Park, was a good second, also having some well-grown plants. Three dwarf specimens in particular were excellent, the blooms being of fine substance; these were Jardin des Plantes, Baron Beust, Mrs. Halliburton. The pyramidal plants were fairly good, but thinner than those in the preceding collection. Mr. Ovenden, gardener to W. Newbold, Esq., Broadwater Down, was third. A corresponding class was provided for gardeners and amateurs residing within fourteen miles of Tunbridge Wells, eight plants being required as in the other class, and premier award was a silver cup of equal value presented by the ladies of the town. This invariably brings good competition, and such was the case at this Show, four very fine collections being entered. Mr. Killick, gardener to E. Roche, Esq., Sandfield, Nevill Park, won the cup with vigorous plants bearing large substantial and refined blooms. Hero of Stoke Newington, Lord Derby, and Baron Beust were good dwarf specimens, the pyramids also being of fair quality. Mr. Johnston, gardener to the Marchioness of Camden, Bayham Abbey, was a close second, having La Nympe in splendid condition, a mass of its delicately tinted blooms. Criterion was similarly fine. Mr. Wilkins, The Gardens, Shirley Hall, Langton, took the third place with fairly good plants, Princess Louise being especially notable for the number and substance of the blooms, while Mr. Mitting followed with smaller plants. These two classes formed the leading feature, though several other classes were well represented. At one end of the hall the Pompons were principally staged, and these included some very well grown and freely flowered specimens. Mr. Beilby was the premier exhibitor, taking first with six, four, and one. Antonius was especially good, neatly trained and profusely flowered; Fanny, Calliope, and the Cedo Nullis being equally noteworthy. Mr. Stringer followed in several classes. In the single-handed gardeners' section Mr. Ovenden had the best four Pompons, Salamon, the White and Golden Cedo Nullis, and Antonius flowering freely. Mr. Mitting followed. Messrs. Goodwin, Tilton, and Mitting also showed well in several other classes. At the opposite end of the hall large-flowered and Japanese varieties were chiefly staged, Mr. Stringer securing first honours with the best four large-flowering varieties, even and beautiful, Dr. Sharpe, Princess Teck, Mrs. G. Rundle, Antonelli, and Robert James being the most noticeable. Messrs. Wilkins and Beilby followed closely. Mr. Killick had the leading four plants, King of the Crimsons being uncommonly fine; Mr. Stringer being first in the two classes for a single dwarf-trained specimen large-flowered variety, having Mrs. G. Rundle over 4 feet in diameter and bearing fair blooms, and Pink Venus similarly good. In other classes Messrs. Ovenden, Beilby, Killick, and Tickner were the chief prizetakers, the last-named securing three firsts for dwarf plants in the eight-miles radius classes.

Cut Blooms.—In several of the leading classes blooms of excellent substance were staged, and taking them generally they were very satisfactory, fresh, clean, and neat, if not of great size. In the Mid-Kent and East-Sussex class for twenty-four incurved blooms Mr. Stringer was the premier exhibitor, having extremely refined and pretty blooms of moderate size. Mr. G. Ware, gardener to Mrs. Morgan, Hungershall Park, was second with blooms but little inferior to the first. Messrs. Cheek (gardener to T. F. Gibson, Esq., 10, Broadwater Down), and W. Cornwell (gardener to F. Burchard, Esq., Horsted Place, Uckfield), followed third and fourth respectively. Mr. Cheek had the premier stand of twelve incurved, also neat blooms; and Messrs. Allan, Paine, and Ware secured the remaining awards. Mr. Stringer won leading honours with twelve Anemone varieties, large blooms of Prince

of Anemones and Fleur de Marie being very handsome. In the corresponding class for Anemone Pompons Mr. Scammell, gardener to C. Reilly, Esq., The Priory, Nevill Park, was first, having neat examples of Madame Montels, Antonius, Perle, and Miss Nightingale. Messrs. Allan, Roberts, and Ware secured the remaining prizes. In the fourteen-miles-radius classes the competition was also good, the most important prizes being secured by Mr. Henderson, gardener to J. Deacon, Esq., Mabledon, Tonbridge; Roberts, Stringer, Johnston, Killick, and Legg.

Fruit.—Grapes were largely shown, and mostly of good quality, the black Grapes being especially well coloured, and the competition was keen, as eight collections of three bunches were staged. Mr. Scammell took the lead with Alicante, large in bunch and berry, and superbly coloured. Messrs. Allan and Bashford followed closely, also with highly coloured Alicantes. Six lots of white Grapes were entered, Mr. Legg winning first honours with richly coloured Muscat of Alexandria. Messrs. Pope and Henderson being second and third with the same variety. Apples were extensively shown, and mostly of very good quality. Mr. Goldsmith, gardener to P. C. Hardwicke, Esq., Hollenden, Tonbridge, was the most successful exhibitor in the class for six dishes of dessert Apples, staging Ribston Pippin, Blenheim Pippin, Cornish Aromatic, Fearn's Pippin, and King of the Pippins in very good condition. Mr. Hutchinson, gardener to Mr. Hussey, Scolney Castle, Lamberhurst, was a close second, having Court Pendû Plat, King of the Pippins, and Blenheim Pippin very fine, the last named being highly coloured. Mr. Bridger took the third place, there being four other exhibitors. With three dishes the competition were even more keen, nine lots being staged. Mr. Bridger, gardener to Lord de Lisle, Penshurst, was first, his Blenheim and Ribston Pippins being exceedingly fine. Mr. Goldsmith was second with the same varieties, nearly equally as good. Nine single dishes were staged, Mr. Cornwell leading with Ribston Pippin, Messrs. Goldsmith and Hutchinson following with Cox's Orange Pippin and Court Pendû Plat. Kitchen Apples were in equally strong force, the number of entries being similar in each class. For six varieties Mr. Bridger gained chief honours with fine samples of Golden Noble, Lord Derby, Tower of Glammis, Hollandbury, and Warner's King. Mr. Goldsmith was a close second, having fine Golden Noble, Lord Derby, Reinette du Canada, and Warner's King. Mr. Hutchinson was a good third with even fine fruits. Mr. Bridger was similarly first with three dishes, Warner's King, Lord Derby, and Blenheim Orange, Messrs. Goldsmith and McFeate following. For one dish Mr. F. Guest, Southborough, was first with large and handsome specimens of Warner's King, Mr. Bridger being second with the same variety, and Mr. Hutchinson third with Beauty of Kent. Pears were shown in good numbers, Messrs. Johnston, Goldsmith, McFeate, and Farrant winning principal honours with fine fruits.

Only three collections of fruit were entered, Mr. Henderson being awarded first honours for creditable specimens of Alicante and Muscat of Alexandria Grapes, well ripened, with a good Pine Apple, Pears, and Apples. Mr. Scammell took the second place, his Alicante Grapes being well coloured. Mr. Johnston was third, his collection including some fine Pears.

Miscellaneous plants, including Primulas, Poinsettias, table plants, Epiphyllums, and others were shown in numbers, and added much to the diversity and beauty of the Show. The not-for-competition exhibits comprised a collection of Cyperuses from Mr. J. Charlton, Snmmervale; a number of handsome Apples, Pears, Grapes, and Orchid flowers from Mr. F. Bridger; Grapes, Apple, Pears, Pines, and miscellaneous fruits from Mr. Rust, The Gardens, Eridge Castle; collections of Apples were also sent from J. Scott, Esq., Penshurst, and E. H. Hunter, Esq., Frant.

LIVERPOOL, NOVEMBER 27TH AND 28TH.

The above Society held their annual Exhibition in St. George's Hall. Fortunately the weather during the opening day proved all that could be desired, and the Exhibition was a very great success. It was on the whole very superior, both in the number and quality of the exhibits, to any this Society has yet held. The Grapes were good, but the Apples and Pears were very remarkable for their size and brightness of colour. The Chrysanthemums claim first attention.

Cut Blooms.—These were numerous, but scarcely equal in quality to what we have before seen them at this Exhibition, which was due no doubt to the date. In the principal class for the silver vase, value £10 10s., given by Messrs. J. Williams & Co., for eighteen Japanese and the same number of incurved, there were five competitors. Mr. T. Leadbeater, the Gardens, Bromborough Hall, Cheshire, took the lead; Mr. W. Mease, gardener to C. W. Newmann, Esq., Wincote, Allerton, gained the second place; and Mr. F. Roberts, gardener to W. D. Holt, Esq., West Derby, was third. The blooms in the first collection were—Back row: Fair Maid of Guernsey, good; Baronne de Prailly, Japonaise, Madame C. Audiguer, Meg Merrilees, and Criterion, very fine. Second row: Oracle, Hiver Fleur, Elaine, Rosa Bonheur, and Peter the Great. Third row: Flambeau, Magnum Bonum, L'Incomparable, Cry Kang, The Cossack, and La Nympe. The incurved varieties being—Back row: Princess of Wales, good; Golden Empress, Alfred Salter, Queen of England, Emily Dale, and Empress of India. Second row: Jardin des Plantes, Mrs. Heale, John Salter, Princess of Teck, Cherub, and Hero of Stoke Newington. Front row: Venus, St. Patrick, Mr. Bunn, Prince Alfred, White Venus, and Barbara. In the class for twenty-four incurved there were four competitors. Mr. G. Mease, gardener to W. Nicol, Esq., St. Michael's, secured the premier position with a capital stand of blooms of good size and quality. Mr. T. Leadbeater gained the second prize with neat but rather smaller blooms; Mr. D. Lindsay, gardener to Sir Thomas Moss, Bart., Otterspool, being third. For eighteen blooms the competition was good and keen, some six or seven exhibitors staging blooms. Mr. M. Playfair took the lead, having grand flowers of Princess of Wales, Mr. Howe, Mr. Burnlees, Golden Empress, Barbara, and Alfred Salter; Mr. R. G. Waterman, gardener to A. Tate, Esq., Woolton second; and Mr. A. R. Cox, gardener to W. H. Watts, Esq., Elm Hall, Wavertree, third. For twelve blooms there were seven exhibitors. Mr. F. Roberts secured the premier position with very fresh well-coloured blooms. Mr. G. Mease was second, and Mr. J. Fairhurst, gardener to P. Blessig, Esq., Beechley Allerton, third. In the corresponding class for twelve blooms six lots were staged, and the prizes were obtained by Mr. J. Warrington, gardener to T. Bright, Esq., Woodcote, Aigburth; Mr. Jos. Brantingham, gardener to S. Still Esq., The Grange, Cloughton; and Mr.

Thos. Foster, gardener to J. Brancker, Esq., Greenbank, Wavertree, in the order named. Of twenty four Japanese three collections only were staged. Mr. R. G. Waterman was well ahead with large well-coloured blooms, Mr. G. Mease being a good second. Mr. A. R. Cox had the remaining prize. For eighteen the same number of collections were staged; Mr. Wilson, gardener to H. Cunningham, Esq., Gateacre, being first, having remarkably fine flowers; Mr. J. Jellicoe, gardener to F. Gossage, Esq., Woolton, second; and Mr. J. Warrington third. For twelve blooms Mr. J. Wilson, gardener to J. E. Reynolds, Esq., Sandsfield Park, West Derby, and Mr. G. Burden, gardener to G. Cockburn, Esq., were the prizetakers, both showing well. For six Anemone and six reflexed Mr. A. R. Cox was well first, having good Golden Christine, Dr. Sharpe, Lilac Christine, King of Crimson, Madame Clos, Mrs. Pethers, Lady Margaret, Gluck, and Madame Godereau. Mr. J. Jellicoe was a close second, and Mr. W. Wilson third with much smaller blooms. Blooms of Pompon varieties were well shown, the principal prizewinners being Mr. A. Collins, gardener to S. Smith, Esq., M.P., Princes Park, Mr. A. R. Cox, and Mr. J. Hurst.

Specimen Plants.—These were numerous and good. In the class for six plants Mr. J. Hughes, gardener to H. McIver, Esq., Allerton, was easily first with fresh plants with large full blooms; the varieties being Lady Slade, grand; Empress of India, good; Jardin des Plantes, very fine; John Salter, good; Lady Hardinge, and Mrs. Rundle. Second Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth. Third Mr. E. Gray, gardener to C. H. Bishop, Esq., St. Helens. In the class for four plants Mr. J. Hughes was again successful with plants equally as fine as those shown by the same exhibitor in the previous class; and Mr. C. Gray third. In the class for six Pompons the same exhibitor was again first with a grand collection of plants far before anything else staged. The plants were crowded with blooms, which were of a very large size. Second Mr. S. Whitfield with very creditable plants; and third, Mr. T. Blackmore, gardener to Major Pemberton, Fairfield. For four plants Mr. J. Hughes was again first with remarkably fine plants; Mr. J. Bustard, gardener to J. Lewis, Esq., Aigburth, second, and Mr. Blackmore third, all showing well.

Stove and Greenhouse Plants.—These were shown in good condition, and in the class for six plants, three in flower and three fine-foliage, Mr. W. Mease was well to the fore with a large well-coloured Croton Disraeli, Queen Victoria 6 feet through, and an enormous Latania borbonica; Centropogon Lucianus, good; Erica hyemalis 3 feet through, fine; and Azalea Verscheffelti well bloomed, large, and good. Mr. A. R. Cox was placed second, having good Croton angustifolius and Azalea amcena. For four plants Mr. A. Brown, gardener to G. Webster, Esq., Upton, Cheshire, was first, his best plants being Calanthe Veitchii fully 3 feet through, with spikes of bloom fully 3 feet 6 inches in length. Second Mr. W. Mease, and third Mr. A. R. Cox.

Poinsettias were very fine, much better than we have before seen them in St. George's Hall. First, Mr. G. Middleton, gardener to R. Pilkington, Esq., Rainford Hall; second, Mr. E. Green, gardener to J. Woolwright, Esq., Aigburth; and third Mr. J. Wilson. Roman Hyacinths were good, and Mr. J. Phythian, gardener to D. Walker, Esq., Forest Lawn, West Derby, took the lead, followed by Mr. W. Evans and Mr. R. A. Farrington. Mignonette, Primulas, Epiphyllums, table plants, and the exhibits of a few other smaller classes were abundant and of good quality.

Ferns.—The plants staged in this class were large. For six plants Mr. Phythian was first with Adiantum farleyense, Blechnum corcovadense, Adiantum Cunninghami, Adiantum excisum, and Alsophila excelsa. Mr. J. Stephenson, gardener to Mrs. Horsfall, Cressington, Aigburth, was second, and staged fine plants of Adiantum cuneatum, A. formosum, and Davallia Mooreana. Third, Mr. Thos. Foster, having a very fine Todea superba, four or five collections being staged. For one Tree Fern Mr. A. R. Cox took the lead, followed by Mr. J. Lowndes.

Palms.—These were not numerous, but the plants staged were healthy and very fine specimens. For three plants Mr. E. Thrupp, gardener to A. Walmsley, Esq., took the lead with Cycas revoluta, Latania borbonica, and Chamærops humilis. Mr. S. Whitfield second, having good plants of Phoenix reclinata and Areca sapida. For one plant Mr. S. Whitfield was first.

Orchids.—These were not numerous, as the schedule only provided four classes for them, but those staged were very creditable to the exhibitors. For three plants Mr. W. Moss, gardener to W. Holland, Esq., Mossley Hill, took the first prize with Angræcum sesquipedale, Burlingtonia fragrans, and Odontoglossum Hallii, a good variety. Mr. J. Wilson second, showing well Dendrobium heterocarpum and Odontoglossum Alexandræ. Third, Mr. J. Edwards, gardener to S. Walker, Esq., M.D., Rodney Street, Liverpool. For two Calanthes Mr. J. Hurst was first, Mr. Moss second, and Mr. E. Green third. For one plant Mr. Moss took the lead, followed by Mr. A. Brown and Mr. J. Stephenson.

Fruit.—The classes devoted to fruit were well filled and of excellent quality. In the class for twelve dishes three collections were staged, the premier award going to Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, Cheshire, his collection comprising good dishes of Black Alicante, Lady Downe's, and Gros Colman Grapes, the latter being very fine, large in berry, bunch, and of good colour; Conqueror of Europe Melon, Queen Pine, good Marie Louise, Glou Morceau, and Beurré Clairgeau Pears; and Apples Beachamwell, Golden Reinette, and King of the Pippins. Mr. J. H. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, was a close second, having good Queen and Smooth Cayenne Pines, Beurré Diel and Duchesse d'Angoulême Pears, Blenheim Pippin and Cox's Orange Pippin Apples were also good. Third Mr. J. Bennett, gardener to the Hon. C. H. Wynn. For six dishes ten collections were staged, Mr. Hannagan again taking the lead with good well-finished Alicante and Gros Colman Grapes, King of the Pippins Apples, Conqueror of Europe Melon, Beurré Diel (very large) and Glou Morceau Pears. Mr. W. Mease was a good second; Mr. J. Hurst, gardener to W. B. Bowering, Esq., Beechwood, Allerton, third. Pines were not numerous, but good. Mr. J. Bennett took the lead in the class for two with grand fruits of Smooth Cayenne; Mr. W. Speed, gardener to Lord Penrhyn, Bangor, second, having a good fruit of Lord Carrington; and Mr. G. Gibbon third with Queens. For one fruit Mr. G. Gibbons took the lead; Mr. J. Bennett, and Mr. H. Mitchell, gardener to Sir G. Elliott, third.

Grapes.—These throughout were of very fine quality, and the prizes

offered in the various classes well contested. For two bunches of blacks, Muscat flavour, Mr. J. Barker, gardener to Alderman Rayner, Rock Ferry, took the lead with well-finished Madresfield Court; Mr. A. Collins second with very good bunches of Mrs. Pince; and Mr. Goodacre third with the same variety; eight lots being staged. For two bunches of black, any other variety, fourteen bunches were staged. Mr. P. Ingham, gardener to J. Goldsmith, Esq., Windle Hall, was first with large well-finished bunches of Black Alicante; Mr. T. Elsworthy, gardener to A. R. Gladstone, Esq., Court Hey, was a close second with the same; and Mr. A. Collins third with good bunches of Gros Guillaume. For two bunches of whites, Muscat flavour, Mr. G. Middleton took the lead with well-finished examples of Muscat of Alexandria, fair-sized bunches with very large berries; Mr. J. Hurst second; and Mr. J. Lounds, gardener to Miss Crossfield, Aigburth, third; six lots being staged. For two whites, any other variety, Mr. J. Hurst was first with well-coloured Golden Queen; Mr. C. Young, gardener to Joseph Evans, Esq., Hurst House, second with the same variety; and Mr. W. Mease third with White Tokay; nine lots being staged. For four distinct varieties, one bunch of each, twelve collections were staged. Mr. C. Young was awarded the premier position for well-finished bunches of White Tokay, Gros Colman, Muscat of Alexandria, and Gros Guillaume; Mr. J. Wallis, gardener to Rev. W. Sneyd, Keele Hall, second with smaller but well-finished bunches; Mr. P. Ingham being third.

Pears.—In the class for eight dishes of dessert varieties, open, some seven or eight collections were staged. Mr. Goodacre took the lead with grand dishes of very fine fruit of Pitmaston Duchess, Glou Morceau very large, Beurré Clairgeau good, Grosse Calebasse very large, Beurré Diel large, Duchesse d'Angoulême fine, Marie Louise good, and Doyenné du Comice. Mr. J. Hannagan was placed second and staged some very fine dishes of fruit. Third, Mr. J. Kelly, gardener to R. Singlehurst, Esq., Aigburth. In the corresponding class for four dishes some twelve or thirteen collections were staged. Mr. J. Kelly took the lead, followed closely by Mr. J. Hannagan. For one dish of dessert Pears Mr. J. Kelly was first with Marie Louise, Mr. J. Loundes, gardener to S. S. Parker, Esq., second with the same variety, and Mr. M. Playfair third, sixteen dishes being staged. For one dish of stewing Pears only six dishes were staged, the first prize going to Mr. T. Wedon, gardener to J. C. Morris, Esq., for a dish of Pitmaston Duchess. They were grown inside on a tree in a 12-inch pot and had on it thirteen fruits, the heaviest of which weighed 27 ozs. Mr. J. Goodacre second, and Mr. Hannagan third.

Apples.—These were remarkably fine and shown in very large numbers. For six dishes dessert varieties, open, Mr. F. Miller, gardener to J. F. Friend, Esq., Kent, was placed first. He staged fine well-coloured fruit of Scarlet Pearmain, Worcester Pearmain, Fearn's Pippin, Adams' Pearmain, Ribston Pippin, and Cox's Orange Pippin. Mr. Hannagan was second, and staged good Golden Reinette, Blenheim Orange, and King of the Pippins; Mr. C. Rylance, nurseryman, Ormskirk, third. Twelve collections were staged. For three dishes the same number of collections were exhibited; and Mr. J. Bounds was first with Golden Winter Pearmain, King of the Pippins, and Ribston Pippin. Second Mr. J. Loundes, and third Mr. Hannagan. Some thirty dishes were staged for the three prizes offered for one dish. Mr. Playfair won first honours with Ribston Pippin; Mr. T. Foster second; and Mr. W. Evans, gardener to Mrs. Lockett, third, both staging the same variety. For eight dishes of kitchen varieties Mr. Miller, Kent, was well ahead with remarkably large examples of Waltham Abbey Seedling, Annie Elizabeth, Peasgood's Nonesuch, Lady Henniker, Hollandbury, Mère de Ménage, Golden Noble, and Emperor Alexander. Mr. T. Johnstone, Higher Bebbington, second; Mr. J. H. Goodacre third, ten collections being staged. For four dishes Mr. T. Johnstone won with very fine fruits, followed closely by Mr. J. Kelly; Mr. Wollam, gardener to Col. Blundell, Crosby, being third. For one dish the prizetakers were Messrs. T. Johnstone, W. Evans, and P. Barber, gardener to Mrs. Barnsley, Aigburth.

Miscellaneous Exhibits.—Messrs. F. and A. Dickson & Sons staged a very large collection of Apples, which was highly creditable to them. A similar collection came from Messrs. James Dickson & Sons, Messrs. R. Smith & Co., Worcester, and Mr. C. Rylance, Ormskirk. The Horticultural Company (John Cowan) had a collection of flowering and fine-foliage plants; Messrs. R. P. Ker & Sons a large collection of remarkably well-grown Cyclamens; Mr. Smith, Maiden Lane, Clubmore, Liverpool, had baskets of Mushrooms grown on the principle recommended in "Mushrooms for the Million." They were very fine, and excited much attention. Messrs. Cannell & Sons, Swanley, Kent, staged fine trusses of Zonal Pelargoniums, Primulas, and Salvias.



FRUIT-FORCING.

VINES.—*Earliest Houses.*—In houses that were closed early in the month the Vines will be showing signs of growth, and if it be found that the terminal buds are taking the lead, draw them down to a horizontal position, and syringe the less forward parts three or four times a day with tepid water. When the Vines are making top growth, the outside borders, if there be a sufficiency to continue and renew as necessary, may receive a good covering of thoroughly fermenting Oak or Beech leaves and stable litter, three parts leaves to one of stable litter answering very well, putting these on in sufficient quantity to maintain a top heat of 80° to 85°, placing lights or shutters over all with a sharp incline to the front for throwing off rain, but there must be a space between the covering and the fermenting material. If there is not such a supply of fermenting material as to allow of the bed being renewed or added to as necessary to keep up the heat until the Grapes are matured or far advanced, it will be better to dispense with

the fermenting material, and have a good covering of dry fern or litter with shutters or tarpaulin over to exclude rain, for fermenting materials allowed to become a sodden cold mass are highly injurious. Stir the fermenting materials in the house used for warmth and moisture, and if necessary add a few fresh leaves. Examine the inside border carefully, and if any part of the soil be dry steady watering must be followed up until the whole is brought into a thoroughly moist condition. Admit a little air when the weather is mild, but in no instance must it be given to lower the temperature; yet it is always advisable to admit a little air, so as to effect a change of atmosphere at least once in twenty-four hours. Raise the temperature early, when there is the prospect of a fine day, to 65° by artificial means, advancing to 75° from sun heat, ventilating a little from 70°, and close at 75°, maintaining the night temperature at 60°, allowing it to fall 5° during the night in severe weather.

Houses to Afford Grapes Early in June.—Houses that are to afford ripe Grapes early in June must now be closed. For the first fortnight a temperature of 50° to 55° artificially is ample, advancing to 60° or 65° from sun. Syringe two or three days a week in favourable weather, and make up some heaps or ridges of fermenting materials in the house on the inside borders, which will help the surface roots and give off warmth and genial moisture to the atmosphere, saving fuel and lessening the necessity for syringing. Water the inside borders with tepid water, which will be most suitable for vigorous young Vines, but old Vines requiring stimulating should have liquid manure, and at a temperature of 80° to 90°. Young canes that have not been forced early will require bending down to a horizontal position to insure an even break down to the base, but old Vines that have been some years at work will not need to be slung, as they will break evenly throughout.

Early Vines in Pots.—Attend to the fermenting materials in pits containing early Vines in pots; and if every pot is placed on a solid pedestal from the bottom of the pit frequent additions may be made as the heat declines, which should be kept steady at from 70° to 75°, the whole mass being turned over and the pots being only partially surrounded by the plunging material. The top heat should, now that the Vines are showing fruit, be maintained at 60° to 65° at night, and 70° to 75° in the daytime. Stop not less than two joints beyond the show of fruit. Feed the roots with tepid liquid manure, and damp available surfaces two or three times a day in preference to syringing overhead, which only tends to give a thin texture to the leaves.

Pruning and Cleansing Succession Vines.—As soon as the Grapes are all cut in succession houses no time should be lost in having the Vines pruned as soon after the leaves have fallen as possible, in order to give a long and complete period of rest. Vines that are in good health and ripen the wood well may be pruned to two buds with a certainty of a show of compact bunches; yet where there is room for extension the number of buds may be increased to four or six, and the bunches resulting will usually be larger but not nearly so compact as those from buds nearer the base. In dressing the Vines only remove the loose bark, and if there have been any insect pests syringe the house and Vines with a solution of petroleum, and repeat so soon as dry. This will destroy almost every kind of insect, and the wood-work and trellis may, in the case of mealy bug, be brushed over with petroleum and the walls scalded prior to limewashing. Remove the loose surface soil and supply fresh material—loam, crushed bones, and charred refuse. Collect and save thoroughly ripened wood for eyes and grafts, inserting the ends in moist soil or clay.

FIGS.—Early Trees in Pots.—The fermenting materials that have been placed loosely about the pots should be examined, and if the heat around them at the base does not exceed 80° they may be pressed down firmly and some more introduced from the reserve heap, care being taken not to raise the heat about the pots over 75°. The fermenting materials have been sufficient so far to maintain the suitable temperature—viz., 50° minimum, with an advance of 5° to 10° more by day in mild weather without much fire heat; but it is not advisable to dispense with it altogether, as a gentle warmth in the hot-water pipes admits of a little air being given, or when not it induces a circulation of air and prevents condensation. Continue former instructions in respect of damping, syringing, and watering.

Pruning and Cleansing Late Trees.—Pruning now is chiefly thinning, taking out the old shoots that have reached the extremity of the trellis, and cutting back the spurs that have been stopped. Remove every particle of scale from the wood by repeated washing with soapy water, 6 ozs. soft soap to a gallon of water, adding half a wineglassful of spirits of turpentine to two gallons. This should be applied with a soft brush and with great care, as the slightest injury to the embryo fruit would disfigure if it does not destroy the most forward. Train on the fan system, tying in loosely so as to allow for swelling, and leave plenty of room for the extension of the new growths, as the finest fruits are borne on those having well-developed leathery foliage, plenty of light being essential to fine quality.

Cucumbers.—When the plants are producing and swelling off their fruit, which takes place more or less between now and March, liberal treatment is necessary; hence copious and frequent applications of tepid liquid manure in a weak state should be given, as by this time the plants will have filled the bed with a number of roots hungering for food. A surface dressing of rich compost previously warmed will be of great benefit in keeping the roots active, especially if the bottom heat be kept steady at 80°. The day temperature should range from 70° to 75°, advancing 5° to 10° from sun heat, the night temperature being maintained at 60° to 65°, or 5° more in mild weather. In very severe weather it is advisable to cover the house with mats or other protecting materials, by which means the necessary temperature could be maintained without overheating the

hot-water pipes, and the heat thus obtained is more favourable to the plants than that radiated by a highly heated surface. Attend frequently to regulating the growths, and stop them moderately for the present, keeping free of insects.

Strawberries in Pots.—When forcing these is carried on to any extent it will be necessary to prepare and arrange batches of plants for succeeding one another in the supply of fruit, according to the demands of individual establishments. Under ordinary forcing such varieties as Black Prince started now will afford fruit at the end of February, and Vicomtesse Hericart de Thury, also La Grosse Sucrée, started at the same time, will afford a succession. A second batch of the two latter and Keen's Seedling started at the middle of next month will afford fruit about the middle of March, and early in January will give fruit early in April, President being admirable for starting at that time. The plants intended to be introduced to the various forcing houses now being set to work, should have the drainage seen to, and if necessary rectified, and any decayed leaves removed, stirring the surface of the pots, removing the loose portion, and replace with fresh horse droppings rubbed through a sieve, and water through a fine rose the first time of watering after top-dressing. Examine the plants at least once a day, and any that need water should be given a thorough supply. Avoid saturating the soil when it is already moist, and guard against the soil becoming too dry, or the roots will suffer.

HARDY FRUIT GARDEN.

Pruning.—Let the pruning of Pears, Apples, Plums, and Cherries proceed with all possible dispatch while the weather is mild as the trees become clear of leaves. The important considerations which induce this advice are that early pruning is usually deliberate and careful; the condition of the tree may be thoughtfully examined, each spur and branch taken in detail, crowded growth thinned, diseased parts removed, the work of the year passed in review, its faults set right so far as is possible, and the tree made ready for the next season's growth and fruiting. We cannot reckon upon a continuance of fine open weather in winter, and pruning left till the new year frequently has then to be deferred till spring draws nigh, and a pressure of other work leads to a hasty rush over the trees, and not unfrequently some involuntary negligence. Young half-formed trees should be carefully examined, and each tree treated solely on its merits, and not by line and rule. Stout vigorous trees should only be shortened sufficiently to induce necessary lateral growth for spurs and branches. Weakly trees require hard pruning, for slender growth cannot yield fine fruit. Trees that are termed fruiting pyramids are frequently sent from a nursery with vigorous branches on the upper half or two-thirds of the stem, but with the lower part either bare or with only weakly branches. Having regard to the future appearance of the trees, there must be no hesitation about cutting them down to about 2 feet from the base of the stem when the planting is done. Nor will this severe pruning involve any serious loss, for such vigorous young trees invariably break freely into growth in the following spring, and afford a choice of stout branches for the lower tiers and leading shoots of such strength that the top may be nipped off once and not unfrequently twice during the summer, whereby there is a clear gain of one or two years' stem and lateral growth. Young standards and unspurred bushes should have the necessary thinning of crowded branches and useless growth removed from the centre of the trees to admit light and air freely to promote health and fruitfulness.

Feeding.—Fruiting trees for which stations had to be prepared when they were planted should be carefully examined, and if necessary the soil must be removed down to the roots, and a trench excavated round the stations for a supply of rich soil. Prompt attention should be given to this matter, so as rather to anticipate the wants of the trees than to wait till unmistakable signs of debility compel attention to it. Give a surface dressing of old hotbed or farmyard manure 3 or 4 inches thick to Gooseberries, Currants, Raspberries, and Blackberries, among which there should be no digging after they are thoroughly established. Rhubarb should have its annual supply of manure now dug in so as to thoroughly enrich the bed. A warm corner should always be devoted to a few plants of Prince Albert or Johnstone's St. Martin's for an early supply to follow the forced Rhubarb.

Training.—Let the training of trees, young and old, closely follow the pruning. Look closely over old fastenings, remove any that are tight, and replace all that are rotten with new ones. Train no young trees horizontally, but let every branch point upwards either vertically or diagonally, for that is the only way to maintain an equal distribution of vigour. Make this a fundamental rule in training, and then impart whatever form to each tree expediency or fancy may suggest. The most popular and useful forms are the Fan, which has the branches spreading out right and left diagonally in the form of a fan; the Palmette Verrier, with stem from which the branches start in pairs on either side of and at right angles to it, with each end turning upwards parallel to the stem, so that eventually the tops of the branches are all at the same height; the Cordon, with a single or double stem trained either diagonally or vertically, with fruiting spurs on the entire length of stem, but with no branches; the Pyramid, which is a symmetrical cone having a stem with branches longest at the bottom tier and shortened gradually in the upper ones, so as to impart the requisite tapering outline; the Bush, having its branches trained in the form of a basin, and the laterals either pruned to spurs or left altogether unpruned. The Standard suffers so much from wind that it is only suitable for sheltered orchards. The small branches of Peaches and Nectarines may be unfastened in readiness for pruning, which should not be done for a couple of months.

PLANT HOUSES.

Forcing House.—Where a large and continual supply of cut flowers are required forcing operations must now be pushed on without delay. The house or pit to be set apart for this purpose should be thoroughly cleaned by washing the glass and woodwork and whitewashing the walls. Leaves are plentiful, and if stored when dry for the purpose will, if the beds of the house are now filled with them, and a little litter from the stable intermixed, a steady and a gentle bottom heat will be afforded for a very long time. It is important that the leaves used be dry, for upon this depends the length of time that they will keep up a gentle heat; if, on the other hand, they are wet, the heat produced will be violent, but will not last long. The moist genial heat supplied by means of a bed of leaves is far more suitable for forcing operations than the dry heat derived from hot-water pipes. Do not use too much litter from the stables amongst the leaves, or the ammonia thrown off at first will prove injurious to Azaleas and such plants if placed upon the bed at once after it is made up.

Lilacs, Azalea mollis, Gueldres Roses, Deutzias, and others may be plunged in the bed after it is found that the heat is not too strong. Azalea indica and its varieties should not be plunged, but stood upon the surface of the bed. Before introducing the latter wash them with tobacco water in which a little soft soap has been dissolved, so as to destroy any thrips that may be upon the plants, for after introduction into heat they increase very rapidly. The varieties that will force into flower the earliest are A. amoena and its varieties, A. narcissiflora, and A. indica alba. The second-named is a gem, the earliest flowering of all Azaleas, and is doubly valuable because its flowers are semi-double and pure white. How easy autumn forcing may be rendered by assisting the plants early to make their growth! To prove the advantage of this system over hard autumn forcing we may say that we have a house full of these plants, which will unfold their flowers directly the most gentle heat is applied; in fact, they are already coming into full bloom in a cold house.

Lily of the Valley should be plunged into the bed of leaves and their crowns entirely excluded from light, and they will from this date move rapidly and unfold their choice and delicate sprays of sweet flowers. A few of the earliest Hyacinths, Tulips, and Narcissus may be stood upon the bed to make a start. The same applies to Spiræas and other plants required to be forced into bloom. At first the bed of leaves will supply all the heat that is required, but if the nights prove cold maintain the night temperature at 50° by means of the hot-water pipes. The plants, after they are started, should be syringed twice daily during bright weather, and a little ventilation should be given when the weather is favourable during the morning, but close early.

If Lilacs are required white force them into flower in brisk heat in the dark, or place them in a pit where the heat is brisk, and exclude the light by means of mats secured upon the frame. The variety known as Charles X. is the best for this purpose, and home-grown plants will come into flower earlier than continental plants will; in fact, home-grown plants are decidedly the best for early forcing. A batch of Cyclamen, if required, will soon come into flower if placed on a shelf near to the glass in this house. A few Epacrises, if wanted early, may also be introduced, and will come into flower in a temperature of 50°, but they should be stood upon the curbs of the bed, or upon a board laid upon the bed of leaves. We prefer bringing them into flower without the aid of bottom heat.

Clematis.—These plants are beautiful when grown in pots for forcing; the small-flowering types, such as Lord and Lady Londesborough, Miss Bateman, and others, are the best for early work. The plants must be grown in pots and well established on trellises before they are suitable for forcing. Our plants are still outside, but the time has arrived for removing as much of the surface soil from the pots as possible, and replacing it with new rich compost. The drainage must be attended to at the same time, the plants cleaned, tied neatly upon their trellises, and placed under cover in a cool structure. Those anxious to start their cultivation for forcing should obtain strong plants established in 5-inch pots, and place them at once if well rooted into others 3 inches larger, and stand the plants in a cold frame or in the greenhouse, and train their shoots to thin cord next season under glass. Use for a compost good fibry loam, a seventh of manure, and a little coarse sand, pot firmly, and drain the pots well, for a good supply of water is needed while the plants are growing.

THE BEE-KEEPER.

ABOUT BEES.

My experience only dates from last spring. I therefore approach the subject with the greatest diffidence and every possible deference. I took to four colonies in bar hives (Neighbour's Garden Hive, which have nine bars, and a box of sectional supers) and two in straw skeps. The spring was very unfavourable, though the bees were busy on the Peach blossoms under glass, and had plenty of pollen from the Crocuses; but the frost in spring robbed the workers of much they might otherwise have made use of by the destruction of most of the Apricot and outdoor Peach blossom. There was no doubt that food fell short, and a strong colony so made war on its weaker next-door neighbour. They fought desperately, the weaker in the end

succumbing to the strong, and the remnant that remained threw in their fortune with the invaders and joined their despoilers. The slain were a great heap on the floorboard—thousands, quite equal in bulk to any swarm of the season. The strong colony, added to by the survivors from the robbed hive, was now apparently the strongest of the three remaining, and they set to work in right good earnest. Drones were plentiful early in June from this stock, and these made much essay over the empty hive adjoining, entering it and making but a short sojourn, returned to the strong colony, which I will call No. 1. The workers of this returning loaded with pollen in many instances, alighted on and entered the empty hive, and soon came out again and went to No. 1. This continued for some time, in fact until a swarm from No. 2, another strong stock, was put into the empty hive, when the stragglers lost their identity. Whether they learnt better manners and kept to No. 1 or joined the comers into their old habitation, which I will call No. 4, is matter for conjecture, certain it is that everything went well with these after the empty hive was stocked. No. 3 was a weak one, and No. 2 began paying it attention in April after the spell of severe weather, but by closing the entrance so that only a bee could pass in at a time matters turned in favour of those acting on the defensive; and No. 2 having drones very busy early in June, but not nearly equal in numbers to No. 1, a swarm issued at the middle of the month and were put in No. 4, the robbed empty hive.

I knew just nothing about hiving, but of course everybody that kept bees knew exactly how to hive them. They kept them in straw skeps, and it must be done in these first and the bees afterwards transferred to the bar hive. I could not see my way to this, so I got a galvanised bucket, took the bar hive handy, took the top off, put the frames in position, had the hair and bottom cloth ready, opening the mouth to the fullest extent, and shook the bees from the cluster into the bucket, which was not of sufficient capacity to hold the whole, carried them and upset them into the hive among the frames, put the cloth half way across the bar and from the right-hand side, covered all but the front side with a sheet, and left the bees to settle down, which they did in a short time, and was then, after the other half of the cloth was turned down and the top put on, shifted to their permanent quarters.

No. 2 threw another swarm, which was slightly less heavy than the first, and then set to work and filled a whole box of sections (twenty-one) with 2 lbs. of honey each. No. 3 cast a good swarm, and became as strong as either of those from No. 2. Two swarms issued from the skeps and were hived in bar hives, and a second came from one of the straws and were hived in a bar hive. This was very weak, made headway for a short time, then a few days' wet weather in July set its neighbour to visit them, and the colony soon became extinct. The robber hive not only took what little honey there was, but the whole of the bees from the despoiled hive, there not being any dead ones about. The bees, I presume, from the lost hive came home heavily laden, entered their late home, but soon came out again and entered that of their victors. Thus the bees did what I ought to have done—viz., joined the two weak stocks or swarms together and made a strong one.

Thus I only had four strong swarms out of five stocks, No. 1 not having swarmed, and have now seven stocks in bar hives and two in skeps—a very poor season's work, as I apprehend, on the score of increase of stock; and in the matter of honey, I took four boxes of sections, representing eighty-four sections of 2 lbs. each, or 168 lbs. of the clearest honey possible.

Out of the four swarms three took to the right-hand side of the hive, looking from the front of the hive, and one only to the left. Why? I reasoned about this, and it resolved itself into this: that in turning the bees into the hive from the bucket it was done from behind, and the bees would necessarily fall into the right side of the hive, whilst those turned-in in front would fall towards the left, and as there would be a greater number on that side the queen would probably be with them, therefore the work would commence on that side, hence I conclude there is nothing in it; but as the dividing bar is on the left, I presume the bees should always be turned in so that they drop to the right-hand side of the hive. The gleanings are small, yet not unimportant. First, the bees ought to have been fed in spring, which would have helped on breeding and conduced to earlier swarming, or, if swarming were not wanted, to a greatly increased gathering of honey from the increased number of workers. Second, the difference in the swarms from the bar hives as compared with the skeps, the strongest from the skeps not being more than two-thirds those from the bar hives, and sometimes not more than half: it is astonishing how soon even a small swarm from a skep breed up to a strong one in a bar hive. Third, the advantage of

having as much food for the bees as near home as practicable. We have a great breadth of herbaceous border, and there is always something in flower from early spring to late autumn, and a great number of flowering shrubs; and I found that on even wet days the bees were very busy on the flowers near the hives, whilst at a distance of a quarter of a mile the flowers were comparatively neglected.

Staple articles as bee food were Crocuses, blossoms of fruit trees, Almonds, Box, Honesty, Borage, Mignonette, Lime, and Ivy; abroad, white Clover and other plants—this being a purely agricultural district, no Heather, and plenty of bees about, which I think should be taken into account by anyone embarking in the pursuit. Bees, I am told, have a partiality for blue-coloured flowers. Is this a fact? I know they love Borage, Sage, and Cornflower, also the purplish Honesty; but I found them more abundant on Mignonette than any garden plant, and outside on Clover.

I have read about bees enough to make anyone believe they might be done anything with, only cast away fear. I have seen some of these try it and get their eyes "bunged up" with hiving bees in shirt sleeves rolled up, and other, to me, foolish exploits of hardihood. Our bees are not of this docile description, they have stings and use them; and as they pay me very particular attention at all times, I think discretion superior to assuming valour where none is wanted, therefore act always with a "dress," and get an insight which I fear would take as many years as I hope to accomplish in months.—G. ABBEY.

TRADE CATALOGUES RECEIVED.

Richard Dean, Ranelagh Road, Ealing, London.—*Catalogue of New and Choice Potatoes.*

Hogg & Wood, Coldstream and Dunse.—*Catalogue of Nursery Stock.*



TO CORRESPONDENTS

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

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

Books (R. E.).—The information you require on the book, "The Culture of Vegetables and Flowers," lately reviewed in this Journal, can be obtained by writing to Messrs. Sutton & Sons, Reading. We are not able to answer your inquiry.

Primulas (F. Barron).—The lid of the box was quite crushed in, and the flowers consequently much injured. The variety appears to be a very fine form indeed of the Chiswick Red, and is well worthy of preservation.

Erecting a Greenhouse (G. B.).—As everything depends on the position of the house it is impossible that anyone can answer your question without seeing the structure as erected. In all probability the surveyor is right, as he would not venture to extort money to which he had no claim. We advise you either to pay the fee if demanded, or to consult a solicitor before refusing to do so.

Gardeners' Benefit Society (Canadian Subscriber).—We are not able to say with certainty whether gardeners who were born in the United Kingdom and served in the same capacity there, and now living in the colonies, are eligible for membership of the United Horticultural Benefit and Provident Society. We believe, however, that at least one member of the Society in question is now living in America. Perhaps Mr. McElroy will give information on this point.

Grapes Unsatisfactory (Novice).—This, we have little doubt, is one of the many cases of "gardeners' greed" that are brought to our notice every year. The Vines are overworked. Less fruit and more roots, with an ample food store, is the remedy. We should cut the Grapes at once and preserve them by inserting the ends of the laterals in bottles of water, then forthwith adopt the practice described by Mr. Iggulden on page 287, the issue of October 4th. If you succeed as well as he has done—and there is no reason you should not—you will be well satisfied with the result of your efforts.

Petroleum for Destroying Insects (Idem).—We know of no better method of preparing it than dissolving 4 ozs. of soft soap and a lump of

washing soda the size of a walnut in a gallon of boiling water; then stirring well in this 4 ozs. of petroleum; add to this four gallons of water, stirring well again, and you will have a mixture that may answer your purpose. It will destroy most kinds of insects and injure few plants, yet should be applied with caution with any of a very tender nature—that is, trying its effect on a plant or part of one before using it generally through an entire collection. The mixture will keep in bottles for any length of time.

Mushrooms (Abbots Langley).—Although we do not consider the Mushrooms you have sent of the best quality, we apprehend no danger in using them provided they are not allowed to become old and black before being cooked. Perhaps only a few of them are similar to the examples before us. If they all come like them we should send a sample to the vendor of the spawn and direct his attention to their abnormal character. He will no doubt be obliged to you for doing so, as few nurserymen make their own Mushroom spawn.

Dressing Peach Trees and Vines (E. D. O.).—We never apply any pigment to our Vines, but wash them with a solution of nicotine soap, Gishurst compound, or soft soap, whichever is most handy, dissolving 3 or 4 ozs. to a gallon of water, and applying it at a temperature of 150° with an old spoke brush. The rods are thus cleaned and the Vines free from insects. If a pigment is wanted apply sulphur in sufficient quantity to form a paint, and with this dress the Vine and Peach tree branches. This is a very good dressing for Peach trees.

Chrysanthemum Hon. Mrs. Roger Eykin (W. A. W.).—When you sent us blooms of your sport from Guernsey Nugget last year we recorded an impression that it was a variety of promise. The blooms now before us are much finer than the previous examples, much smoother than Guernsey Nugget, and distinct from all other Chrysanthemums. The colour is primrose suffused with delicate pink; the petals broad, quite incurved, and blooms large and symmetrical. They are a trifle flat, but, fully developed, the variety, we feel assured, will produce deeper flowers. Half a dozen florets taken indiscriminately from one of the blooms are each fully half an inch in diameter. If you can improve the blooms as much next year as you have done this you will have established a very effective variety.

Loam for Orange Trees (Kirby).—Provided the soil is moderately strong you cannot have any better than that skimmed off granite, and it would be improved in fertility by having the grass side charred. In that case it may be used at once if needed. If it is somewhat poor it would be well to stack it up in layers alternately with half-decomposed manure and use it a few months hence, at the proper time for repotting or planting the trees.

Maximum Thermometers (Idem).—Your thermometers are evidently made on what is known as the "Rutherford" principle. They are a little cheaper than the two forms now generally used (the "Phillip's" and the "Negretti"), but are very liable to become deranged in the way you describe. We would recommend you to get a Negretti maximum, as it is impossible without breaking it to put one of these thermometers out of order. Any good optician should be able to supply thermometers on this principle, or they may be obtained of the patentees, Messrs. Negretti and Zambra, Holborn Viaduct, E.C.

Chrysanthemums in Small Pots (Aspiro).—We agree with you that the miniature plants exhibited by Mr. Molyneux at Winchester were "quite charming." We have grown many similarly small plants of Pompons by inserting the cuttings just when the buds are forming, and striking them in a close frame, afterwards supporting the plants with liquid manure. The large-flowered varieties referred to were no doubt similarly raised, and perhaps in due time Mr. Molyneux will detail his method of producing them. In a matter of this kind, however, very much depends on the skill of a cultivator, and the gardener in question certainly ranks amongst the most competent of Chrysanthemum growers. Each cutting should be inserted in a separate small pot.

Selaginellas and Orange Trees (M. R. D.).—Whether Selaginellas can be grown on the surface of the pots containing Oranges and Camellias without injuring them depends very much on their condition and the method of culture adopted. If the Oranges and Camellias were at all unhealthy we should certainly not surface the pots with the plants in question; and, again, if the trees were healthy we should not like to allow the Selaginellas to remain year after year, as they would impoverish the soil. A safe plan is to spread 2 or 3 inches of rich rough soil on the surface of the pots, which we presume are large, and plant sprays of the Selaginella annually in spring. A fresh green covering is soon established; then at the time of planting again remove the plants and top-dressing, adding fresh, and planting sprays as before. We have adopted this plan with great satisfaction, and the Orange trees received no injury whatever. We are obliged by your letter.

Plums as Low Standards (C. H., Antwerp).—We know of thousands of trees grown as low standards. They only need to be carefully planted in well-drained fertile soil to succeed, requiring little or no pruning. You will find the method of pruning bush fruit trees concisely described in our "Garden Manual," under the heading of "Pears;" the work gives instructions in the culture of all other hardy fruits. You would probably also find Mr. Bunyard's small work on "Fruit Farming" useful. Its price is 1s. 6d. post free in England. A remittance for the work sent to Mr. Bunyard, nurseryman, Maidstone, would have attention; and the "Garden Manual" will be sent to you by post from this office by the publisher on his receiving the sum of 1s. 9d. If after reading these works you require additional information, we shall be glad to supply it as far as possible on your making your wants known to us. We are obliged by the friendly offer conveyed in your letter, and will bear it in mind.

Planting between Young Wall Trees (A. M. B.).—Red and White Currants are the only fruit it is customary to plant between the permanent occupants of walls, and these are gradually removed as the trees spread out to them. Probably your gable end of the house will afford space for a Pear cordon or two 18 inches apart trained vertically midway between the Apricots, and also one or two on each side, near the corners of the building; even if you could only have one in the middle, and one on each side the three cordons taken right up to the top of the gable would look well, and afford

you many dishes of excellent fruit. These cordons require so little space that there would be no necessity for removing them. Here are three good Pears suitable for the purpose:—Williams' Bon Chrétien, Doyenné du Comice, and Glou Morceau. If, however, you prefer flowers, then such annual or biennial climbing plants as *Tropæolum canariense*, *Cobæa scandens*, and *Ecchremocarpus scaber* might be grown while space remained for them.

Planting Vines in a Span-roofed House (J. R.).—The number of Vines you may plant in a house 24 feet by 12 feet ought not to be more than 6 or 4 feet apart. As your house is a cool one and the Grapes for market, you could not do better than confine yourself to Black Hamburgh; but as you ultimately intend to have a flow and return 4-inch hot-water pipe all round it may be worth a consideration whether you could not do this at once, and in that case we should advise your planting Lady Downe's and Gros Colman instead of Hamburghs, as late winter Grapes realise a better price than autumn Grapes, as these have then to compete with imported produce. The Vines should be "trained up one side the span and down the other," especially if the roof has a sharp pitch, but if rather flat the Vines may be trained from end to end on a trellis having the same incline as the roof, and about 18 inches from the glass. In laying down the front of the house in grass the Vine border should be kept clear, the border not being less in width than that of the house. Grass would not only keep off the sun's rays and rain, but impoverish the soil and prevent the application of surface dressings, which are essential to successful practice. The Vines may be planted on the east side of the house in preference to the west, but either will answer. In planting, the whole of the soil should be shaken from, or preferably washed off the roots, these being disentangled and laid out as straight and evenly as possible on the surface of the soil, and covered with 4 to 6 inches thickness of good mellow loam, and afterwards receiving a good watering with tepid water (100°), then mulched with short manure about 3 inches thick. The best time to plant Vines is in spring, when they have made a growth of an inch or two. If the weather be bright it is well to shade for a few days, keeping the house close and moist. Fruiting canes feel the check of dis-soiling and laying out the roots more than the smaller planting canes, and this has probably led to those planted with halls in your case doing better than when all the soil had been removed.

Planting Peach Trees (John Bradshaw).—We have never seen better Peaches than from trees grown in a border 15 inches deep resting on a gravel subsoil; but the border was composed mainly of good turfy loam of medium texture, and was mulched liberally with manure. You say you have some doubt as to whether your soil is suitable for Peach trees, yet omit to say one word as to its nature. All we can do, therefore, is to advise you to mix lime rubbish and gritty matter with it if it is heavy, and strong loam or clay dried and crushed if it is light. The trees may be planted at once, and a good covering of manure placed over the roots. You do not state the number you require. The following are good varieties for succession, and will ripen in a house without fire heat:—Alexander, Hales' Early, Rivers' Early York, Gros Mignonne, Royal George, Bellegarde, and Barrington. These will probably be as many as you require. If you desire to plant a Nectarine or two, Lord Napier (early) and Pine Apple (late) will probably give satisfaction. If you can make the border 6 inches deeper by adding fresh loam, or such soil as would grow first-class Potatoes, you will not err by doing so. You must be careful, too, not to keep the house too close in winter, or the blossom will expand too soon, and be cut off by spring frosts, notwithstanding the protection of the glass. We have seen many failures in unheated Peach houses, and we always think a well-built house incomplete where no provision is made for heating.

Genera versus Species (W. B.).—If you read the remarks of "R. I. L." upon this subject, page 458, you will be able to form some idea of the difficulty attending the matter; in fact, it is almost impossible to give a definition of a species that is not liable to many exceptions. Botanists must have some definite lines to work upon, and therefore when a competent and recognised authority describes the characters of a newly-found plant that is sufficiently distinct, and bestows upon it a name, this name is associated with the characters and accepted as a species. If another plant should be subsequently found, or raised from seed, closely resembling the other in all essential characters—namely, those relating to the fruit and flowers, but differing possibly in some minor particulars, such as the colour for example, it would be termed a variety. But there the difficulty begins. Many plants are extremely variable when raised from seed, and of two so-called species of plants, very nearly related, forms may be obtained from each that will seem to form a series of links in the chain of relationship until one is reached so exactly intermediate that it is almost impossible to state to which side it belongs. A species is really a group of individuals which closely resemble each other in certain accepted characters, and amongst these individuals may be one differing from the others in some points, and if this is perpetuated we get a fixed variety or race. A genus, again, is a group of species agreeing in some broader and less variable characters; tribes, sub-orders, and orders being simply still higher and larger groups formed in the same way for the sake of classification. The specimen shall be examined.

Names of Fruit (F. Jones).—1, Bess Pool; 2, Blenheim Pippin; 3, Hall Door; others not known. (H. C.).—1, Ten Shillings; 2, Sweeny Nonpareil; 3, Court of Wick. The others probably local varieties. (E. J. O.).—1, a grand Apple, but not Cellini. Where did you get it? 2, Kentish Fill-basket; 3, Gloria Mundi; 4, Golden Pearmain; 5, King of the Pippins. (W. W. W.).—1, Minchull Crah; 2, not Duchess of Oldenburgh: not known; 3, Blenheim Pippin; 4, Sturmer Pippin. (J. B. C.).—Pears: 1, Beurré Diel; 2, Nouveau Poiteau. Apples: 1, Dumelow's Seedling; 2 and 3, not known; 4, Kedleston Pippin. (J. F. C.).—Golden Noble. (Thomas Parker).—2, Golden Pearmain. 4, Hollandbury. Are not the others local varieties? (R. I. Lynch).—1, Dr. Harvey; 2 and 3, not known. Pears: 1, Seckle; 2, Beurré Superfin.

Names of Plants (G. Long).—As we have previously stated, it is impossible for us to undertake the naming of florists' flowers. There are so many of them so closely resembling each other that the names cannot be satisfactorily determined without comparing the flowers with others in a very large collection. The small-flowered variety is probably Eleonore;

the others are much too imperfect for identification without actual comparison with other flowers. (T. B.).—The flowers were much crushed, but Brassia resembles *B. verrucosa*, and the Brassavola is *B. venosa*. (Ardent Reader).—Such diminutive scraps of plants are totally insufficient.

COVENT GARDEN MARKET.—NOVEMBER 28ST.

MARKET quiet with fair supplies. No improvement in Kent Cobs.

FRUIT.		
	s. d.	s. d.
Apples	½ sieve	1 6 to 4 0
"	per barrel	0 0 0 0
Apricots	box	0 0 0 0
Chestnuts	bushel	10 0 0 0
Figs	dozen	0 9 1 0
Filberts	lb.	1 0 0 0
Cobs	per lb.	1 6 0 0
Grapes	lb.	1 0 3 0
Lemon	case	15 0 21 0
Melons	each	2 0 to 3 0
Neectarines	dozen	0 0 0 0
Oranges	100	6 0 10 0
Peaches	dozen	0 0 0 0
Pears, kitchen	dozen	0 0 0 0
" dessert	dozen	1 0 5 0
Pine Apples English	lb.	2 0 3 0
Plums and Damsons		0 0 0 0
Strawberries	lb.	0 0 0 0
VEGETABLES.		
	s. d.	s. d.
Artichokes	dozen	2 0 to 4 0
Beans, Kidney	100	1 0 0 0
Beet, Red	dozen	1 0 2 0
Broccoli	bundle	0 9 1 0
Brussels Sprouts	½ sieve	1 6 2 6
Cabbage	dozen	0 6 1 0
Capsieums	100	1 6 2 0
Carrots	bunch	0 4 0 0
Cauliflowers	dozen	2 0 3 0
Celery	bundle	1 6 2 0
Coleworts	doz. bunches	2 0 4 0
Cucumbers	each	0 4 0 0
Endive	dozen	1 0 2 0
Herbs	bunch	0 2 0 0
Leeks	bunch	0 3 0 4
Lettuce	score	1 0 1 6
Mushrooms	punnet	1 0 to 1 6
Mustard and Cress	punnet	0 2 0 0
Onions	bushel	2 6 3 3
Parsley	dozen bunches	3 0 4 0
Parsnips	dozen	1 0 2 0
Potatoes	cwt.	4 0 5 0
" Kidney	cwt.	4 0 5 0
Rhubarb	bundle	0 4 0 0
Salsafy	bundle	1 0 0 0
Scorzoneria	bundle	1 6 0 0
Seakale	basket	2 3 2 9
Shallots	lb.	0 3 0 0
Spinach	bushel	2 6 3 8
Tomatoes	lb.	0 3 0 4
Turnips	bunch	0 0 0 0



ERADICATION OF COUCH, TWITCH, AND OTHER WEEDS.

THIS is an important operation, not only because it is so difficult to accomplish by ordinary tillage, but also in consequence of the expenses incurred. Economy must be the basis of all operations for freeing the land of couch or twitch grass, but also of onion grass, black bent grass, and some others which are indigenous to certain soils and climates. There are also some weeds which root under ground, and propagate from the roots, such as the coltsfoot, one inch of which if left in the land being sufficient to propagate and cover a considerable surface. There are various other weeds well known to practical men under local or provincial names; we therefore do not attach any particular importance to give the botanical names. These, however, are given fully in an excellent essay by Mr. Bravender in the "Journal of the Royal Agricultural Society of England," and may be distinguished not only by the practical man by provincial names, but also by illustrations of the growth and seed heads of the various species. This subject, now more than ever, has been prominent during the many past wet seasons, and the result of serious changes of tenancy and disastrous failures left large acres of arable land in the worst possible state, and covered with couch and weeds oftentimes over the whole extent of what used to be useful corn-producing farms; it therefore becomes a landlord's as well as tenant's question.

The couch or white-rooted grass which increases under ground as well as on the surface, is peculiar to all those soils of a sandy nature. It should be guarded against not only by fallowing at the onset and eradicating in that way, but also by arranging such a rotation of cropping as will give not only the most frequent opportunities by fallowing, but also of forking out at all intervals of cropping, or during the infancy or fall of the leaf of such crops as would not be injured by this process. These small pieces, though not likely to do any serious injury to the present crop, will if allowed to remain become parents of a large succession, and in all weather except frost can be removed, and thus prevent not only the growth of the white roots by night and by day, but also the serious and costly horse labour which can only be successfully carried out in the finest of weather at certain seasons. We are induced to speak firmly and decidedly upon this subject, having repudiated fallows as the means of clearing land and thereby preventing a quick succession of the most valuable crops, as we continued to fork out couch for a period of thirty years, and under which system no fallowing was required except an amount of tillage necessary only to promote

the successful growth of such crops as Potatoes, Mangolds, Carrots, Cabbage, and Turnips of sorts. It seems that even now, after so much has been said and written upon the subject of fallowing, that many parties do not discriminate between the hand labour compared with horse labour when a long fallow is required, and the forking-out of couch at all times and opportunities, and thus prevent the necessity and expenses of fallowing. Various farmers up to the present time are as great advocates as ever for a system of autumn tillage for the purpose of cleaning the land; now this work takes place at a time of year when all the great and important seedings for crops should be going on, such as Rye, Trifolium, Tares, Winter Beans, Winter Oats, and especially of Wheat. To show how this serious displacement of the essential seeding of these crops, we can only say never delayed our tillage operations, and that as we always forked out couch or twitch at every opportunity, we never lost a seed time of any of the many crops for sale which we grew for a very long period.

In an article by a correspondent in the "Agricultural Gazette" on the 10th of May, 1880, it is stated in speaking of "eradicating couch grass," that "Twenty years ago we used to hand-pick couch; but since then labour has become dear, scarce, and less laborious. To hand-pick couch means a terrible expense per acre. Is it, then, advisable to undertake the work? Such is a question which we have been revolving for some days or weeks past. Here is the couch lying in tiny bits over the surface. To hand-pick it is a slow and expensive job which would require more hands than we can spare. Women labour cannot be procured, childrens' labour is forbidden by the Education Act, and man's labour is not suitable. On the other hand ploughing-in such small pieces of couch means fresh seeding of the ground and new troubles with the enemy in future. What, then, is to be done? We confess ourselves to be fairly on the horns of a dilemma between cleanliness and cost."

The whole of our life endeavours have been expended in solving the problems which appear so difficult, and we have escaped the difficulties dependent on foul land requiring to be cleaned by an ordinary fallow. During that time, especially in the winter months, we quite agree with Sir J. B. Lawes when he says an uncropped surface under tillage loses a large amount of fertility, and probably of a sufficient amount to pay the expenses of a well-devised system of forking out. At any rate if we get rid of the lumps of couch in each field as the opportunity serves by forking we have neither loss of fertility nor expensive fallows to make, for let it be understood that the whole and sole reason of a long fallow being required illustrates two things most prominently—namely, that the rotation of cropping is wrong, or that the expense of forking out has been repudiated or neglected. We see the first question asked by the author of our quotation is—"Is it, then, advisable to undertake the work?" We say, No, you are on the wrong tack, you have entered upon the making of a long fallow. Nor can a short one be made of it by picking up tiny bits of grass, for either you must make a long fallow, or possibly, if unfavourable weather prevails, it cannot be made at all during that season, entirely because the hand labour of forking has been neglected.

The next question asked by our correspondent from whom we have quoted is—"What, then, is to be done? We confess to being on the horns of a dilemma between cleanliness and cost." You have no alternative but incurring the expense of cleaning the land or let it lie almost in a state of waste for the feeding of dairy cows. This involves the consideration of how best the land can be kept clean; and all the experience we have to fall back upon, and all the evidence which can be obtained from the best farmers of those soils most subject to couch, refers to the making of long fallows as being not only the most expensive but also the most uncertain of accomplishment, in consequence of the horse labour being so costly. On the other hand, if the season is unfavourable it is a failure, and the land not cleaned whatever might have been the cost. On referring to the use of the fork in eradicating couch, the cost when done with judgment and continued through the year must be successful, as we can prove on our farm, which was not fallowed for a long series of years, and was never foul during the whole period. As regards the certainty of its operation, the work being spread over the whole year makes it certain of accomplishing its object, that of clean farming. With regard to the actual cost, this will be moderate done under the proper supervision of the farmer, and when compared with the attempt to clean land by horse labour, couching, or tillage, we must remember this cannot always be done, while the forking is, or should be, continuous; and then it will be successful. Let us consider for a moment the comparative cost as between horse labour and forking by hand, and it will be found that one good man for ten months in the year in

forking will displace one horse on each hundred acres, and with greater success in various ways.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still employed at every fine interval in ploughing, the land being seeded with Wheat as fast as the ridges are ploughed, and upon dry soils, such as limestone, gravel, sand, and thin chalk, the Wheat seed has gone in well. Upon some strong or mixed soils a considerable breadth has not yet been seeded, and will probably be held over for Lent corn, either Barley or Oats, by sowing the former on the driest and kindest land, and the latter on the coldest and strongest land. Fallow-ploughing upon those farms where all the Wheat has been sown will be going on, and various modes ought to be adopted in accordance with the nature of the soil and its condition. We may here note that any soil in good condition and clean should have been seeded with catch crops soon after harvest, especially where a flock of sheep are kept. Upon those farms where green manuring finds favour such crops as stubble Turnips and Rye will be ploughed-in in the spring instead of feeding with sheep, in order that a cereal crop for sale may be taken with great advantage. We passed over land to-day (November 22nd) which had grown a full crop of Trifolium cut up for soiling horses, and afterwards tilled and drilled with red round Turnips at 14 inches apart; there was a full plant with very gross leaves, the land having been manured with 3 cwt. per acre of bone superphosphate; but the roots were never hoed, and therefore no expenses incurred as when intended for sheep-feeding. The crop, however, was being ploughed under after the greens were mown off, and any bulbs requiring it were chopped, and a very full dressing it must be according to our experience for the Wheat which was being sown as fast as the land was ploughed. In many districts roots are so plentiful, and sheep so scarce and dear, that when offered for sale the roots cannot find a purchaser, and in consequence a large acreage will be, or ought to be, ploughed in for Wheat, and again in the spring any super abundance may or will be also ploughed under for Lent corn.

Live Stock.—Sheep are generally very healthy and in good condition, the growth of grass having been continuous upon all good grazing pastures. The ewes, either of Shropshire Downs or long-wooled breeds, are very promising, for they have for the most part taken the ram. If a moderate supply of grass can be eked out during the winter, with only hay in addition, leaving out roots altogether, so much the better, for we well recollect a friend, instead of feeding the chalk hill pasture close with sheep during the summer, made a practice of reserving the grass until the winter months for the feeding of his fine flock of Hampshire Down sheep, and never would give his in-lamb ewes any hay or roots unless frost or snow made it a necessity, and with uniform advantage at lambing time. This farmer occupied land on the chalk hills on one estate for fifty years with great success. The Dorset and Somerset horned ewes have well-nigh finished lambing, and in numerous instances half of the flocks have yeaned twins. Some of the earliest of these are now feeding with full allowances of cake and beanmeal mixed with white Carrots cut fine with Gardner's cutter, and they run before the ewes, they get a full picking of Turnip-greens. In various instances about every tenth drill is seeded with Rape, thus affording the most valuable green food which can be obtained. The choicest lambs, however, we have ever seen or made were fed in advance of the ewes without any green food at all, the roots being stacked or heaped for cutting and feeding of the ewes, with hay and cake in addition, the latter being mixed as meal with cut roots; but the lambs received all their food in troughs, such as the best Dutch Clover hay in chaff, and cut Carrots or Cabbage, at first with cake and beanmeal mixed with the roots, cut as fine as dice.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32 nd and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1888.										
November.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 18	30.009	34.8	33.4	W.	40.6	49.0	31.8	55.2	27.5	0.045
Monday 19	29.936	44.9	43.9	W.	41.0	50.3	35.7	78.3	31.8	0.021
Tuesday 20	29.913	43.5	41.5	W.	41.2	48.8	38.3	69.3	33.3	0.013
Wednesday .. 21	29.957	47.7	45.7	S.W.	41.0	53.5	37.4	78.4	30.3	—
Thursday 22	29.860	46.5	43.6	S.W.	41.6	50.8	40.5	67.5	34.4	0.364
Friday 23	29.756	35.8	35.3	N.W.	41.7	45.7	34.5	69.3	31.2	0.267
Saturday 24	29.527	47.9	45.3	W.	41.1	51.2	34.8	69.8	33.8	0.187
	29.851	43.0	41.4		41.2	49.9	36.1	69.7	31.8	0.897

REMARKS.

- 18th.—Very misty, but fair till evening; then rain.
 19th.—Wet early; fine day; bright moonlight night.
 20th.—Rain in early morning; bright breezy day; sharp shower at 3 P.M.
 21st.—Showery and windy; bright sunshine at intervals; calm fine evening.
 22nd.—Squally, with showers; hail at 11 A.M. and 3 P.M.
 23rd.—Morning bright and fine; overcast afternoon.
 24th.—Wind and rain in early morning; fine day; rain again after 8 P.M.

A week of average November weather, except that there was no fog.—G. J. SYMONS.



6	TH	Royal Society at 4.30 P.M.; Linnean Society at 8 P.M.
7	F	
8	S	Royal Botanic Society at 3.45 P.M.
9	SUN	2ND SUNDAY IN ADVENT.
10	M	Royal Geographical Society at 8.30 P.M.
11	TU	Royal Horticultural Society, Fruit and Floral Committees at 11 A.M.
12	W	Society of Arts at 8 P.M.

FIRING AND VENTILATING.

THESE are of no mean importance in cultural practice; indeed, very much depends upon the application of heat and air in the cultivation of plants under glass in relation to a successful or unsuccessful result, and they bear such a correlation to each other, especially in forcing operations, that the one depends greatly upon the other as to the method of applying them.

Every cultivator is cognisant of the importance of the heat being of the required degree, and yet we not infrequently find less knowledge, at least less attention, given to the matter than is considered needful in less important details. There may not be any great difficulty in large establishments where the heating apparatus is all-sufficient for its work, and the water in the apparatus kept at a temperature little short of boiling constantly, as it then resolves itself into a matter of regulating the heat by the valves, any not required being kept in stock that can be drawn upon as the necessities of the several departments demand; but the case is very different where a boiler has to do the work of but one or a few compartments, and the stoking is dependent on those but little experienced in the work. I do not propose to enlarge on the art of firing, only to point out that it is as well worth anyone's while to learn how to fire as it is to know how to attend to the requirements of plants in the matter of watering and ventilating, and the knowledge acquired on the latter point is of equal importance as that on the former in attaining proficiency in the art of gardening.

Although everybody knows that water cannot be made hotter than 212°, or boiling point, without its being converted into steam, yet it is well to bear in mind that the pipes may become too cold by an overdose of fuel; then by sharp working of the fire they are made quite hot again to atone for the mistake. Such, I need not say, is not good stoking. In fact more harm is done by this alternate roasting and starving process than any other in relation with heat. It is not corresponding to alternating blinks of sun and a cloudy sky, for the sun-heat fluctuations are accompanied with corresponding degrees of light, whilst this is not so with artificial heat, consequently the temperature needed by this means should be as little given to fluctuate as possible. The art of firing is to produce a temperature corresponding to that accorded by Nature to different descriptions of plants. It is vain to suppose that an artificial temperature can be produced superior to a natural one, yet an artificial climate may be produced in which plants will attain to greater excellence than in their native habitats; still, it is by a combination of conditions in addition to artificial heat that such are obtained, the plants not being subjected to any of the vicissitudes they incur in their native homes.

In the application of artificial heat the object should be to diffuse it at a temperature as low as is consistent with attaining the desired end. If we have a greenhouse it is pernicious to only provide so much piping that it must be kept at nearly 200° to exclude frost, as the heat radiating at so

high a temperature will dry the air in the immediate proximity of the pipes as to injuriously affect the plants. Sufficient piping to keep the temperature to the required degree without heating it more than to 100° would be far better. Then the artificial heat should always be such that the maximum temperature will be obtained in the daytime. Very frequently this is not the case, especially in cool houses. Fire heat is applied at night in case of a probable frost, and the temperature is kept at what? Well, I have often seen it over 50° at ten o'clock at night, because the expected frost has not come, and I have seen the same house the next day at 40°, with a current of air. The nights are thus turned into days, and *vice versa*. Softwooded plants soon became of a sickly green, and thin in texture of foliage, simply because the growth is made by the artificial heat in the dark. In this case the house should not have had the heat at night so as to raise it above the day temperature, and if it were needed at all the day should have exceeded that at night by at least 5°, or, if cold and dull, it may approximate as near as possible to the night temperature, or 40° to 45°.

In more highly heated houses extra heat is very often turned on in anticipation of a cold night. Those who do this know full well what it means—viz., saving themselves—providing for their own convenience, not that of the requirements of the plants. If the anticipations are not realised the fire will have raised the temperature many degrees higher than it ought to have been, and injury is done which with a few repetitions soon becomes apparent. There is no remedy for this but assiduous attention and thorough grounding in the practice of firing. A few degrees' lower temperature during sudden depressions of the external temperature are not injurious, but conducive to the health of the plants, as it is only so much more rest given them, and that they can hardly have too much, provided always that it be safe.

Then in forcing operations it sometimes is allowed to happen that a temperature is obtained which should never be tolerated. I have seen vineries at 70° at ten o'clock at night, when 60° was suitable, to allow of a fall to 55° by morning, and the pipes at the same time scarcely warm in the morning. Such is not good firing, but is a certain indication of the stoker never making a mark in his profession. But firing is dirty work. I know it, having had some twenty-four to look after when young, and half a mile to trudge knee-deep in snow to some of them when only owls kept awake. Things have altered since then, and the duties of under gardeners are very much less onerous. In the matter of heat it is only a question of turning valves in some establishments, and in most no more real work is needed than in using a poker, coal rake, and throwing fuel into the furnace. It is essential that firing be understood, and this comes of the exercise of some judgment in combination with practice.

In forcing operations sudden fluctuations of artificial temperatures are very baneful—in some instances fatal. There are a few points in connection with the application of fire heat in forcing that cannot well be overlooked. The first of these is to raise the temperature to its maximum from fire heat in the early part of the day, or within an hour or so of sunrise, and to maintain it at that until near night-fall. This will afford a long day of growth, and elaboration, and assimilation of the juices of the plants, and the growth so made will be firm and solidified, and the foliage leathery in texture, but it will be soft if made in a close atmosphere with the night temperature as high as the day. The second point is that of the night temperature being kept 5° to 10° lower than the day. This should commence to take place from dusk. The lower temperature will cause a cessation of growth, induce rest, and prevent that weak condition of the growth and thinness of the foliage only too frequently seen in forcing. A fall of 5° from dusk to nine or ten o'clock, and another fall of 5° by the time the house is entered in the morning, will approximate very nearly to a correct state of things. Then, as before stated, the heat should not be radiated at a high temperature, for where the pipes are

highly heated the growths in the immediate locality evaporate considerably, cooling their surfaces, which become soft and watery, unable to withstand sun, and forming a ready object for the attack and spread of red spider. Beds of fermenting materials are acknowledged aids in early forcing operations, both from the moisture given out and the mildness of the heat from the greater area of surface, than is the case with hot-water pipes.

As to ventilation, it seems almost needless to make any observations on this head now-a-days. If we are to credit the growing of Cucumbers without it, and if our ideas of ventilating vineries according to old notions are all wrong, I do not see this. Try keeping vineries, Peach houses, and plant houses without air. Ventilating houses through the laps of the glass sounds well in theory. Much of the heated and vitiated air passes out that way, and the balance is restored by that driven in by the wind. Waste is no doubt thus caused, but the roofs of houses are not the riddles they were. Small squares of glass were used, but large panes, reducing the laps or openings for the ingress or egress of air to a minimum, are now employed. Ventilating houses as described may answer for Cucumbers, but those grown on that system will, I apprehend, be short-lived; and for fruit and plant houses generally the plan is inapplicable.

Some, in the praiseworthy endeavour to save fuel, shut off the heat when it is likely to be a fine day, and to this there is no objection, provided it be turned on soon enough to hold up the temperature as the sun is observed by clouds, or when it declines. It is the reverse, however, of sound practice to stop the fire in the morning just because there is the prospect of a fine day. The sun heat may keep up the heat until it begins to decline in the afternoon, when, unless the fire has been set to work in good time, it drops to the maximum from fire heat long before dusk, and the fire heat only begins to tell at nights, and up the temperature goes to a dangerous point. Had the fire been kept going, the house could have been ventilated not only much earlier but more fully, commencing when the temperature rose above the day fire-heat maximum, and increasing it with the increased sun heat, so that the maximum from it would be gained at an early period of the day, and continued through it by commencing to reduce the ventilation gradually as the sun power declines, and withdrawing it altogether at the maximum for the day. Thus a good temperature will be insured during the hours of light, and from that the heat should gradually fall to the night temperature. This will be approximating to Nature without those sudden fluctuations which it is the object of the cultivator to prevent, and thus he may excel in growing plants better than they are seen in their natural state.

Air is essential to prevent a weak condition of the tissues, and to give firmness to the growths. Upon this depends very much the health of plants, their flowering satisfactorily, the fecundation of the blossoms, and the quality and flavour of their fruit. Air should never be given to lower the temperature, but to prevent it becoming too high. It should be given early, or as soon as the sun begins to act on the house; and were this more strictly attended to there would be less scorched leaves and fewer mishaps in other ways. It should be given as far as possible so as not to produce a current especially of cold air, and it is always better to allow a few degrees higher range of temperature from sun heat than admit cold air in quantity by the ventilators to reduce it to a given figure. It does not do to admit air to a house at 75°, so as to bring the temperature down, which ought to have been ventilated from 65°, for this gives a sudden and disastrous check. Even in dull sunless weather a little air is advantageous, as it keeps the foliage from becoming so soft and thin as to be unable to withstand sun. After very dull weather the foliage of many plants flags with a return of bright weather; more especially is this the case when the house has been kept close and moist, and which a little extra fire heat in the daytime so as to allow of a little ventilation would have remedied. In cases of this description, and

they are common enough in forcing operations, the ventilation of a house in bright weather following a dull period should be careful, it being better to allow the heat to rise than admit much air to keep it down, as with a comparatively close house the evaporation from the foliage will not be nearly so great as were an abundance of air admitted; then by increasing the ventilation from day to day very little effects of the transition will be felt, as the foliage will become gradually hardened through inuring it to a changed condition of circumstances.—G. ABBEY.

TRAINING RASPBERRIES.

A CORRESPONDENT ("F. J.") writes:—"What is the best kind of frame for training Raspberries to? Kindly give particulars enough as to height, &c., to enable me to make one, and say whether it is better to train the canes perpendicularly, or obliquely like cordon Pears."

As there are doubtless many persons who desire similar information, it will not be inappropriate to refer to some of the different methods of training that are practised, as each cultivator can then adopt the one that appears the best adapted to his position and circumstances.

It may perhaps be well to state at the outset that the greatest bulk of Raspberries—the hundreds of tons that are produced for sale in markets and for meeting the enormous demands of jam manufacturers—are gathered from canes that are not trained at all—that is, one neither supported by stakes, trelliswork, strands of wires, or tied to each other in the form of bows or arches. The canes are strictly self-supporting; but when grown in this natural manner there must be an absence of that dense overcrowding that is not unfrequently seen in gardens where growth struggles with growth in endeavouring to benefit by the light and air above them, the canes in consequence being long, soft, whip-like, comparatively destitute of woody tissue, immature, and essentially unfruitful. They are not of this character in the fields of Kent, but hard, sturdy, short-jointed, and in a condition generally to render stakes or any other kind of support quite superfluous. They may be also similarly grown in gardens where ample space is afforded them.

Several years ago some varieties of Raspberries were planted in a garden. Some of them were secured to stakes in the ordinary manner, others had strands of wire stretched from stake to stake, to which the canes were trained in continuous rows; but for testing the self-supporting plan a row of Carters' Prolific was planted by the side of a walk, and the canes after being duly thinned—not in the autumn after injury caused by overcrowding in summer was done, but in the spring to prevent it—were left to take care of themselves. Whether in consequence of the superiority of the variety or the plants receiving more air by being near the walk, or by a combination of both circumstances, is not perhaps exactly determinable, but certain it is this row always produced more than twice the weight of fruit afforded by any other row of the same length, whether trained to stakes or wires, the variety so grown being the true Fastolf, which is admittedly good.

It might be imagined by some readers that the untrained row in question had a slovenly appearance. The reply to that surmise is, that if such was the case no one observed it, even in winter, while in summer it was the most attractive of all, because so heavily laden with its large red fruit. This experience is recorded, not so much for the information of "F. J.," as for other persons, not a few of whom fancy they cannot grow Raspberries in their gardens because they cannot readily procure stakes, and are not prepared to incur the expense of making a wire or wooden framework for supporting the canes. With good soil and thin planting they may have the finest crops of this useful fruit without any such aids if they grow the true Carter's Prolific. Not far from Mr. Cannell's nursery at Swanley is a field of fifty acres, mostly of this variety—millions of canes without one stake, and from which ten tons of fruit are sometimes gathered during a fine morning before breakfast.

But to the training. If the canes are planted a foot apart in a continuous row, strong iron standards securely fixed at the end of each row, and two or three lines of strong wire stretched from post to post, these wires supported by lighter uprights of iron or wood at 9 feet intervals, make the best and most durable frame. Strong oak posts at each end of the row, however, answer well, but they must be well strutted, as represented in fig. 94, so that the wires can be tightly stretched. Many frames are made by driving down a row of strong stakes and attaching from stake to

stake two rows of strong roofing laths, or failing these, Kidney Bean rods; their formation is, in fact, just a question of means or expediency.

When strong posts are employed they should be inserted 2 feet deep, their height above ground to depend on circumstances. In moderately fertile ground, and with such a variety as Carter's Prolific, 4 feet will suffice; but in rich soil for such strong-growing varieties as Fastolf and Prince of Wales, the posts and stakes may be a foot higher with advantage. Mr. Bardney grows the last-named variety with canes 8 to 10 feet long. This, however, is exceptional; yet even these might by oblique training be disposed on a framework 5 feet high; and here it may be said that diagonal training should always be adopted when the canes are much higher than the fence, in preference to seriously shortening them. The tops may be taken off to the extent of a foot or so, but wherever the wood is brown and the buds prominent, it is a mistake to remove growth of that character, as such is more fruitful than the stronger portions below, where the buds are comparatively obscure. When the canes are not larger than the stakes which support the wires they may be trained vertically, and if every alternate cane is shortened at 2 feet from the ground, a better furnished row of fruit will be had than if all the canes were left their full length—that is, if they are numerous, or say 4 inches apart; if more thinly disposed—6 inches or more asunder—this alternate shortening is not needed.

For a 4-foot fence with two rows of wires or laths the lower may be 18 inches from the ground, and the upper 2 feet 3 inches

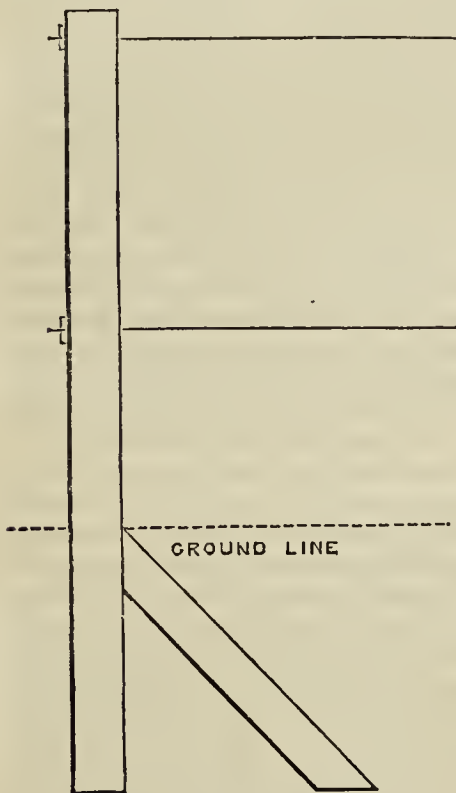


Fig. 94.—Wires for Raspberries.

above it; and as the canes may, if needed, be left nearly a foot above the top, and as the fruiting growths will be still higher, the hedge of fruit will be by no means a dwarf one. With posts 5 feet high three lengths of wire are preferable. When the frames for training are 4 feet high the rows should be 5 feet apart, and when 5 feet high they should be 6 feet asunder. This, it is hoped, will be sufficiently explicit for "F. J." and others whom it may concern. It is a simple record of experience, and on that account will not be the less acceptable.

A word on securing Raspberries to stakes will not be inappropriate. Is the time-honoured orthodox plan of driving in a stake through each stool the best? It is quite certain that by this method there is a great crowding of young growths, and these are not unfrequently broken or injured by defoliation in gathering the fruit. Is it not preferable to drive the stakes in line midway between the plants, one stake between each two stools, and to these stakes secure the fruiting canes right and left, thus allowing the young canes to extend between them, where they are not so much liable to injury and are exposed more fully to light and air? This, too, is an old system, but not by any means generally adopted. As will be seen on reference to fig. 95, six canes are grown from a stool, and these disposed as shown will produce more fruit than if bundled round a stake, the bending causing back buds to break and bear fruit that would otherwise be fruitless; while the growths for the following year have a better chance to mature than when crowded with the fruiters in the customary manner. When this method of training is pursued the stools should not be less than 6 feet apart. On paper the plan may appear fanciful, but in practice it is anything but a "fad," or it would not find favour with that stern utilitarian and first-rate cultivator, Mr. Richard Gilbert, at Burghley.

There may be other readers who have something much better to say on Raspberry training; if so, let them say it. To no one will the information be more welcome than—J. WRIGHT.

GAS STOVES IN CONSERVATORY.—May I beg the favour of any of your able contributors or readers who have used them, to give their

experience with regard to gas stoves for heating the conservatory? We have recently received one of Ritchie's patent condensing hygienic gas stoves for our conservatory, and I am rather apprehensive as to its effect upon the health of the plants. Any information derived from experience will be gratefully received by—F. W. C.

LEAF SOIL v. FUNGI.

In many gardens the preparation of leaf soil is only of secondary importance, while in others considerable care and attention are devoted to it.

The leaves collected here are from all kinds of forest trees—Oaks, Beeches, Elms, Sycamores, and others. It would be impossible to keep them separate, and even if we could the quantity produced from any one kind would be insufficient for our purpose. We take no trouble here now in the preparation of leaf soil, and have long since discontinued stacking it in heaps as practised in many gardens. Amongst a number of trees we have a square enclosure in close proximity to the pleasure grounds, and to which a horse and cart can enter when desired. The leaves are wheeled into this enclosure as they are collected, about a barrowful deep, no attempt being made to keep the place neat, for in that we should fail. The joiner's house is close by, and this leaf yard forms a grand run for his fowls, which turn over the heaps and pick out the grubs. The leaves never become heated, but are fully exposed to the action of the weather. Hitherto we have found the soil prepared under this easy process admirably adapted for the cultivation of plants.

Several years ago we were engaged in planting some evergreen shrubs during the month of May, and in the operation placed about the roots of the plants some leaves that had been collected in the previous autumn. At the time nothing wrong was observed, but in the autumn following alterations of another nature compelled the removal of some of the shrubs transplanted the previous spring, and we found the leaf soil round their roots a mass of fungus. The heap

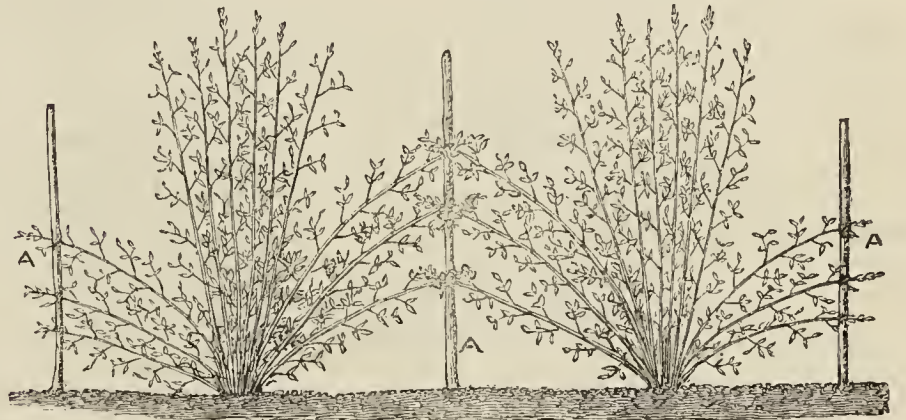


Fig. 95.—Raspberry Training.

of leaves from which these were taken had remained undisturbed, and some time after we intended removing a good portion of them to the kitchen garden to enrich a piece of ground that had not been trenched for years. The heap inside was one mass of fungus, especially where they had become pressed firmly together, and remained in a semi-dry state. Wherever the rain had soaked through them and decomposition was well advanced, not a trace of fungus could be discovered. The conclusion then arrived at, and confirmed by later experience, leads me to the opinion that when leaves are stacked tightly together, and winter rains and air excluded from the interior, they are in the best possible condition for generating fungus. Only a short time ago, when burying leaves in some of the plantations and shrubberies, we found upon examination that those buried last year were very much decomposed and no fungus to be seen, but on the other hand, when buried near large trees, they were much drier and decomposition less advanced, fungus was to be found. Is it not the case with pieces of wood and branches of trees that have become buried and decompose in a semi-dry state, that fungi in nine cases out of ten is the result, and the very opposite when thoroughly soaked with water?

Since we left the preparation of the leaf soil to the action of the weather and fowls we have never seen any fungi in our compost. I do not believe there is any fear of it establishing itself amongst leaf soil if the leaves are not laid too thickly together. When mixed with road-scrapings, as described by "Single-handed," I should not fear the presence of fungus.—W. BARDNEY.

ORCHIDS OUT OF DOORS.

MESSRS. F. SANDER & Co. write:—"We herewith send you an article from M. Anton Joli, garden superintendent to Baron Nathaniel de Rothschild of Hohe Warte, and will thank you

to insert the same in your next issue of the *Journal of Horticulture*."

"I notice with great interest an article on 'Orchids in the Open Air' in the *Journal of Horticulture* of the 8th ult., describing the experiments of Mr. Smee, in which full particulars are also given of the results obtained. It was stated that this is the first trial of the kind made in England; but it may be of interest to Orchid growers to know the results we have obtained with similar trials in Vienna, at the gardens of Baron Nathaniel de Rothschild situated at the Hohe Warte. These trials have taken place not only during the past summer, but for four successive years, and on a rather large scale. This season the number of plants placed in the open air amounted to 2000. Besides these, 4000 seedling Orchids were placed out of doors. I believe that we have here far more difficulty than Mr. Smee has at his residence in England. The climate is milder and the air more saturated with moisture there, and Mr. Smee's garden is particularly well adapted, being shady and having several small streams. Here on the Hohe Warte the climate is rough and dry, the gardens being situated on a hill without shade. We have for the cultivation of our Orchids in the open air a space of 3500 square feet. The plants are shaded with span-roofed stages, under which water tanks are situated, each 45 feet long and 6 feet wide. Wooden lattice trellises are placed over the water, and on these the Orchids are placed. Below I have pleasure in giving a list of the results obtained during the past summer.

Date when placed in the open.	Name of Plants.	Date when placed in the houses.	Notes.
May 17th	Cypripedium insigne	Sep. 22nd	Grew strong and compact, and produced many flowers.
May 26th	Odontoglossum Insleayi leopardinum	Sep. 18th	Produced splendid pseudo-bulbs and flowers.
"	Odontoglossum pulchellum ..	"	Rested, and finished pseudo-bulbs well in houses.
June 5th	" Alexandrae	Sep. 3rd	Although late imported they made fine pseudo-bulbs.
"	" Roezli	Sep. 18th	Foliage turned very dark green, and plants are strong.
"	" vexillarium ..	"	Made many young growths.
"	" Phalaenopsis ..	"	Produced strong healthy pseudo-bulbs.
"	Cattleya Mossiae	Sep. 12th	Although lately imported they made fine pseudo-bulbs.
"	" Sanderiana	"	Had large quantities of young growths, which ripened well in houses.
June 7th	Coelogyne cristata	"	Very strong and robust.
"	" pandurata	"	Splendid results.
"	Dendrobium seedlings	Sep. 8th	Rested at first, but made later enormous pseudo-bulbs.
"	" moschatum	Sep. 12th	Produced immense pseudo-bulbs.
June 8th	Oncidium tigrinum	"	Made a number of growths.
"	Epidendrum alatum	Sep. 15th	Rested during the whole time.
"	" prismatocarpum ..	"	Rested, but began growing strongly when placed indoors.
"	" Stamfordianum ..	"	Made broad large leaves and pseudo-bulbs.
"	" cochleatum	"	Foliage very dark and with long spikes.
"	Laelia anceps Dawsoni	Sep. 18th	Rested, roots swelled splendidly, and foliage turned a very dark green. They started into fine growth when placed indoors.
"	Trichopilia suavis	"	Same result with the Aerides as with the Vandas. The foliage became greener, and they started at once into growth when under glass and flowered well.
"	" crista	"	Some made new leaves, others rested, but began growing vigorously when placed indoors.
"	Vanda caerulea	Sep. 15th	
June 30th	" suavis	Aug. 25th	
"	" tricolor ..	"	
"	" Denisoniana	"	
"	Aerides odoratum	"	
"	" crispum	"	
"	" Fiedingi	"	
"	" affine	"	
"	Saccolabium Blumei	Aug. 18th	
July 7th	Phalaenopsis Schilleriana ..	"	
"	" grandiflora	"	

—ANTON JOLI, *Garden Superintendent*."

EARLY MUNICH TURNIP.

AT page 429 of this Journal, "W. D. W." asks for information respecting this most excellent early Turnip. Its introduction into English gardens is due to the Royal Horticultural Society, I believe, who distributed it some eight or ten years ago (I speak from memory, which age does not strengthen, I can find, and so I may be wrong a year or two), amongst the novelties that they send out to their subscribers year by year. It is right that this fact should be known, as I have heard sneers about the "rubbish" and "useless trash" which the Society have sent to their members in these annual distributions.

The gardeners into whose hands Early Munich Turnip fell, however, treated it fairly, and, noting its merits, chronicled them in various gardening papers.

The gardeners who grew this Turnip first thought from its performances early in the season that they had a Turnip that was good all

through; but they found out their mistake. It is not a good garden Turnip generally and altogether; in the summer it grows coarse and strong, and tough, and high-flavoured, but as an early turning in Turnips there is none to equal it. At least that is so as far as my experience goes. It is a useable Turnip, quicker than any other that I am acquainted with, and I have matched it against all the early varieties that I could obtain. For that purpose it is a gardener's friend and will suit "W. D. W." or any other gardener who wants (and what gardener does not want?) young Turnips as soon as he can get them in the new year.—H., *Notts*.

ECONOMY IN STOKING.

THIS subject crops up every year and ought to receive serious consideration. Lately the experience of Mr. Inglis and "Dugald" has been placed before us. Mr. Inglis's remarks are certainly to the point, whilst "Dugald's" are rather complicated. Stokers may follow Mr. Inglis's teachings with advantage, but they should first learn the peculiarities of the boiler they have to attend to. There may be three saddles, or any kind of boiler, on the same place set as nearly alike as possible, but they generally require a little different attention either with the damper or ashpit door, and this can be only gained by experience. I have had to attend to the old saddle, terminal end saddle, Trentham improved terminal end, cruciform, tubular, gold medal, and other boilers as well. Some are stated to do the work well without any night stoking; but I have not had the pleasure of finding them. Certain boilers are stated to heat a certain number of feet of piping, and with this in view boilers are set to do the work. Perhaps several houses have to be kept up to a high temperature, and when frosty weather commences heat has to be turned on to several others, the result being, if the boiler is a very powerful one, that unless the stoker fires hard until late at night and starts early in the morning serious mischief might be done. I think the best system is to have two boilers, working one in favourable weather and the two together in case of frost or cold winds, and the result will be a smaller fuel bill than if only one had been employed.

Another mistake is having too little piping. There may be two houses exactly the same size and heated with the same length of piping, but if one is placed in a more exposed position than the other, to keep it the same temperature more piping would be required. In many cases the boiler power is greater than the number of feet of pipe it has to heat. In cases of this kind it is very easy to keep the houses at the proper temperature in frosty weather or during high winds if the boiler and the working of the valves are understood, which is only gained by experience. I maintain it is of no use whatever going by fixed rules, as what will agree with one boiler will not suit the other.

"Dugald" states that he would have a boiler that would not require an ashpit door in the working of the furnace. I should say that depends on the flues. If these are sharp and there is no ashpit door it would be difficult to regulate it with

damper alone; but in the case of boilers like the Improved Trentham no ashpit door is needed, the draught in this case being regulated by the damper.

I do not think "Dugald's" theory about having a furnace door at each end of the boiler would answer, as if boilers are properly set and stoked one furnace door is quite sufficient. In fact I do not think two doors would answer at all, as the cold air would rush in from the opposite side from which the fire is fed and drive the smoke out where it was being fed. Altogether it would be a complicated affair and not worth troubling about.

In all cases the flues should be well cleared out weekly, so that there may be no obstruction to the draught. I have seen cases where the flues were clogged with soot require almost full draught to keep the fire in, but when the flues had been properly cleaned very little draught has been needed to get the pipes properly heated.

"Dugald" also remarks, "Why not carry the chimney in

the shape of a flue through a stove?" If I had a boiler with sufficient piping to heat the house properly, I should not care to carry the chimney in the shape of a flue through any structure with vegetation in it. In flues there are generally some mishaps occurring. If a vinery, and an accident occur during the night, we have the pleasure of seeing in the morning the foliage burned. In my case once where a flue ran through an old orangery, one morning we found, owing to an accident to the flue, that the buds had all fallen, and in many cases the foliage of Camellias as well.—A. YOUNG.

OUR PEAS OF THE PAST SEASON.

To commence the Pea season I make a good sowing in November of Prizetaker, not forgetting to sow for the sparrows in the warm days of spring as well as for other purposes, and again in February and in March, at the same time sowing Veitch's Perfection for succession. This is a great favourite, and has been so with me since its first appearance. From the November sowing we generally gather about the first week in June. This season was an unfavourable one; they were a week later than usual, but the crop was larger. Stratagem I like very much, but when I have grown it as a summer Pea as long as I have Veitch's Perfection I may like it better. I am inclined to think it is only a selection from that fine variety. Its sturdy habit is a grand character. I shall continue to cultivate it. Sharp's Paragon is a fine Pea, but requires careful attention to keep it in the stakes in windy weather. The pods are too long in filling in our locality, and it is too tall. The seed of John Bull was mixed, so that I was at a loss to discover its true character. Some were 3 feet high some were 9, so I gave John marching orders.

Giant Marrow when true deserves all that has been said of it, but we shall have to adopt a different mode of treatment if we mean to succeed with it. It is a monster in every respect, but I am sorry to say did not satisfy my expectation. It was too long in filling; it is tall-growing, and being much exposed to winds its gigantic proportions require more than ordinary support. Too much cannot be said for Telegraph and Telephone, and I find so little difference between them that in future they will be used as one. I find the wrinkled and the smooth in each. Telegraph and Veitch's Perfection are the Peas for me during the summer and autumn. I should like Telegraph all the better were it 4 feet instead of 7 feet high. Could I have Ne plus Ultra 5 feet in height instead of 8 I would seek no further, as tall growers suffer much from winds with us. When a lad in a market garden fifty years ago we used to have a grand late Pea called Vellyfield Roughpod, but I hear nothing of it now. I might name others, but from the above we had a full supply from June to the end of October, when the wind and frost closed our Pea season.—A YORKSHIRE GARDENER.

CHRYSANTHEMUMS OUT OF DOORS.

THAT Chrysanthemums may be grown very successfully in the open air, as you note on page 463, is certain; and since reading those lines I have seen a very successful instance, in fact the best that has as yet come under my notice. This, however, is not by a professional gardener, but a very enthusiastic amateur—Mr. H. Murray, Uxbridge, who, besides the open-air collection here mentioned, has had two small houses filled with his favourite flower. Mr. Murray's outside collection is grown near a west wall; a double row of plants, which are planted out early in April, some well-decayed dung being worked into the border. During the growing summer period they are of very little trouble compared with pot plants in the way of watering—staking, tying, and disbudding being the principal consideration. Towards the end of October a coping of glass or canvas is erected in the way usually used for Peach trees, and in cold weather mats or canvas being in front. I herewith forward a few blooms cut from this open-air collection to-day (December 1st). The large Anemone varieties were in better condition than the incurved varieties, George Sands, Louis Bonamy, and Lady Margaret being very good. I have seen worse blooms in metropolitan exhibition stands this season.—C. H.

[The Anemone varieties are extremely good, and the incurved blooms are also of fair quality, and we can corroborate our correspondent's remarks that much worse blooms have been shown this year, and in winning stands.]

OUR ORCHARDS AND PARAFFIN OIL.

A CORRESPONDENT writes:—"In an article in the November number of the "Nineteenth Century" by the Rev. H. P. Dunster, entitled 'Our Orchards and Paraffin Oil,' several passages occur which are worth the attention of horticulturists, and for this reason I transcribe them. Speaking of imports, he says 'that the fruit imported under the heading of unenumerated raw reached the almost incredible amount of 4,045,691 bushels, the value of which was £1,718,907,' that is, all unless dried fruits; but we believe that a distinction has been made in favour of Apples, of which a separate return will be given. After finding fault generally with cultivators, he here says, 'We do not ourselves grow, and moreover not attempting to grow, a supply of fruits sufficient for our own consumption, but are contented to pay our money to foreigners for almost all we need;' and strongly advises 'cultivators and owners to do

something more for their own benefit,' by which he means the more extensive planting of orchards.

"There are, we learn, at present only '184,000 acres of land under orchard cultivation, and which gives a far higher average than the rent and tenants' profit of ordinary farm land.' Then follow a few questions. 'Are our orchards properly managed at present?' 'Are they not capable of improvement?' And then, 'I am in a position to prove that the health and productiveness of orchard trees may be most materially increased by a very simple and inexpensive process, and that both owners and proprietors may derive a much larger return from orchards than is now made.' And after a general review of the land occupied by orchards in different parts of England, the startling assertion appears, 'I only in a few instances' (and those were orchards planted with young trees) 'met with trees that were not covered with mosses and lichen, and in a state of canker and neglect.' 'Is it possible under such circumstances that orchards can be expected to pay, and if still under circumstances they do yield a profit—a profit far beyond what ordinary farm crops are yielding, as I have every reason to believe is the case, what would be the result of greater care bestowed upon them?'

"He then proceeds to give the experience upon which are founded the preceding assertions. 'About five years ago an old Apple tree as usual was infested with the American blight, as it is commonly called (Eriosoma). The tree appeared gradually dying, and from its situation I was very reluctant to cut it down. About a pint of paraffin oil was put in a wide-necked bottle, and with a house painter's brush a full dressing was given wherever the least blight was observed, all trace was obliterated by the process, and in a few days the moss and lichen turned black and died,' when the tree survived and flourished, made fresh shoots, and is now in a healthy bearing state. And all he affirms is that by the process above indicated 'orchard trees generally in good health and bearing for a much longer period than is found to be the case at present.' 'That trees themselves shall throw off their rusty moss-grown state and assume a healthy and vigorous appearance, also that the fruit they bear, instead of being misshapen, speckled, and stunted, shall indicate by quantity and quality their more healthy condition.'

"An instance is also given of two Victoria Plums where the stems were covered with the blight and beginning to give indications of approaching death. 'The quantity of fruit did not in the least diminish, but were undersized, spotted, and some fell before they were ripe. One of these was cut down, the other was dressed as above with the most startling results, vigorous health producing large plump well-bloomed fruits.' 'Now, with both these the gardeners' verdict would have been—They are useless, their roots are at fault, they have got down to the dead soil.' 'I have proved, and I trust satisfactorily, this is not the reason the bark and the bark only was at fault.' And after urging the growth of orchard trees in hedgerows, &c., he says 'that large growers (or nurserymen) will deliver at nearly any station standard orchard trees, in quantity, Apples 1s. each, Plums 1s. 3d. each. The landlord's cost per acre being 45s. to 50s., including three stakes to each tree. The tenant's cost for cultivating the land, pruning, &c., 3d. each tree. Dressed, on an average, 2d. or 3d. each tree, including material, &c.'"

[Injury has been done to trees by the incautious use of petroleum.]

SIX MONTHS IN A VINERY.

MARCH 17TH.—No flowers are open yet, and we are rather pleased that such is the case, for they have strengthened considerably, and cannot fail to be good when they do expand. The leaves still increase in substance, the later-made ones being particularly leathery.

On the 11th our outside minimum temperature was 18°, and 12° on the grass. It became cloudy at sunrise. There were glimpses of sunshine during the day, but it was not necessary to give air. The 12th opened brightly with a registered minimum of 22°. A little air was given at 8 o'clock, and increased at 8.30. The outer atmosphere was very dry with a brisk wind, which affected the inside of our house to such an extent that the foliage was seen to droop a little. We wish we could manage without giving air to-day, but the temperature would be likely to rise to a dangerous height, so we give as little as we think we safely can and close as early as we dare; but this is not till 1.30 P.M., the sun having great power under the glass. The thermometer at closing stood at 80° and rose a few degrees afterwards. Walls, path, and border are sprinkled profusely, and very soon we have a delightful atmosphere, in which the foliage immediately recovers in spite of the dry east wind.

On the 13th we had again a sharp frost, our minimum thermometer going down to 20°, and that on the grass to 14°. Ice was 1½ inch thick, and we put all available strength to carting and storing it. Our vinery is aired at 8 A.M., and closed at 11 on the sky becoming cloudy. The wind now changed to the west, the air became much softer, and there was every appearance of milder weather; we therefore decided to raise our minimum temperature to 60°, which, owing to our dislike to heavy firing, has hitherto been 5° lower than this figure.

The next morning (the 14th) was foggy with no frost. The sun broke through at 11 A.M., and we anticipated it by giving air a few minutes earlier than this. The litter

which had been placed on the outside border on the 10th was now removed, and we hoped that the time for severe frost had gone. On the following morning the wind was again in the east, but there was no actual frost; the sun rose brightly and we were obliged to give a little air. The afternoon was dull and cold, with an attempt once or twice to snow; but with a good damping down after closing the sun heat gained in the morning, our Vine looked, and the atmosphere felt, very comfortable. On the 16th we had sharp frost again, 13° below freezing point, and even 18° on the ground. We aired at 8.30, increased at 9, reduced at 10.30 on clouds appearing on the windy side, and closed finally at 11 A.M.

This morning (the 17th) we only had 1° of frost. The sun rose brightly and the ventilators were opened at 7.30, but they were closed again at 9.30 on the sky becoming cloudy. It appeared to be clearing again at 10.30, and before it could peep through we had a chink of air on three lights. It turned cloudy again soon after, and the house was finally closed at 11. The sun shone again at intervals during the day and kept the temperature up to 80° most of the time, and altogether we flatter ourselves that to-day at least we have made the most of the weather.—WM. TAYLOR.

CAMELLIAS.

ON several occasions notes have appeared in the *Journal of Horticulture* respecting the advantages and disadvantages of shading Camellias. Both sides of the question have been ably treated by experienced persons, and doubtless if the conditions were known under which their plants were grown the systems advocated were equally good. In my opinion, before either practice is condemned or supported, the kind of house, its aspect and position, should be taken into consideration, also whether the structure is wholly or partially shaded by trees or adjoining buildings. It is not, however, my intention to enter into the question beyond stating, for the information of the readers of the *Journal*, that Camellias can be grown successfully without any other shade than is given by the house in which they are grown.

The Camellia house at Shirecliffe Hall, Sheffield, affords an excellent example, and is well known in this neighbourhood to contain a collection of plants that are noted for their annual display of flowers. The house stands north and south, has glazed ends but no glass at the sides, and a span roof with a rather flat pitch. It is fully exposed to the sun from six o'clock in the morning until six or seven o'clock in the evening during the summer months, and is never shaded, so that the plants are exposed to the full sunshine. That this is beneficial and suitable to their requirements is testified by the health and vigour of the plants that are well set with an abundance of fine plump flowerbuds which are now expanding. The foliage is thick, of a deep glossy green colour, and the flower buds so well set that you may give the trees a good shake without dislodging one. They were produced in such large numbers that disbudding had to be freely resorted to, each shoot being laden with clusters. I send you one of the points that was not thinned out, with sixteen flower buds on it. Of course, all the shoots were not so heavily laden as this one (the average being about ten), but it will show you how freely they were produced. The plants were disbudded in the end of September, when from one plant over 1400 buds were taken, and it is now bearing upwards of 2000 fine buds and flowers, those expanded being of large size and good substance, with strong petals, testifying that it is not overloaded, and will mature its large crop of blossoms. I have seen this plant when in full bloom, and the ground around it has been thickly covered with the petals fallen from the ungathered flowers.

This plant is the good old variety *Alba plena*, a variety that will not easily be surpassed by any new one. It is now in a tub about 3 feet 6 inches square, in which it has been growing and blooming vigorously for eight years.

All the other plants in the house are equally healthy and full of well-set flower buds, and speak unmistakeably of the skill and able management of Mr. Udale, the head gardener. Amongst the plants the principal varieties, in addition to the one mentioned, are *Bealii*, *bicolor de la Reine*, *Chandlerii*, *Chandlerii elegans*, *candidissima*, *Countess of Orkney*, *Colletti*, *Donckelaarii*, *Empress Eugénie*, *fimbriata*, *imbricata*, *Comtesse Lavinia Maggi*, *Lady Hume's Blush*, *Mad. Cachet*, *Mathotiana*, *Mathotiana alba*, *Triomphe de Bossea*, and *reticulata*.—J. H.

[We have seen the Camellias referred to, and can testify to their admirable condition].

DESTROYING CRICKETS AND COCKROACHES.

I OBSERVED in the *Journal* an inquiry as to how to get rid of crickets in a vinery or hothouse. The incident I will mention may be of use to the inquirer. By some means, probably from manure purchased, crickets were introduced into my vinery and the adjoining house where my Orange and Lemon trees were. I observed the bark on these trees was nibbled, and was led to suppose this was done by the crickets. It was, however, the only mischief I ever observed. Every cricket was destroyed that could be seen, many of them young. Nothing in the way of poison had any effect. Two or three times, when one of my servants had been sent to the vinery, I was told that as the door was

opened a small tabby cat made its escape from the house. From this time I never heard the chirping of a cricket. I inquired of the gardener, and he told me he never heard them now, and mentioning the visits of the cat, I learned from him that a neighbour kept a cat, such as that described, purposely to destroy crickets and cockroaches in the house. This may be a hint to the person suffering from these pests. I doubt if all cats would be so useful, for when there were two or three in my house where cockroaches were in the kitchen, the servants did not find they were destroyed by the cats. If one cannot be found with the desired propensity, I would ask my neighbour to keep a kitten of this useful cat of hers, and would gladly let your inquirer have it.—M. D.

IN reply to the request of "J. W. R.," on page 446, for a method of destroying cockroaches, &c., I beg to say that if he will water the floors and lower parts of the walls with a solution of crude carbolic acid (1½ pint of acid to 1 gallon of boiling water) every day for a week, he will destroy them. When they are cleared out, watering once a month will prevent their reappearance. I may say that I have cleared them out of several dwelling houses where the kitchens literally swarmed with them by a liberal use of this solution. The acid I have found most easily soluble is Calvert's, for which I pay 4s. 6d. per pail. I hope this recipe will be of use to "J. W. R."—HIBERNIAN.

IF "J. W. R." were to try Chase's beetle poison, and use it according to the directions on the box, I feel sure he would soon diminish the pests which cause him such trouble. It can be purchased through the London nurserymen, but I send for it to the proprietor, who will forward it per parcel post. Without using it at intervals I can get neither Orchid roots nor flower spikes.—J. R. M.

ANEMONE JAPONICA ALBA IN POTS.

IT appears from "M. M.'s" remarks (page 464), that he is fully capable of supplying the information he credits me with omitting (page 436) or he lives in a most unfavourable locality if his outside plants do not flower before the month of October. This I infer is the case, and the reason they were planted inside with the marked success detailed. I am too much occupied to make notes when the first flower of a certain plant opens and when the last can be gathered, therefore I have no dates to give. I can only say that plants in a favourable position and which have just gone to the rubbish heap opened their first flowers in August; it might have been the middle or end of the month, but they could not have been said to have been well in flower before the early part of the following month. Plants that were one year old and transplanted in rich soil just as the foliage failed in autumn were in full flower during the same month, and continued flowering until cut off by 13° of frost a fortnight ago. Another batch of plants raised last spring, and which we intended to protect with old lights as described, were also cut off the same evening. These only commenced to open their first flowers the last week in October, when a number of the latest plants were lifted and placed in pots. These would have flowered until the end of December if the weather had not come so severe as to penetrate the slight protection I intended to afford them, but the frost caught us in this instance napping. There was abundance of small late Chrysanthemums and other plants that had to be placed in frames hurriedly, and unfortunately we had to sacrifice this batch of Anemones which had been purposely prepared for late flowering.

I have our latest of all at the present time in a cold frame, and they have had up to the time of writing only two or three flowers. The most forward I intend to remove from the frame to one of our houses in time to have upon them a good number of flowers by Christmas; but the latest of these plants will not be in flower by that date. I am expecting to bring them into flower during the following month, but when they will finish producing flowers I cannot tell. Should they go off or fail to flower satisfactorily "M. M." shall be informed through your pages.—W. B.

CHRYSANTHEMUMS.

FIXING SPORTS.

IT is quite probable that some readers of this *Journal* may have noticed during the present season distinct sports from well-known varieties of Chrysanthemums, and may be a little doubtful as to the best method of fixing them. Hence a few notes on the subject may be useful, as perhaps few have an opportunity of observing the methods adopted by successful raisers, and hints on this matter are rarely recorded. The first and simplest case is when a plant shows very little of the usual character of the variety—in other words when the sport predominates. In some instances like this the grower will take all the cuttings obtainable at the base of the stems in the ordinary way, in the hope that the altered characters may have affected the entire plant. From the stock so raised the plants that come true can be selected another season, and these increased at pleasure. Others, again, will carefully preserve only that portion of the old plant bearing the sport, and will remove the other; but this would be better practised when not more than half the plant has sported. Commonly, however, only one branch will bear a bloom differing from those of the variety in colour or some minor characters, and this is the most difficult. Cuttings of the old wood will root occasionally; but they are very uncertain, and Mr. Salter of Streatham, who secured that beautiful sport from James

Salter, Lady Selborne, a year or two since, informs me that this system was adopted, with the result that only one bud—that nearest the top of the stem—grew, and from this all the stock was subsequently raised. Mr. Orehard of Kingston, however, who has also added a beautiful sport to the varieties in cultivation—namely, Lord Wolseley, advocates another plan, and one which I believe is much preferable. It consists in simply laying a branch down in cocoa-nut fibre refuse kept regularly but moderately moist, which induces the production of roots from the stem, and it can be then cut into eyes, these being potted like ordinary cuttings. The advantage of this plan is that the sport is kept true, which cannot always be insured when it is propagated from the shoots at the base of the stem, and sometimes sports of great promise have been lost in this way. It seems that nothing is done in the way of conducting to the production of sports, though it appears that some valuable experiments might be tried by grafting light-coloured varieties on dark-coloured forms as stocks, or *vice versa*. Possibly many changes might be effected in this way with patient perseverance.

CLASSIFICATION OF VARIETIES.

The majority of the incurved varieties are well marked, the term specially applied to them conveying a clear idea of their character; but even amongst these there are some shown in the same stands that differ sufficiently to be classed alone. To these, which include such varieties as Barbara, Lady Talfourd, and Mrs. Haliburton, the term "erect" might be safely applied, as the florets, instead of incurving, as with the others, are perpendicular to the base of the bloom. There are scarcely sufficient of these, however, to form a stand, though in the opinion of many they should be excluded from the true incurved classes. The Japanese are most in need of a system of classification, and though several systems have been proposed they are all subject to objections of some kind. The following method is no doubt imperfect also, but it has the merit of simplicity, and the majority of the varieties can be readily referred to one or other of the sections—at least, so far as I have tested it. This plan is to group all the Japanese varieties in three sections—1, Those with flat florets, which include such as Elaine, Striatum, Thunberg, Peter the Great, Oracle, James Salter, M. Ardene, and Fair Maid of Guernsey. 2, Those with florets partly quilled: examples, Bronze Dragon, Soleil Levant, The Daimio, Meg Merrillees, and Erecta superba. 3, Those with fluted florets—that is, having the margins folded backwards: examples, Cry Kang, The Cossack, Garnet, Red Gauntlet, and Fulton. This may serve as a hint to some who will be able to suggest defects and possible improvements.—LEWIS CASTLE.

PLANTING SEAKALE.

I AM placed in the same position as your correspondent "B." with regard to the supply of this vegetable; but he says this is not the time to enter into the preparation of the plants, and I differ from him in that respect. I have a lot of old roots, some three, others probably of ten years' standing, and I will describe the system I am about to pursue. I have taken all the plants up, carefully preserving every root that could be found, as these are of more use than the crowns. I shall proceed with making the sets in wet weather from the roots that are anything larger than a tobacco pipe stem, but perhaps shall be induced to use larger pieces, as the supply is small. These are cut about 4 inches long, flat at the end nearest the old root, with a sloping cut at the other end to prevent the sets being planted upside down. When this is done they will be covered with ashes until next April, when they will be planted. From these I shall expect crowns equal to those which are supplied by nurserymen at 15s. or 16s. per 100.

Your correspondent finds seedlings answer well with him, I have never seen good Kale produced from seedlings. If "B." had any seedlings to dispose of he would not be able to get a very satisfactory return for them, for vendors would scarcely look at them however strong the crowns may be. I have found that crowns not strong enough for forcing are not worth keeping a second year, and I quite agree with your correspondent about forcing on the land, that it involves an unnecessary amount of labour. A light rich loam answers admirably for the production of healthy strong roots.—J. PITHERS, *Summerhill, Co. Meath*.

ROSES FROM CUTTINGS.

It is gratifying to me, and doubtless to many more of the readers of the Journal, that the above subject is being discussed. Much, no doubt, remains to be learnt, and many like myself have little spare time to try experiments, consequently are thankful to learn from others, such as "A. F. M." "Y. B. A. Z.," too, has to depend on cuttings, and considers Roses on their own roots nearly or quite equal to those worked on stocks. It is not my intention to criticise, but rather to look back on the past season's success or failure, making a few remarks thereon. I stated some time ago that my stock was not large, either as standards on the Briar or dwarfs. I usually contrive to add a few more each year to replace those that have done good service and are worn out.

To commence with standards. These have succeeded admirably—in some instances as perfect heads of bloom on the second as on the first growth. Continuing to bloom till later than usual, the blooms have been fine, considering the number on each plant. I may here state, after careful observation, that as good a Rose may be grown on the Briar as from own-root plants, and *vice versa*. With those on their own roots planted out I am perfectly satisfied, having had a long continuance of

what I consider really good blooms; yet such sorts as Charles Lawson, John Hopper, Duke of Edinburgh, Celine Forestier, notwithstanding that they have bloomed freely, have made such strong growth that I intend to lift them. Capitaine Christy on the same border made but little growth. Again, Gloire de Dijon, one on each side of the path, in the same borders, struck the same season and treated the same, have made very different growth, the one having done well, the other scarcely a foot from the ground. Both are at the present time full of good flower buds. How can we explain this? My impression is this, that unless the cutting starts from the first it had better be thrown away, as it will only dwindle and die. Do not we often see this on budded plants? Here is one instance. Last week I lifted two beds of Roses, took one plant from the kitchen garden to occupy the place of one that had died, apparently a healthy head budded last season. The situation was more open, and a gust of wind settled matters by blowing out the head with the bud entire. On examination I found that the bud had only partly taken, yet had lingered on and carried some fair blooms. It matters not whether it be a Rose from a bud or from a cutting, unless healthy from the first no attention afterwards will bring it to perfection. The Roses from cuttings in pots I am proud of, and if good stocky growth and healthy roots are any guide I shall have some excellent blooms, and if possible I will send some where non-believers can see them. Some plants from cuttings inserted twelve months ago are now stocky, in 32-size pots, capable of carrying from six to nine flowers; while those two and three years old are fine plants, and ought to give a good return of flowers. It may not be out of place to state some cultural attention is necessary, and good results cannot be looked for unless it is given from the first.

In conclusion I would like to ask, Does a Rose worked on the Manetti throw its finest bloom for exhibition purposes the second year after being worked? If so, then is its value for general purposes afterwards? Does each year see it weaker? If such be true, what shall we say of those grand specimens we see exhibited at the London shows by such well-known firms as Messrs. Paul & Son? It would appear by that, these giants must be on their own roots. To gain experience I have inserted some Manetti cuttings with a view to working them. We cannot learn too much.—A. J. SANDERS.

MUTUAL IMPROVEMENT IN GARDENING.

AMONGST the "Notes and Gleanings" on page 418 I noticed particulars of a society now formed at Manchester under very promising prospects. With Mr. B. Findlay at its head, and with an able secretary and treasurer, it is to be hoped that numbers of young gardeners especially will join the Society, and have the support of those further advanced in years and skill. It is much to be regretted that such improvement classes are not more common (they might in some cases also include lessons in drawing), as it is only by such means, or practical necessity, that some young men are led to take advantage of the valuable horticultural literature now so plentiful. No young man who takes any interest in his avocation should fail to carefully, and as often as spare time permits, read his "Cottage Gardeners' Dictionary," tracing the history and derivation of what are not unusually termed rambling nonsensical names, and by such knowledge add interest to that which otherwise would be ridiculed. I would trespass a little further and ask them to pay greater attention to other dictionaries, which are so very cheap and comprehensive.

There are many improvement societies of various forms in different gardening centres; but even where it is not convenient to form a society, would it not be possible and beneficial to young men where several are employed to set apart one night a week for mutual instruction during the winter, the head gardener to assist so far as he could? Could not each young man write out the history, soil, and climate best adapted, say, of the Apple or other hardy fruits, the Pine Apple, the Vine, vegetables, or plants, and their treatment? Even though the major part was mere copying from a book or paper it could not fail to do good and instil a desire to learn, also cause many to feel more at home with their chief. I well remember such nights being set aside for the spiritual benefit of the young men by the kind head gardener under whom it was my good fortune to receive my early lessons in gardening. Such home-improvement classes may be in practice in out-of-the-way establishments, and where they are a benefit readers will, myself included, be glad to hear how they are conducted.

It is often surprising to meet with young men who have lived with most competent head gardeners remember very little of the teachings they have had, those employed inside not taking much notice in their spare time of any operations outside or beyond their own department. Happily there are many exceptions; but let me impress upon young men the great importance of associating themselves with any improvement society which may be within reach, nor fail to closely observe all practical operations.—E. B.

STORING APPLES ON STRAW.

It is surprising how many there are who store their choice Apples on straw, and yet no greater mistake could well be made. As affording proof of the truth of these assertions I may state that a few days since it fell to my lot to taste about fifty dishes of Apples from as many growers, and of these fully two-thirds evinced by their taste that they had been stored on straw. In some cases this had quite spoiled the taste of the

fruit. Such varieties as Cox's Orange Pippin, Kerry Pippin, Blenheim Pippin, Adams' Pearmain, and Ribston Pippin apparently are especially susceptible, while many other sorts were to a certain extent also much affected by the musty taint emanating from straw. Probably those who employ straw consider it necessary for the proper preservation of the fruit, but as it happens it is both unnecessary and very unwise to use it. Clean boards are the best for the choicest fruit especially, and if it is necessary to cover these in order to prevent injury to the Apples by frosted air—and which I once found to my cost would penetrate through the joints of a flooring—then use old newspapers, kitchen or other clean paper in preference to any other material. More paper may also be placed closely over the fruit, and this will ward off a somewhat severe frost; but at the same time, if very severe weather be anticipated, it may be advisable to supplement the paper with a covering of mats, bags, frigi domo blinds, which are not often utilised during the winter months as they thus might well be, or even hay and straw. Clean boards and paper do not affect the taste of Apples and also Pears, but other musty materials may easily do so, and should not, therefore, come in contact with the fruit.—W. IGGULDEN.

SIX MONTHS OF GLADIOLI BLOOMS.

I CUT my last half-dozen spikes of Gladioli blooms to-day (the last week of November), and send you three, retaining the others, to note how long they will last as cut flowers in water to which a little salt and charcoal have been added. This has been a cloudy day and night with a warm southern breeze, average temperature 50° Fahr., so mild that I see a few single Dahlias are still blooming. I need not say with such weather these Gladioli would unfold bloom after bloom outside, and what is more, unlike other flowers, the size seems little if at all less than usual now. They will do the same inside, otherwise I should have chanced their glorious bright colours to light up the sombre huc of the flower beds some time longer. The names are not important so far as distinguishing Gladioli into early and late-flowering. They possess no such characteristic. For instance, I potted a fine corm of James McIntosh (new) in January, and put it in a cold frame, transplanting it in April outdoors. It bloomed the first week in June admirably. I had a second corm planted at the end of March, and am after cutting the last blooms off the spike to-day. I treated three corms of that fine bloomer Duchess of Edinburgh almost similarly, and enclose you the last to bloom. This was 5 feet high, and the other two were 6 feet. The colour is purplish rose with a whitish carmine stripe on the lower petals, and of all Kelway's I have seen this is the most robust. I mention those illustrations to show there is no division by Nature, as in other flowers, into early and late; the time of planting will regulate the blooming. The other varieties are La Fiancée, Brennus, Dr. Hogg, and Electra. You will notice the rich colours are in no way washed out, and that they are most brilliant and intense. Brennus, for instance, has been open a fortnight and exposed to the most violent drenching showers since; yet you have still the bright crimson-maroon body colour shading off to white in the centre, while the violet stripe on the lower divisions contrasts finely with the blue tinge throughout. Though my collection is limited to a few hundreds I can enjoy those rich brilliant blooms for six months; and while asking any of your readers who have not yet essayed their growth to give Gladioli a trial next spring, I unhesitatingly consider from the points of view stated that the Gladiolus is peerless in the flower garden.—W. J. MURPHY, *Clonmel*.

[The spikes sent are precisely what our correspondent has represented them—bright and beautiful.]



THE annual general meeting of the NATIONAL ROSE SOCIETY will be held, by the kind permission of the Horticultural Club, at their rooms, 13, Henrietta Street, Covent Garden, on Thursday, the 6th of December, at four o'clock, for the purpose of receiving the report, electing the officers and Committee for the ensuing year, confirming or otherwise the arrangements made by the General Committee for the exhibitions of 1884, and the transaction of other general business. The sixth annual dinner of the Society will take place at the same establishment after the meeting at half-past six o'clock, when the Hon. and Rev. J. T. Boscawen will preside.

— A PLANT certificated at the last meeting of the Royal Horticultural Society—namely, VIOLET COMTE BRAZZI, is destined to become a great favourite with all who prize Violets—and who does not? It is a pure white form of the double Neapolitan, large, full, and fragrant, and it is already in great demand. The size and substance of the flower,

combined with its purity, are abundant recommendations to popular favour.

— WE are requested to state that the REIGATE ROSE SHOW is fixed for Saturday, June 28th, 1884.

— IN reference to the remarks upon CHRYSANTHEMUM LORD ALCESTER (page 444), Mr. Molyneux, The Garden, Swanmore Park, Bishops Waltham, writes confirming the opinion there expressed as to the variety being a sport from Golden Empress, and not from Golden Queen as some had stated. He also adds, "It is a grand flower, and one of the best introductions of the incurved class that we have had for some years."

— M. GIRARD, Director of the Paris Municipal Laboratory, calls attention to the manufacture of "GOOSEBERRY" JELLY from seaweed, without a particle of a portion of a Gooseberry in it. The colour is given by means of fuchsine or some similar colouring matter, and the flavour is fairly well copied by means of a mixture of acetic ether and tartaric acid, with small quantities of benzoic, succinic, and cœnanthic acids, and aldehyde.

— LOBELIA PYRAMIDALIS, *Wall* (L. *Wallichiana*, *Hk. fil.*), a native of the Himalayas, and quite common from Gurwhal eastwards, promises to be a valuable acquisition to the greenhouse or conservatory at this season. The flowers, which are bright blue and white, are gathered in clusters at the extremity; they are very showy, and supply a much-needed colour to blend with Chrysanthemums, &c. It is better grown in pots, because if allowed to stand out, unless in very sheltered places, will succumb to the first severe frost. The flowering stems are bright purple and are very showy; leaves finely serrated, broad lanceolate. It is called Atia chas in the Kasi language, and is used as a stimulant by the natives of Nepal.

— "W. I." writes as follows respecting CHRYSANTHEMUMS AT CLIFTON:—"Messrs. J. Garraway & Co. have long made a speciality of Chrysanthemums, and this season they have a fine display in their Durdham Downs nursery. The plants are covered with a large tent, and are arranged in the form of a bank on each side of a central path. All the best new and old varieties are grown, thus affording an excellent opportunity to the many lovers of the Chrysanthemum to judge for themselves which sorts they may wish to add to their collections. Among the large-flowered varieties we were very favourably impressed with Le Grand, delicate rosy peach tending to fawn colour; Souvenir de F. Marouch, blood red with orange centre, reverse of petals yellow; Abbé Passaglia, brassy amber, incurved; Mrs. Naish, white, in the way of Mrs. G. Rundle; and Dupont de l'Eure, shaded brown, incurved. Strikingly good also were Cherub, Barbara, Baron Beust, Golden Empress of India, Isabella Bott, Mr. Bunn, Prince Alfred, and Rotundiflora. Of large Anemone-flowered the best were Lady Margaret, Prince of Anemones, Acquisition, Emperor, Louis Bonamy, and Empress. Pompon Madame Montels was extra good. A large number of Japanese varieties was represented, and very fine were Criterion, Comte de Germiny, Parasol, Mons. Delaux, and many others."

— IT appears that there will soon be a plentiful stock of the new EUCHARIS SANDERI in general cultivation, for numbers of flowering plants are being distributed at the auction-rooms. Some growers, however, regard the plant unfavourably, and state that the flowers will never be much valued for market, as they do not last sufficiently well. There is somewhat of prejudice in this, for other growers speak most highly of its merits. The flowers possess one quality which those of Eucharis amazonica have not—namely, they are pure white, as the corona or ring—usually greenish-coloured in the latter species—is quite absent in the former, or reduced to an almost inconspicuous ring. They are more funnel-shaped, the segments not being spread out flat as in the better-known species. The leaves are very distinct, being very strongly ribbed, like some of the Funkias, and the plant appears to be very floriferous and of easy culture.

— THE "GOOSEBERRY GROWERS' REGISTER" still continues its useful existence. That for the present year has been brought under our notice, and it fully maintains the merits and usefulness of its predecessors. We do not know exactly how long this annual has been in existence, but if we are not mistaken it is, if not quite, at least nearly coeval with this century. It is a very modest production, and is published at the low price of 1s. 3d., but it contains a great amount of interesting information to all Gooseberry growers. It contains also the melancholy

intelligence that our friend Mr. Charles Leicester of Macclesfield is no more. He was for many years Editor of the "Register," and an ardent Goosberry grower.

— AT the next meeting of the Royal Horticultural Society, December 11th, Messrs. J. Carter & Co.'s SPECIAL PRIZES FOR COLLECTIONS OF VEGETABLES will be competed for, and may be expected to form an interesting feature. Six prizes are offered—namely, £5, £3, £1 10s., £1, 10s., and 7s. 6d. for the best twelve dishes, the three new Onions, Golden Globe, Golden Queen, and Silver Ball, to be included.

— MESSRS. CANNELL & SONS, Swanley, send us flowers of their NEW DEPARTURE SINGLE CHRYSANTHEMUMS, which comprise some pretty and delicately coloured varieties. These were admired by many visitors when shown at the last meeting of the Royal Horticultural Society at Kensington, and as single flowers are just now becoming such favourites, it may be expected that they will have a large share of popularity. They are light and graceful in appearance, the colours ranging from crimson through rose, pale pink, and white, the central tubular florets being yellow. A number of varieties have received the names of certain popular actors, actresses, and others, such as Ellen Terry, Henry Irving, G. A. Sala, Mrs. Langtry, Willie Beckwith, and similar notabilities. Specimens of a double *Tropæolum* named bicolor fl.-pl. were also sent, which has full rich orange-coloured flowers striped with scarlet. It is distinct and free.

— BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—The thirty-seventh annual dinner and prize distribution of this the oldest Chrysanthemum Society was held at the "Four Swans" Hotel, Bishopsgate Street, on Friday evening last, the President of the Society, E. Sanderson, Esq., in the chair. About seventy of the members and friends attended, and a most enjoyable evening was spent, and much enthusiasm was evoked, which speaks well for the future of this well-known Society under its new title of The National. Handsome silver cups were presented to E. Sanderson, Esq., Willesden; Messrs. Dixon & Co., Hackney; Messrs. Drain & Son, De Beauvoir Town; Mr. Archer, Highbury; and Mr. Hillier, The Borough, Southwark, as the selected prizes for the awards made by the Judges at the recent Exhibition at the Royal Aquarium. During the evening cash prizes were also distributed to those of the successful exhibitors who were present, and the Honorary Secretary afterwards announced that the sum of £155 18s. 6d. had now been paid as prize money for the year 1883. The Secretary further stated that the Society had greatly increased its number of members during the past year, about fifty new names having been recently added. The Baroness Rothschild and the Baron Leopold de Rothschild have consented to become patrons. A subscription list having been started for the prize fund for the ensuing year, nearly £40 was promised by members and friends present. Votes of thanks to the officers brought the business of the evening to a close.

— WITH deep regret we have to record the death of a distinguished gardener, MR. JOHN FLEMING of Cliveden, whose name is familiar to many of our readers. He has for many years held a prominent position in the gardening world, but little is known of his early history, the first tidings we have being that thirty-nine years ago he was living with a Mr. Aiton at Bardsea, near Ulverston, but in what capacity we have no knowledge. We next hear of him in the gardens at Newnham Paddocks, Lutterworth, and subsequently (in 1850) he became gardener at Harewood House, Leeds, where he left the stamp of his ability in the new Italian Gardens, which were formed under his direction. From 1853 to 1855 he served as gardener to Lord Southampton at Whittlebury Lodge, Towcester, and thence proceeded to take charge of the Cliveden Gardens, at that time the property of the Duke of Sutherland. It was there that the great work of his life was performed, the pleasure parks and flower garden being remodelled and greatly improved. A system of spring and winter bedding was commenced, which received so much attention that in compliance with the demand for information upon the subject, Mr. Fleming wrote his work entitled "Spring and Winter Gardens," which was published at this office in 1864. He also contributed several articles upon the subject to this Journal, which created a taste that resulted in many gardens being rendered attractive at seasons when they had previously been comparatively cheerless. A few years afterwards Cliveden passed into the possession of the Duke of Westminster, and in 1870 an extensive range of plant and fruit houses were designed by Mr. Fleming and erected by Mr. Gray, whose decease we recorded last

week. In recent years Mr. Fleming has led a retired life owing to the lung disease which on the 25th ult. terminated a useful and honourable career. Mr. Joseph Ellam, late of Bodorgan, Anglesea, has been appointed as Mr. Fleming's successor.

— WE are reminded of the approach of the new year by the arrival of a parcel of Messrs. LETTS & CO.'S DIARIES. We have on more than one occasion spoken in high terms of these invaluable necessities to every household, and we have no reason to unsay anything in comparing those of this year with any former one. Not the least interest in connection with these diaries is the amount of ingenuity that has been at work to devise so great a variety, for there are no less than eighty-three different forms of them, suitable to every occupation and condition in life. We would advise everyone to keep a diary, and before selecting to write to Messrs. Letts for a copy of the catalogue of their publications.

— "THE common Wild Waxwork or False Bitter-sweet, *CELASTRUS SCANDENS*, is one of the most ornamental of all hardy climbers," says the *American Cultivator*. "It is readily transplanted, and thrives under any care. At this season of the year (November) its clusters of red berries with a darker centre revealed by the splitting of the outer covering are highly ornamental. Its foliage is smooth, clean, and pleasing, and the plant is a most graceful and ready climber. It will twine tightly around an iron rod a quarter of an inch in diameter, or about a support several inches in diameter. This is the vine which one often sees twining very tightly about bushes and young saplings. When introduced upon lawns it sometimes proves quite a nuisance as a weed."

— AS an example of the comparative scarcity of APPLES IN AMERICA this year, we give the following returns, which indicate a surprising falling-off. The total exports this season are now 18,488 barrels, against 171,554 for the corresponding week in 1882. The total shipments from Boston this season have been 3322 barrels, against 52,948 a year ago; from New York they have been 12,841 barrels, against 78,059, and from Montreal 2325 barrels, against 36,717. It is, therefore, evident the crop has been as unsatisfactory in the United States as it has been full and good in England. Indeed, we believe that the tables have been to some extent turned this season, as English Apples have been exported to America.

— THE following GARDENING APPOINTMENTS have been made through Messrs. John Laing & Co. Mr. Samuel Hicks as gardener to the Rev. G. B. Moore, J.P., Tunstall Rectory, Kent. Mr. J. Rintoul, lately gardener at Dover House, Roehampton, as gardener and bailiff to C. A. Hanbury, Esq., J.P., D.L., Belmont, East Barnet, Herts.

— IN the lecture by Mr. George Murray on the POTATO DISEASE, delivered recently, a description was given of the growth and cellular construction of the Potato and Potato plant. The parts of the plants which were most susceptible to the attacks of the minute spores which produced the fungus of the Potato disease were also described. He then explained the development and rapid reproduction of these spores, and also the ease with which they were transmitted by the atmosphere. In one case a naked filament of the fungus had been known to develop and produce mature spores in four hours. He thought that in all cases the fungus attacked the leaves or stems of the Potato plant in the first instance and travelled downwards through the stems to the tuber, and it was in the highest degree improbable that they ever attacked or were able to penetrate the skin of the Potato itself. When these small fungi had completed their work among the cellular tissues of the Potato they left it open to the attacks of other fungi, thus forming the later stages of the disease. In reply to the discussion Mr. Murray said that cultivation or over-cultivation of the Potato would not affect the disease. Most probably the fungus which produced the disease came originally from the home of the Potato, and now it had become so widespread that it was almost impossible to trace the origin of any particular appearance. He thought that there was no way of checking the disease when climatic conditions, such as a wet summer, favoured its development. The only way of getting over the difficulty would be to find some substitute for the Potato, and he was much interested in experiments that had been made in this direction.

— "X." writes:—"There is no doubt, as Mr. Thomson states at page 435, that the best results are obtained with GROS COLMAN GRAPE in a temperature similar to that employed for Muscats; but those who have seen and tasted the examples of this Grape in the large conservatory at Chiswick will also be of opinion that when grown as they are, even in

a cool temperature, they leave nothing to be desired in colour or flavour. So well has this variety succeeded at Chiswick under this treatment that Mr. Barron intends grafting a number of the Vines there with it, and the merits of this handsome Grape will unquestionably soon cause its culture to be greatly extended. For market it is very useful when well coloured, as its appearance is excellent, and it is, moreover, of good weight."

— IN reference to the VANILLA GROWING WILD IN THE UNITED STATES, Mr. A. H. Curtiss, the well-known Florida botanist, in a sketch of an exploration, furnished to the *Florida Dispatch*, says:—"During another cruise I penetrated the borders of the Everglades, at a point about thirty miles east of Cape Sable. The mainland shore was there skirted with a light forest of Mahogany and other tropical trees. Following a creek which issued from it, we soon emerged into a round fresh-water lagoon, about a mile in diameter, in the centre of which was a beautiful round island. A creek emptying into it from the north I call Vanilla Creek, because on its banks grows the only Vanilla ever found in the United States. This species (*Vanilla planifolia*) is a thick, fleshy, leafless vine, which runs rampant among weeds and bushes, simulating, as it were, a slender green snake in its colour, form, and curves. This little creek is one of the small outlets of the Everglades; it has cut a channel through the underlying coral rock, and is bordered with a low growth of Saw Grass and Mangroves only a few feet in height."

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

IN reply to your correspondent, "A Canadian Subscriber," there is no provision made in the rules for the election of members beyond the limits of the United Kingdom. The only reference is in rule 15, where it says that if a member leaves the United Kingdom he cannot receive sick pay until he returns, and then he must previously obtain a medical certificate showing the state of his health before he becomes eligible. The member to which reference is made, and who resides in America but continues his payments, formerly resided in England and hopes to do so again.

There is one feature in the rules of this Society which gives it a prominent claim above some of our more popular benefit societies, and that is, supposing a member from adverse or other unforeseen circumstances is unable to continue his payments, so that at the end of twelve months his account with the Society is closed, the question is then, What becomes of the balance of his deposit? It remains as he left it until he attains the age of sixty years, when he can claim the whole of the deposit standing in his name, unless in the interval he dies, when the person nominated by him receives it. The interest of his deposit after he ceases his subscription is carried forward to the benevolent fund. I think all will admit this is a boon unknown in the majority of similar societies.—J. F. McELROY, *The Gardens, Moray Lodge, Campden Hill, Kensington.*

LATE BLACK GRAPES.

THE season has again come round for taking stock and comparing the best kinds of late Grapes. Your correspondents, Mr. Thomson and "S." (see pages 435 and 437) have done good service in drawing attention to the subject. Undoubtedly Gros Colman is the grandest and most noble-looking Grape in cultivation. When grown in a Muscat house and treated to the temperature suitable for growing first-class Muscats and allowed to hang long enough, the flavour leaves little to be desired; but with us, when treated to a high temperature, it never finishes off with the same jet black colour which is produced upon those grown in a cooler house.

Mr. Thomson's list of varieties is a small one; nevertheless, with the exception of Madresfield Court, it contains all the best kinds in use from July until the end of the year, but those who must keep up a supply of Grapes through March and April cannot well dispense with Lady Downe's Seedling. So highly is this Grape esteemed by my employers, that anything short of 200 bunches would not be enough for spring requirements, and these are never touched until the Mrs. Pince's, Barbarossa (*Gros Guillaume*), and Gros Colman are done.

Like "S.," I have only a very moderate opinion of Gros Maroc. The Messrs. Rivers say they grew this Grape thirty years before sending it out, and in my opinion we should be no worse off for late Grapes had they grown it another thirty before putting it into the hands of cultivators. The same remark is applicable to Cooper's Late Black. I have grown these two in the same house for the last three years, but fail to see any difference between them either in wood, leaves, or fruit, and although they produce handsome bunches and berries covered with splendid bloom, I have never found them fit to eat where other sorts can be had. Their skin is thick and tough,

flesh dry and deficient in flavour, and with me they commence shrivelling before Martinmas (November 11th).

Alnwick Seedling is another new Grape that has precisely the same good looks and faults. These we have decided to discard, and will for the future depend upon West's St. Peter's, Mrs. Pince's Muscat, Barbarossa (*Gros Guillaume*), Gros Colman, and Lady Downe's Seedling for our winter and spring supply. With this I send samples of Gros Maroc, Cooper's Late Black, Alnwick Seedling, Gros Colman, and a bunch of the much-abused Duke of Buccleuch. These have all been ripe since August. Kindly give the readers of the Journal the benefit of your opinion upon these, and oblige—J. McINDOE, *Hutton Hall Gardens, Guisborough.*

P.S.—I may add that Gros Maroc was grown at the warm end of a house, grafted on Barbarossa (*Gros Guillaume*), and Cooper's Late Black in the middle grafted on West's St. Peter's.

[There could not be better examples of the different varieties of Grapes alluded to than those submitted to us for our opinion, and they all furnish confirmatory evidence of the grower's cultural reputation. Gros Maroc is perfectly shrivelled, and the berries almost in the state of raisins. The flavour is rich, but the skin is thick, tough, and membranous; and there can be little doubt that Cooper's Late Black is synonymous with it. Alnwick Seedling is delicious; and the "much-abused Duke of Buccleuch" would have put to confusion the most captious critic if he had only seen it. The berries are enormous; the skin thin, clear, and the flavour excellent. This is certainly a grand Grape when produced by those who, like Mr. McIndoe, know how to grow it. We never before saw it in December. Gros Colman is large and good, but deficient in colour.]

FLORISTS' FLOWERS.

FOR many years I have not known so favourable a season for florists' flowers as we are now experiencing. November, which has usually been associated with damps, fogs, and all kind of disagreeables, has been, in the south at least, exceptionally fine. The temperature has not been high, but there has been plenty of sunlight. The ground has not been soddened as of late years with excess of moisture, and those who have had to plant Roses (and who has not?) have rarely found the ground so workable. It has made the farmers rejoice, for it is many years since they had so good a "seeding" time, and a good seed bed always gives hopes of a good harvest. The previous weeks, too, have been favourable, and altogether I think gardeners are having a good time of it. My observations have, however, to do with florists' flowers in pots, and a few notes on them may not be out of my place.

Auriculas.—Last year I kept these in the same quarters as in the summer until the blooming time came on—i.e., under a hedge facing north. I have, however, this year reverted to my old plan, and about the beginning of the month placed the frames facing south. Latterly we have had some sharp hoar frosts at night, and I have therefore covered them with mats, which are taken off early in the day and plenty of air given to them. There has been singularly little green fly amongst them; but where noticed it has, of course, been at once brushed off, for with my small collection it is better to do this than to fumigate, for which, as a florist of the old school, I have not much love. Autumn-blooming, that nuisance of the Auricula grower, has not been excessive. I have from time to time examined the pots, and where I have found my old enemy the woolly aphid I have brushed it all off or squeezed it between my fingers. Opinions still differ as to the amount of injury it does, but that it cannot but be injurious to some extent I firmly believe. Every grower speaks of it now as existing in their collection, and its mysterious dispersion is one of those insect problems about which, with all the vaunted discoveries of science, we know next to nothing.

Carnations and Picotees.—I have never seen healthier or better plants than this season. It was a good season for layering, the plants rooted well, and are now well established in their winter quarters, a pair in each pot. I see no evidence of spot amongst them, and as I have seen several collections this year I imagine that my experience is that of most growers. They should have air at all times when the weather is good, green fly should be carefully watched and got rid of immediately that it appears, the pots should be kept clear of weeds, and, as with the Auricula, water should be only sparingly given. Any decaying leaves should be carefully removed, and cleanliness is the main thing to be looked after.

Gladiolus.—What unaccountable things these are! I was at my friend Mr. Banks' a few weeks ago, and of all his tens of thousands of roots he has not one left. In a small garden near here where they have grown for years the owner said to me yesterday, "I have only one corm left, and that is a seedling;" and yet I have not, ever since I grew them twenty-five years ago, had so few losses or lifted such fine and healthy corms, and this in all parts of my garden. Fresh roots, my own harvested ones, spawn, seedlings—all the same. Now, why this is I cannot tell, for I have made no alteration in my culture; but so it is. My corms have been taken up for some weeks. Each variety was placed in a pot with some of the earth attached to them, and I shall next week clean them off, remove the spawn, and put them away in the skeleton drawers in which I always store them in, place the spawn in paper bags

until the spring, and perhaps next year will be as unfavourable as this was good. By-the-by, I should like to ask "W. J. M.," who referred to me in a late article in the Journal, when, after detailing his method of storing, he adds, "I never lose a corm," does he mean that absolutely, or that he never loses one after they are taken up? If the former I cannot understand it, for he is the only grower I have ever heard of who could say so. If the latter I can understand it, for I never lose a healthy corm after it is lifted.

Pinks.—It has been a good season for planting out these, and the plants look vigorous and healthy, although I am free to confess that I have not a very great *penchant* for them. They are very pretty and very sweet, but they are unfortunately so much alike that it is very difficult, after you get through three or four varieties, to say where the difference exists, and the growers of them, at any rate in the south, are few and far between. It is not so with the beautiful Picotee, with its ranges of colour and its different edges—from the thin almost invisible wire edge to the deep heavy red, purple, or rose. It may be want of perception or want of taste, but I can but see much sameness in them.

Pansies.—Here quite a different state of things exists, especially since the wonderful improvement that has taken place in the so-called Fancy varieties; for anything more varied, more striking, and more beautiful in this way it is impossible to conceive. They are, too, much hardier in constitution than the older Show varieties. It has been a good time for them too, whether in beds or pots. In the former case care must be taken to keep them free from weeds, and if frost comes they must be watched, and if loosened in the soil they must be pressed firmly in again. Those in pots must also be kept clean, green fly speedily got rid of, and air given at all suitable times.

Ranunculus.—Nothing can be done with these now but to examine the roots occasionally to see that they are free from damp, which is fatal to them.

I do not grow Tulips; and other flowers which have of late years been called by some florists' flowers—such as Pentstemons and Delphiniums—I cannot class, with my old-fashioned notions, under this title.

When the stress of work outside is done, and when frost binds the ground, or snow covers it, or wet makes it unworkable, it will be a good time to prepare compost for the above flowers when the top-dressing and repotting begins. It is well that all this should be placed under cover, for heavy rains wash the good out of the soil and render it difficult to use when it is wanted. Auriculas will require top-dressing in January, then comes the potting into their blooming pots of Pansies, and after that the potting of Carnations and Picotees. Having made up your mind what you are going to use for these purposes, get all ready, well mixed together, and then when the time comes a great saving of trouble and annoyance will be saved. A shed where it can be exposed to the air without feeling the weather is the most suitable, but failing this any covered place will answer the purpose.

Florists' flowers do not seem to grow much in favour in these southern regions. I am fifty miles from the next Auricula grower, and collections of Carnations and Picotees are almost unknown in our county; yet what enjoyment there is in them, and in that which constitutes so great a charm in life—variety, how far beyond those things which are so much in favour now! It may be fashion will change, but in this respect it is slow in making the move.—D., Deal.

POTENTILLA FRUTICOSA.

A VERY distinct form of *Potentilla* is the one shown in fig. 96, as it departs from the low rambling or creeping usual types of the genus in its shrubby habit. Upon rockeries it succeeds admirably, forming compact little bushes 1 to 2 feet high, and covered with its neat bright yellow flowers, which are produced in great numbers throughout the summer months. It is occasionally found in mountainous districts of Great Britain, but is not common; and it is also found in various parts of Europe, especially in the Pyrenees. In well-drained borders it grows strongly, but much the best position is the rockery, upon which it is soon established, and can be readily increased by division or by seeds. I have never tried it in pots, but I should think it would be very suitable for that purpose, though the flowers are somewhat fugitive. Have any readers of the Journal tried such an experiment with it?

P. fruticosa is also found in various parts of Asia, and even in America. In the latter country, however, several shrubby forms have been noted, which by some botanists have been regarded as varieties of this one, and by others as distinct species. Examples of these are found in *P. floribunda*, a North American plant; *P. parvifolia*, from the Soongarian desert; *P. dahurica*, from Dahuria; *P. arbuscula*; *P. rigida*, *P. lignosa*, and *P. Salesovii*. This last is somewhat of the habit of *P. fruticosa*, but is easily recognised in the leaves of *P. Salesovii* not having the same silvery appearance, and the leaflets are more sharply serrated.—HERBA.

LIVERPOOL CHRYSANTHEMUM SHOW.

It may be interesting to state, as I am informed, that twenty years have passed since the first Chrysanthemum Show was held in this town.

Those who attended the first and have witnessed the last consider the latter much the finest that has yet been held. It is the fourth Exhibition held under the auspices of the Association, and it is gratifying to be able to state it has proved a success horticulturally and financially also. Its downfall was prophesied some time ago unless the Committee relinquished the system of management adopted for some other gigantic scheme, which had never been tested, and which no one appeared bold enough to explain thoroughly. The majority of the active members of the Association were against the scheme, and it will be proved by the figures I intend giving that this young Society is growing in the estimation of the public. Last year the subscribers and members numbered 868, while this year they are 1020, thus showing an increase of 152 over the previous year. The amount of cash taken at the doors in 1880, the first Exhibition, amounted for the two days to £166 0s. 6d., the following year to £171 0s. 9d. Last year there was a slight falling off, owing to the postponement of the Show and the inclemency of the weather. I would give the amount taken, but I cannot put my hand upon the report at the present time. This year £224 has been taken at the doors, £134 on the opening day and £90 the second. The entries and exhibitors have also increased wonderfully since last year, when the numbers were—60 exhibitors, entries 298; this year 77 of the former and 385 of the latter.

To give some idea of the magnitude of the past Exhibition I append



Fig. 96.—*Potentilla fruticosa*.

the following statistical particulars: The number of cut blooms, incurred, were between 490 and 500, and amongst them was a grand bloom of Lord Wolseley, which keeps well (better than Prince Alfred), and will doubtless prove a grand exhibition variety, staged by Mr. W. Mease; Japanese about 250, and amongst these was a wonderful bloom of Boule d'Or shown by Mr. R. G. Waterman; Anemones and reflexed numbered 36, and Pompones 90 bunches. There were 160 dishes of Pears entered for competition, and in nearly every instance the fruits were very large. Apples, dessert and kitchen varieties, numbered about 500 dishes, half this number being staged for competition, and the remainder by the nurserymen mentioned in the report in your last issue. The schedule only comprised about five classes for Grapes, and it will give some idea of the competition when I state 53 bunches of whites were staged and 83 of black—total, 136. This includes those shown in the collections. The Grapes on the whole were remarkably fine, but the individual bunch that attracted the greatest attention was one of Gros Colman, splendidly finished, the bunch being large and the berries of remarkable size, the largest I have yet had the pleasure of seeing. This was staged by Mr. Goodacre, Elvaston Castle, in his first-prize collection of twelve dishes of fruit. The trained plants numbered 64, besides a

few standards, but with the exception perhaps of those staged by Mr. Hughes I have seen them better. The untrained specimens showed a slight improvement over those of previous years, but there is still room for advance before they equal those shown at Manchester.

The most striking plant in the Exhibition was one of *Calanthe Veitchii*, staged by Mr. A. Brown, gardener, Upton, Chester. It was the finest variety, with straight even pseudo-bulbs, as described by Mr. D. Thomson, and the spikes were fully 3 feet 6 inches in length, the plant 3 feet in diameter and one mass of bloom. *Erica hyemalis* was shown in wonderfully fine condition; it is a grand Heath for purposes of exhibition at this season of the year. The examples referred to were staged by Messrs. A. R. Cox, W. Mease, and A. Brown. The plant shown by the former was fully 3 feet 6 inches through, with spikes of bloom fully 18 inches in length; in fact this large specimen was equally as well flowered and grown as the models of perfection we see from London annually. Mr. Mease's plant was a little more stubby, while the one shown by the last-named was splendidly grown and bloomed, but was rather smaller.

The Cyclamens staged by Messrs. R. P. Ker & Sons, and for which a cultural certificate was awarded, were the finest I have seen exhibited. Some of the plants were fully a foot through, and the whole, numbering a hundred or more, were large and fine. The strain was of the very finest, the flowers being wonderfully large. Pure white-flowered varieties, which are so useful, largely predominated.

The blooms of Zonal Pelargoniums shown by Messrs. H. Cannell and Sons were one of the most attractive features in the Exhibition. The Cyclamens referred to and these attracted more attention than any other exhibits, the cut blooms of Chrysanthemums perhaps excepted. There appears to be an idea that these Zonals cannot be flowered in this neighbourhood or grown to the same perfection as those staged on Tuesday last. They will do well if they have suitable houses and are well grown, and it would be wise to offer a few prizes for them another year, which would do more towards the extension of their cultivation in the neighbourhood than anything else.

Messrs. T. Bethel & Co., 24, Cable Street, Liverpool, were highly commended for their folding boxes for packing plants and flowers. These boxes are very similar to others already in the market, but they fold up closely, which renders them most useful, because they can be stored away in a very small space; in fact, the smaller sizes when closed take up but little more room than an envelope.—WM. BARDNEY.

A MODEL FORCING HOUSE.

WHETHER for purposes of forcing or otherwise houses are often constructed, especially in private gardens, more for appearance outside than anything else. I have seen many houses employed for forcing flowers and fruits differing greatly in size, shape, and construction, and many of them are almost useless. Who is to blame for this it is not my intention to discuss, further than say in many large as well as small establishments the gardener is not consulted in the matter. If the houses prove unsuitable, which they very frequently do, the outside gardening fraternity blame either the gardener or the builder, and both really are innocent, the former having had nothing to do with them, and the latter only working according to orders. After taking into consideration various qualifications of all the houses I have seen for forcing purposes, the best is one recently erected by Mr. John Webster, Wavertree, Liverpool, in the gardens of John Walker, Esq., Greenfield, West Derby. Light is of the greatest importance, and should be one of the first points to be studied in the construction of houses, especially where forcing operations have to be conducted during the sunless days of our winters. The house under notice is the lightest I have seen; in short, it is a model of what a forcing house should be, and reflects the greatest credit upon both the builder and its owner. In the majority of forcing houses where front lights are used the light admitted by them is almost rendered useless by the woodwork which supports the rafters of the roof, and forms in many cases the spout. But in this house it is entirely dispensed with, and the spout forms a portion of the wall plate. There is side glass, but so placed that not a ray of light can be excluded.

The house is 63 feet long, 12 feet 6 inches wide, and about 9 feet 6 inches high from the ground, and is divided into two compartments. The brickwork of the house is 4 feet high above the ground level, and the front glass about 15 inches. The rafters are about 5 feet apart, and are not so heavy as are generally seen, yet they are abundantly strong; between these are three lighter bars to support the glass. It will be seen that the squares of glass are large, being about 15 inches wide, and if I am not mistaken two form the length of the roof from the top ventilators, and these are formed with one square. The rafters of the roof are continued to the wall plate, and the stronger ones (every 5 feet) are secured with light angle irons inside. The front glass and rafters are scarcely upright, the tops sloping inward out of the square about 1½ inch. The glass which forms the front rests in the wall plate and fits close to the squares of

the roof, which projects over them about half an inch. It will be seen that this house has front glass, and the objectionable woodwork and spout that are generally used with front lights are entirely dispensed with. The bottom ventilators are formed in the brickwork, one being placed under each light on both sides, and directly opposite the hot-water pipes; these are opened from the outside. The top ventilation is on the south side of the house only, and opens with a neat lever and screw. A rod of three-quarter inch iron (round) runs the whole length of the roof on both sides, and either runs into the main rafters or through them, while all the lighter ones are secured to it to keep them in their place. The roof is further supported by two or three neat iron rods which start from the angle irons supporting the roof and front rafters, and are secured in the centre of the house by a stronger rod of iron about 18 inches in length, made fast in the ridge with a screw on the end that passes just through the centre of the rods issuing from both sides, and fastened with a nut. I need not give details of the internal arrangements; suffice it to say bottom heat is provided in one compartment and not in the other, the beds are formed on each side, and the walk is down the centre.—WM. BARDNEY.

STORED-UP SAP IN VINES.

YOUR correspondent, "A Non-Believer" (page 465) is not satisfied with my "attempt to explain and reconcile things." I will therefore try again. I am asked to explain what I mean by "implying that Vines were dependent on the stored-up sap of the previous autumn till the shoots were long and had leaves 5 inches broad." I have examined Vine roots in every stage of their existence for many years, and once at least to the extent of several thousands in one year, and only in very exceptional cases have I found root-growth to commence before some of the leaves were expanded to half their full size. A vigorous one-year-old Vine cut down early and allowed to make only a single stem will grow from 7 inches to a foot in length at the top before it makes any growth at all at the root. Just at that time (it ought to be almost to a day) the Vine will bear to have all its soil shaken off and to be transplanted or repotted without a check, because root-growth goes on immediately. The next thing to be noted is, that the bluish colouring to which I referred makes its appearance on the pale green leaves in blotches at this identical stage of the Vine's progress, never before and never later. It mingles in the course of a few days with the pale almost yellowish green, and the result of the mixture is the good healthy-looking green we all like to see in a growing plant. These are facts which anyone can prove for himself.

Now as your correspondent will not accept my unsupported explanations I must call witnesses. Dr. Hooker in "Botany," one of the series of scientific primers issued by Macmillan & Co., says at page 30:—"Nourishment is taken up by the root hairs and not by the growing point." In Johnston and Cameron's "Elements of Agricultural Chemistry," eleventh edition, at page 59 I read—"The root sends out fibres in every direction through the soil in search, as it were, of water and of liquid food, which its extremities suck in and send forward with the sap to the upper parts of the tree. The part of the roots where absorption chiefly takes place is near the extremities, but it has been shown that the tops of the roots or spongioles take no part in the process." Here, then, are two witnesses such as I presume your correspondent will treat with respect, who testify that the nourishment is taken in by the root hairs; and as these hairs do not occur on any but newly made roots, I must leave it to him to point out how they can take up nourishment when they are non-existent. I would recommend "Non-Believer," if he has no chance of finding out facts concerning common physiology by actual practice, to read some more recent authors than Dr. Lindley, for some of that learned gentleman's physiology instead of being "accepted by all" is already obsolete.

I do not know whether the following paragraph is worth treating seriously. Your correspondent says, "There is really no such thing as storing up sap in the sense Mr. Taylor states in plants like the Vine. Only bulbs and tuberous shoots store food, for reasons apparent to anyone." This was not learned from Dr. Lindley certainly, and I will quote one of that gentleman's contemporaries to refute it—"Leaves may be produced without roots, as may be observed on fresh shoots springing from trunks of felled trees, but these shoots are supported by sap contained in the trunk, and which has been elaborated by the leaves."—"Thompson's Gardener's Assistant," page 83). If this is not sufficient see what Dr. Prantl says. In his "Text Book of Botany," at page 76, second edition, I read—"Certain layers of cells, particularly the medullary rays of trees, contain in the winter a quantity of starch, which is absorbed and consumed during the spring, when new shoots are developed." And lower down on the same page he says, "The degree of development reached by plants grown in the dark depends on the supply of reserve materials, which varies in different plants." At page 82, too, are some remarks which may not be uninteresting at the present time. "The presence of plastic material is an indispensable condition of growth, but this does not necessarily imply that the nutrition of a growing plant depends upon the simultaneous absorption of nutritious matters from without; on the contrary, the young growing parts of a plant are usually supplied with plastic materials from the older parts which have ceased to grow."

These extracts will, I hope, be sufficient to prove that plants are not

the improvident things "Non-Believer" makes them out to be, but that they always, when they are rationally treated, lay up a good store for future use. If it were not so, if they only carried on a sort of "hand to mouth" existence, they would the sooner succumb to the unfortunate treatment many of them are obliged to endure, while the renovation of those which had a little life in them would take a shorter time than we find it to do in practice. If it is true that a cat has nine lives I am sure a Vine has at the least a dozen.

I must positively deny having said or implied that Vines had completed their store of sap at the fall of the leaf. On the contrary, root-action in the Vine is very busy at the fall of the leaf, and continues so for some time afterwards, say a month or six weeks. It begins later and continues later than it does with other plants. On one occasion some years ago I had my faith in this habit of the roots rather rudely shaken for a time. On examining some pot Vines which had been placed in a forcing pit in October, active roots in great numbers were found. This was after the Vines had been in the comparatively warm quarters three weeks, and before there were any signs of the buds moving. But later on when top growth commenced the active roots were looked for in vain. Those I had seen were late roots belonging to the departing season.

I ventured to hint in a former communication that water might be absorbed by the old roots before root-action proper commenced, as we know it can be absorbed by a brickbat or a log of wood. The author now before me, Dr. Prantl, at page 83 puts the matter in a much better light by referring to a Potato tuber. He says, "A Potato tuber, even if kept quite dry, will sprout under the influence of a sufficiently high temperature, and in proportion to the growth of the shoots the tuber will become flaccid and wither, beginning at the more remote parts in consequence of loss of water. This water is not only of use in that it dissolves nutrient substances, and thus renders possible their transport to the apex of the growing shoot, but it is itself of use in the process of growth; for not only are solid particles of cellulose deposited in the growing cell walls, but also a quantity of water; and moreover, the vacuole of the growing cell containing cell sap also increases in size. The water which is indispensable for these purposes is gradually absorbed from the more remote portions of the tuber. As a consequence if the tuber be kept dry it will gradually become flaccid and withered, but if it lies in damp earth it takes up water from the soil, and this water is conveyed with the nutrient materials to the growing parts. Water is similarly conveyed to the developing buds of trees, to the growing points of seedlings, and generally to all growing parts of plants, from the nearest parts in the first instance, then from the more distant, and finally from the external medium." It will be observed that the Potato absorbs the water before any roots are made to penetrate the soil, for if only one end of the tuber is inserted in the soil the effect will be much the same, and according to Dr. Prantl woody plants are capable of doing the same thing.

Here, then, I think is the key to the mystery existing in your correspondent's mind. He takes the absorption of water to mean root-action, whereas roots are not even necessary for its absorption, as we see in the case of cuttings inserted in damp soil, or even from cut flowers in a glass of water.—WM. TAYLOR.

BEING very much interested in the above discussion, I should like to know if "Non-Believer" means that Vines do not store up sap in the rods for the next year's use. I grow about 5 cwt. of Grapes yearly, and always treat mine under that impression. If they do not, how does a grafted Vine bring a different kind of Grape, or an eye when first struck grow an inch and then stop, as it were, to rest till roots are formed to carry it on? As to bleeding when started, if they are well ripened they seldom "bleed" excessively. If Vines do not store up sap what makes the difference between good and bad condition or ripe and unripe wood? If "Non-Believer" will state just what he meant, those who are looking on will understand his arguments better.—J. C.

PANSIES AND VIOLAS.

VIOLA PERFECTION AND BLUEBELL.

I AM glad to see a communication under this heading from my old correspondent, Dr. Stuart of Chirnside, who has done good service in raising and distributing some charming and useful varieties of Violas; but he is in error in stating Mr. B. S. Williams raised Viola Perfection. It was Mr. James Cutbush of Highgate who first called attention to this Viola, having seen it at Rotherfield Park, Alton, Hampshire, where it is said to have originated; but if the latter statement is correct, it had become distributed previous to Mr. Cutbush calling attention to it, as I was able to procure plants from another source. Acting on Mr. Cutbush's advice, some plants in flower were sent to one of the meetings of the Royal Horticultural Society, when it was awarded a first-class certificate of merit. Mr. B. S. Williams then bought the stock of it and sent it out; but, as I have stated above, I procured my supply from Rotherfield. It was said at the time that it resulted from a cross, but it might have been a chance seedling.

Viola Bluebell, a variety which has, I imagine, become more generally grown perhaps than Viola cornuta itself, originated in my garden at Ealing as a chance seedling. It is not a little remarkable that I had not previously grown Pansies or Violas in my garden. I discovered a dwarf tufted Viola growing, and being struck with its habit took care of it until it flowered. I named it Bluebell, and sent it out. This, then, was the origin of this popular variety, and one remarkable characteristic of it is that it is not so subject to mildew in summer as the Perfection type, and not a few others.

For some reason the Viola has declined in the south as a bedding plant—so many plants die in the height of the summer; and now there is very little demand for plants. I have given up raising seedlings for this reason; but there is no justification for believing that all the possibilities in the Viola are exhausted. Presently someone else will take it in hand, and improve upon existing varieties, carrying on the good work to a higher level of attainment than has been before reached. The floral succession, if at times a little broken, never wholly ceases, and therein lies my hope of the future.—R. DEAN, *Ealing, W.*

NOTES AT KEW.

AN IRIS GARDEN.

PREPARATION is being made for an extensive Iris garden at Kew, which will undoubtedly be a welcome and attractive addition to the numerous improvements that have been effected there in recent years. The long border near the wall of the herbaceous ground has been hitherto devoted to this beautiful family of plants, but a better position is needed for them, and the one chosen is preferable in every respect. Beds are to be formed in the turf at one end of the new rockery, between No. 2 museum and the T range, and we understand that Professor Foster will give the Kew authorities the advantage of his experience in Iris culture in determining the site, the formation of the beds, and other special details. It has already been noted that the charming Iris *lævigata* (T. Kämpferi) has been planted in clumps by the lake, a situation that is unquestionably well adapted for the species, though, of course, it will be also represented in the general collection. Judging by the plan marked out upon the turf it is not intended to have gravel walks leading to the beds, and this is rather to be regretted, for after heavy rains and in damp weather generally, many visitors (especially ladies) who wish to inspect the plants find it very inconvenient to walk over the wet grass. Indeed, this is the only disadvantage attending the beds of plants in the herbaceous grounds proper, as they are not like beds of Pelargoniums and similar occupants of the flower garden where distant effect is obtained.

BULB BORDER.

Another suitable experiment is about to be tried in the same garden—namely, the formation of a Cape and half-hardy bulb border, the result of which will be somewhat anxiously watched for. Similar attempts have been previously made with little success, but the preparations have never been so thorough and efficient as on the present occasion. The border by the wall forming the boundary of the Duchess of Cambridge's garden has been chosen, and the soil removed to the depth of about 3 feet, a good drainage of potsherds and rubble, 6 inches deep at the back and rather deeper in front, the bottom sloping slightly. Above this layers of leaves and turf are placed, and the other portion will be filled with special composts according to the requirements of the plants to occupy the different parts. This border will, unquestionably, be an extremely interesting one, and will probably be as successful as is expected, but a cool house in the style of those in the late Mr. Joad's establishment at Wimbledon would, we consider, have been preferable. Possibly, however, the additional expense had deterred anything so extensive as this being attempted at present.

HOUSE FOR HALF-HARDY PLANTS.

Such a house might at some future time be advantageously erected in the herbaceous ground, to be kept supplied with the choicest and most tender species when in flower. Under the present arrangements scores of rare, beautiful, and interesting plants flower in the frames of the private portion of the garden which the public have no chance of seeing. If a few good specimens in pots of the most attractive hardy species were added, a display of more than ordinary beauty could be maintained during a large portion of the year with little trouble or expense. One of the most attractive examples of this kind that we have seen is in Mr. Broome's garden at Didsbury, Manchester, where a small conservatory is kept furnished with hardy and half-hardy plants, and during the early spring and summer months there is a constant succession of floral beauties. The advantage this method possesses over such houses as those of Mr. Joad's is that plants can be removed when out of flower. The Cape house at Kew, it is true, provides for this to some extent, but it is confined to too small a group of plants.

ROOMS FOR THE YOUNG MEN.

Now that a spirit of improvement seems to be so general in our great public garden, it is regrettable that measures have not been adopted to provide some accommodation for the young men there. Kew ought to set an example in this respect that would be a credit to an establishment of such fame, whereas scores of private gardens are vastly superior to it in the provision for the comforts of the employés. Undoubtedly it would be an expensive undertaking to erect a suitable building, but if the advantages that would accrue to the men, and eventually to the credit of the Gardens, were pressed in the proper quarters with the same ardour as others of less importance, there is little doubt that the scheme might be accomplished. A large proportion of the young men who go to Kew have been perhaps but just released from the wholesome restraint of both life, and they do not always employ their freedom to the best advantage. Add to this that lodging and living are very expensive, and generally unsatisfactory in Kew, the men often being regarded as the legitimate prey of extortionate "landladies." Some difficulty is also experienced in obtaining rooms convenient to the Gardens, and men

employed in the Palm house, for instance, have the greater portion of the time devoted to meals occupied in walking to and from their work. Possibly the difficulties in the way of a scheme like that suggested have been already considered and the project shelved as impracticable, but the fact remains quite patent to the outside public that the employés at Kew are not adequately provided for bodily, however well their mental improvement may be studied.—VERITAS.

CYCLAMENS AND THEIR TREATMENT.

THERE is no plant so useful for decoration at this period of the year as *Cyclamen persicum*, yet it is seldom seen in first-rate condition. For this reason any hints will no doubt be valued, especially by amateurs; and as I have been very successful I venture to give the following brief directions, founded on the practice I have adopted for some time past. Sow the seed in pans at the end of July in a compost of finely sifted loam and silver sand with a small addition of leaf soil. Do not cover the seed, but simply lay it on the soil. Place the pots on a shelf in a damp place in the stove, and keep the soil moist through the winter. The seedlings will come up irregularly. Let them stay till the necessary quantity are ready, then prick them off, about twenty into 6-inch pots. This time the same soil will do, but the top must have an eighth of an inch depth of silver sand on the surface. Constantly damp them. Stand them in an early vinery at the end and close to the glass. When large enough place them in 3-inch pots. Stand them in a forcing pit on ashes. Keep the plants free from insects and well damped. When fairly rooted transfer them into 4 and 5-inch pots, and place them in a cool frame. Syringe them twice a day, and shade on hot days. Keep the flowers picked off till they are taken in the houses in October. The soil for the last potting should be loam and dried cowdung only.—A FOREMAN.

CULTURE OF LILIUM AURATUM.

THAT the golden-rayed Lily of Japan is not generally well understood as regards cultural requirements is evident from the many weakly plants to be met with; also by the enormous importations that arrive in this country every season from their native habitation, and which, did they receive the proper treatment, would make them as common as could be wished, and instead of a good stock being rarely met with, they would certainly be more frequent. I think I am right in stating that the old practice of drying-off these handsome Lilies and placing them under stages in greenhouses until spring happily is more the exception now than the rule, and so it should be, for no practice could be more adverse to the well-doing of the plants. Nothing could have done better than some bulbs we bought in about three years ago, and which were at once potted in suitable-sized pots, in a mixture of peat, loam, and well-decayed cow manure, and sufficient sharp sand to keep the whole porous, the pots being well drained. Preference is given the first season for pots rather small than too large, as they do not appear to make so much root the first season, particularly when potted late. They were then stood in a frame, watered to settle the soil, and when the surface had become a little dry they were covered with cinder ashes to the depth of 6 or 8 inches, and then covered with shutters to throw off rain. In this position they remained till started in spring, when they were removed to a light position in a cold pit, and kept as close to the glass as possible. Constant attention is needed, for when they commence producing their heads they move rapidly even in the coolest position, and would soon damage themselves against the glass. No frame unless very deep will accommodate them very long, so that some should be moved to the greenhouse if there be such at command, and others placed in any unheated orchard house or similar structure, and a third batch may be plunged out of doors in a sheltered position to succeed them. When the plants have reached about 12 or 15 inches high, roots will be found proceeding from the base of the stem. These should be carefully preserved by placing some turfy loam or peat around them, which the roots will penetrate and thus be conducted into the pot, otherwise they will perish, much to the detriment of the present season's flowers. With the natural propensity of some kinds to flower earlier than others, and the different treatment described, will give a succession for at least three months without in any way unduly drawing them.

After the flowering is over they may be placed outside, and here we come to the most important part of their culture, as it is on this point that so many have been unsuccessful in the culture of this Lily. It is by no means uncommon to see these Lilies after they have done flowering turned over on their sides, and subjected to what is termed "drying off," a practice which cannot be too severely condemned. The proper way is to stand them in a moderately warm position under a wall or hedge, where they can receive a fair amount of sunshine, for at no time of their growth are they more benefited by its influence. They must be carefully and regularly watered, never at any time being allowed to suffer for the want of it. When the stems have assumed a yellowish hue and the leaves fallen from them they should be turned out and examined, and if all has gone on right the pots

will be found to be packed with young growing healthy roots; and at this stage they should be potted carefully, giving them a moderate shift into well-drained pots, and working a similar compost around them to that recommended for their first potting. They are then set in a frame, watered, and in due course covered with ashes and the shutters placed over them, when they are free from all anxiety till the following spring. Under this treatment we have found the bulbs increase fourfold both in strength and numbers.

Some cultivators keep their plants under glass after they have done flowering, but I am of opinion that when such could be practised is more the exception than the rule, as most employers like to see something attractive in their glass structures; at least, such is the case here, and if we had plenty of room under glass we should not think of placing our stock of Lilies there to ripen. Glazed lights are so useful for many purposes, and are not always equal to the demands upon them, that it is the more pleasant to know that these beautiful Lilies can be preserved for more than half the year without their aid. I am of opinion that the shutters are advantageous, as they do not unduly excite the bulbs in the dull months of the year as does glass when closed over them.—C. WARDEN.

RETUBBING LARGE PLANTS.

HAVING some large Camellias that are too heavy to be lifted in the ordinary manner, and as these need fresh tubs, I shall be glad to know



Fig. 97.

the best manner in which to proceed. Any information you can give will be very acceptable.—W. ELLERBY.

[On this subject Mr. Van Hulle, of the Ghent Botanical Gardens, has described a plan that he has adopted satisfactorily as follows:—Take two strong posts, A and B, so securely stayed at their base that there can be no chance of their upsetting. Set them at a suitable distance from each other, and place between them the plant to be retubbed, or, what amounts to the same thing, take the uprights to the plant. The old tub or box is removed, the ball seen to, the stem carefully wrapped round to prevent injury to the bark, and the collar E put on. This can be tightened to any desired extent by the four screws shown in the engraving. Lastly, the two ends of the collar are slipped into the grooves in the uprights, which, as will be perceived, are also pierced with holes. The apparatus having been prepared for action, two men with a pole, or even one with a long lever, will raise the collar, and therefore the plant, say to the point C, and an iron pin is there pushed into the hole under the collar; the plant is then raised to D, and so on alternately. In a few minutes two, or at most four, men can thus raise up plants of the largest size. To prevent any danger of over-balancing, a strong stake has been put to the plant, and of sufficient length to slide

in the guide-ring F as the plant is lifted. When the requisite height is reached, the new tub is put under the plant, and the latter is let down peg by peg in the same way as it was raised up. The less the distance between the holes the better, and never raise up or let down more than one hole at a time. The contrivance gives perfect satisfaction. If any of our readers can recommend a more simple and better system that they have adopted we shall be glad to hear from them.]

GARDEN CHEMISTRY.

CLAY SOILS.

THE first step towards the improvement of wet clay is draining it, a subject that will claim a chapter to itself. The next thing is to find something with which to mix with the staple, and which will serve the purpose that sand serves in loam. If light sandy soil can be got that is the best corrector of clay, for the two soils mixed will give a loam at once. But light soil is just what seldom can be had in a clay district. Perhaps the next best thing, especially when it can be had cheap, is the sweepings of streets minus the broken bottles, tin cans, bricks, and other rough material that will not decay. In those districts or gardens where plenty of brushwood can be had, or even where coal is cheap, nothing will surpass the soil itself when charred. Road-scraperings, too, are often of a gritty nature, and are a valuable addition to any garden soil, especially from macadamised roads where whinstone is used. Coal ashes, too, are by no means to be despised, although in outlying districts some trouble may be experienced in getting qualities that will make matters right all at once; but if the ashes made on the place are screened to keep out cinders, and made the most of, in the course of a very few years a great difference will be apparent. Lime, too, when properly applied does much to improve heavy clay, and ordinary manure plentifully applied will in course of time make the clay much more friable.

In order to make the most of such materials as we have named some care will be necessary in their application. Digging them in will not do, though that is the usual way of incorporating such with the soil. Digging-in only masses the materials in different lots; it does not mix them.

But a word is here necessary on the digging of clay soils. It has been the custom to recommend that such be turned up early in winter, or even in autumn, in order that the frost may pulverise them. This it does not do to any great extent, and it would be better if it did not do it at all, for the looseness so induced causes the retention of rain, which settles the mass into mud. When left undug, solid, no mud is formed, the frost acts on it all the same, and when turned up in big lumps in February or March the winds dry them, causing them to shrink; when moistened by rain they swell to an extent no frost could expand them, and the pieces can then easily be knocked to powder, forming the best tilth possible in such soil either for sowing seeds on or putting out plants. This our experience in the Carse of Falkirk teaches us is the proper way to treat clay soils, and we are confirmed in it by Mr. Weir of Kerse House, Stirlingshire, Mr. Thomson of Drumlanrig, Dumfriesshire, Mr. Doig of Rossie Priory, Perthshire, Mr. Taylor, Longleat, Somersetshire, and others all in widely different parts of the country and under different climatical conditions, but all having, or having had, to deal with the heaviest clays, and all men of undoubted authority.

It is when the surface is in this condition that such materials as we have named should be applied, for only then can they be perfectly incorporated with the soil. For this purpose the fork should be used, and care should be taken that digging is not allowed. The manure, ashes, burnt clay, whatever is being mixed in, should be kept near the surface. This is the more necessary if the amount of it should be small. One of the great evils of clay soils is that when dry they are too hard to work, when wet too puddy; but if even an inch at the surface be made free much will be done in the way of improvement if every fresh-dug-up surface is every new season similarly treated.

In the case of light soil all matters must be imported. Best of these is heavy loam, and the best way to apply is to pulverise the clay in the way described above, and to fork it in. We have known clay to be dug into sandy soils, which after long years of cultivation was still turning up in lumps. As it is only when diffused through the soil that clay does any good, digging it in is next to useless—in fact is throwing money away. But hardly anything improves light land so much as road-rakings. Marl, especially when clayey, is so applied with lasting benefit. As sandy soils hold least water and are soonest dried up, perhaps a plentiful supply of water and mulching, combined with liberal supplies of manure and a continual deepening of the soil are the best improvers, for carting clay and marl, and applying them in quantities sufficient to really improve the soil is, too often, out of the question because of the expense entailed. Keeping such soils pretty compact has a beneficial effect on them. It is their openness which causes them to dry so much; hence throwing them up loosely

with the fork in spring and summer, although beneficial in so far as it breaks all lumps and diffuses the manure, so allowing the roots free access to every part, and a continual supply of food, should always be followed by consolidation in the case of loose soils, otherwise forking is a great evil.

Trenching is much advocated, but often trenching does much mischief. We have seen plots, and even whole gardens, rendered nearly sterile by injudicious trenching. No good can follow the turning-down of perhaps the few inches only of surface soil and the bringing-up of sterile clay or rusty sand; and we cannot too earnestly urge on young men to always keep the best soil not only at the surface but at the very surface. The start in life is nearly everything to all sorts of vegetation, and a good start cannot be had in any but soil friable, sweet, open, and presenting food to newly pushed roots at every stage of their progress. When soil is turned up from below, and the good soil as well as manure turned down, no matter how heavy the dressing may be or how good the soil, failure more or less will result according to the length of time the roots are in reaching them.

Still an effort ought to be made to deepen all soils that are less than 2 feet deep. Not long ago we had to deal with a soil in many places not over 4 inches thick, resting on an impenetrable pan. In a few years this pan was got rid of and the soil made $1\frac{1}{2}$ foot deep in many instances; but not by turning down the good soil. The method employed was to turn over the soil, exposing strips 2 feet wide of the subsoil. This was composed of half sandy half clayey stuff, full of stones and bound like asphalt with iron, altogether as unpromising-looking material out of which to make soil as one could look at. For a few inches in depth this subsoil was broken up with much difficulty with a pick, a good layer of manure spread over it, a spadeful of soil turned over, another layer of manure, and any loose soil over that. The upper layer of manure was just under the soil and told at once on the crops; the under was just over the broken subsoil and kept the crops going later on. It did more; it furnished a home for worms, which in summer droughts and winter frosts found their way into the hitherto impenetrable subsoil. Now worms do two things. First, they live on decaying vegetation and convert it into the finest soil. On hard soil this is thrown to the surface, but in loose soil, such as the subsoil in question, they fill the open spaces with it. Secondly, when driven deep by frost or drought they swallow the soil, out of which they extract nourishment. They do more, as Darwin has proved. They grind the particles, liberating plant food, but, above all, they dissolve the red iron oxide. The decaying layer of manure also acts in the same way. Out of it acids are formed which, washed down by rain, also dissolve the iron. In consequence of this the drainage water from soils so treated shows iron, and by-and-by the impenetrable pan which hitherto prevented roots descending or killed them if they did descend, as well as cut off the supply of moisture from beneath, thus causing crops to be burnt up in dry weather, is got rid of.

When a couple of years afterwards this broken subsoil was examined it was found very different. Poor enough still, it was now brown loam, with no trace of iron and no tendency to bind. It was now no longer inert, but soil. Again it was turned over. This time two shallow spades was to be had, and this was trenched over as before, the lowermost spading being put upmost, with a layer of manure under, and the subsoil further broken up. But the new soil at the top, mixed somewhat with the old soil, was not just the best even with a layer of manure directly under it. A dressing of thoroughly rotted dung was therefore spread over the surface and mixed in with the fork, and in this Potatoes were planted. The new soil and new manure always produced the finest early Potatoes, which, when lifted, left the soil by July in capital condition for putting out Strawberries, which, under such conditions, produced grand crops of the finest fruit the following season.

In the improving of thin clay soils some similar method should be followed, only it will perhaps be found best to *fork* in sandy stuff, ashes, street sweepings, into such subsoils for two or three seasons, so as to get them as near the condition of loam as possible before turning them up. Indeed, by always forking the under soil only, some surface soil will be always taken down, and the digging-over of the surface soil will always bring up a little of the under, when the two will become similar. But by getting the soil free enough, then throwing it to the surface in order to enrich it and pulverise it thoroughly by cultivation and exposure, a third layer may be attacked, and by-and-by a fourth.

Hungry gravels and loose sands are by no means so easily improved as clays or loams—improved, that is, in depth without outside additions. Additions of all sorts of soils will in time help such, for if depth be an advantage anywhere it is in sandy soil. Liberal admixture of everything vegetable and the repeated forking over the subsoil in the manner described will in time deepen the worst sand. But in such humus—which constitutes the main difference between soil and subsoil—disappears rapidly. They “eat up” the

manure, you will be told. For this reason every vegetable scrap should be held precious, and every opportunity taken to raise green manure, which when dug in will add to the general stock. But let the rule be with all soils to improve the subsoil where it lies before bringing it to the surface.—SINGLE-HANDED.

(To be continued.)

CYCLAMENS AND PRIMULAS AT READING.

EVERY season has its special attraction in Messrs. Sutton & Sons' trial nursery at Reading. Early in the year the Cinerarias are the leading feature; Calceolarias follow, and are usually in their best condition about the time of the May exhibitions. Gloxinias, too, are subsequently found in large numbers, with Tuberous Begonias and hosts of outdoor annuals and perennials a constant succession of floral beauty is maintained. November is proverbially the dullest month of the year; but even then the visitor to Reading can find much to admire in the houses at this nursery, for the large stock of Cyclamens and Primulas is then fast advancing to perfection. So on the occasion of the late Chrysanthemum Show many horticulturists availed themselves of the opportunity to inspect the collections of these plants, and the time thus spent was not regretted by any of them. It is an invariable rule as regards all the plants taken in hand by Messrs. Suttons' experienced growers, that nothing short of the most complete success attainable is deemed satisfactory, and no efforts are spared to insure this result. To obtain plump well-matured seeds calculated to produce plants of the best quality it is wisely considered absolutely necessary to give the parent plants the best possible treatment, and with this object in view the requirements of all the different races of plants of which specialities are made are most carefully studied. The surprising success that has been attained with Calceolarias has been frequently mentioned in this Journal. Gloxinias, too, have received their share of praise with many other notable plants, so that the Cyclamens and Primulas now in a measure demand similar attention.

CYCLAMENS.

Several large growers for market in the neighbourhood of London have been very successful with these plants in recent years, and it is now the usual practice to obtain handsome plants in one year from the time of sowing the seed, a result that was never secured by the older systems of culture. The most experienced cultivators of Cyclamens have found that they require liberal treatment, a free light soil, a moist genial atmosphere, and copious supplies of water. This system is now adopted in the establishment under consideration, and the results are most satisfactory. The seed is sown in November, the young plants so obtained being first pricked out and then transferred into 60-size pots, and finally into 48-pots, in which size they are flowered. The soil consists of equal parts good loam and carefully prepared leaf soil with no manurial aid until the plants are approaching flowering, when a small quantity of the special artificial stimulant sent out by the firm is employed. The plants are all healthy, bushy, vigorous specimens; the foliage thick, leathery, and beautifully marbled, while the corms are bristling with flower buds in all stages. It is estimated that a plant with fifty leaves as they can be obtained will bear as many as 150 blooms, often in successive batches extending over a considerable period, but with healthy plants usually in that proportion.

Varieties are of course numerous, but a few of the finest are grown in large quantities, and conspicuous among these is the noted Reading Gem, which was honoured with a certificate by the Royal Horticultural Society in 1879. This is remarkable for the great breadth of petals, which gives an appearance of extreme substance to the flowers; and another invaluable character is its great floriferousness, the white and red-tinted blooms being borne on stout peduncles well above the foliage. A similarly handsome variety is the White Butterfly, or, as it is also known, Miss Lilian Cox, but the former name is the one now adopted. This also has been certificated, and is one of the very best white Cyclamens in cultivation, the neat, substantial, pure white blooms being produced in great numbers. Phoenix is a grand crimson variety with large broad-petalled blooms and exceedingly rich in colour, bright and fresh in a more than ordinary degree, rendering it an admirable companion for White Butterfly. Several others are grown all more or less meritorious, but these can be safely and strongly recommended for general culture.

THE CYCLAMEN GRUB.

It may be observed that though the Cyclamen is subject to few diseases, and is not attacked by many insects, yet it has one great enemy that has proved very troublesome in late years. This is the grub or larva of a species of *Otiorhynchus*, one of the weevil family, which attacks the under side of the corm, destroying the roots, ultimately killing the plants. The great difficulty is that often no sign of the evil is apparent until the injury is irreparable, for a plant may be seen in perfect health and advance freely until the flowers are about to expand, and then one morning the grower finds the leaves limp and the whole plant has lost its strength. Not only at Reading had this been unpleasantly experienced, for some of the largest market growers had been similarly troubled and puzzled to find a remedy for the mischief. Many methods were recommended, some quite impracticable and others useless, but the only one found effectual is exceedingly simple, and could be readily adopted wherever similar disasters were feared. It was found that the grub was introduced with the leaf soil used in the compost, and therefore this was very finely sifted, placed in a thin layer on a cement floor, and

heavily rolled with an ordinary garden roller. This had the double effect of killing both grubs and eggs as well as any other vermin that might be present. Since this was tried no trouble whatever has been experienced, and the success attending it has induced others to test it with the same result.

PRIMULAS.

To supply the large demand for seed of these popular plants several houses are devoted to Primulas for seed-bearing, many beautiful varieties being represented. Much improvement has been effected in the forms of these plants, for numerous rich shades of crimson, purple, and rose have been obtained, besides the pure white strains and celebrated "blue" type. A compact stocky habit and large trusses of well-formed flowers are now the prevailing characters of the different strains, whether of the ordinary round-leaf or Fern-leaf groups, and in these points there is little room left for advancement. Fresh tints of colour are, however, being continually raised, while new races are being formed of the crisp-leaved and dark reddish purple-leaved types, which will impart considerable variety to collections. Prominent amongst the deep-coloured crimson forms are Ruby King with very large neatly formed flowers, intensely rich crimson, and several fine crosses between Chiswick and Swanley Reds, free and early-flowering forms having been thus secured. The Fern-leaved Prince Arthur, which was obtained by crossing the round-leaved form of that name with Swanley Red, is also a handsome dark crimson variety of very great promise. Purpureum is a fine purple form; while amongst the lighter-coloured forms Rosy Queen is especially noteworthy for the soft delicate pink hue of the flowers and their great size. A magnificent new white Fern-leaved variety is Snowdrift, which is one of the earliest to flower, and has neatly formed literally snowy white blooms in dense trusses. This will undoubtedly become a great favourite. Some handsome seedlings of the alba magnifica type have been raised, together with several curiosities, of which more will doubtless be heard another season. The Mauve Queen may be mentioned, as a distinct shade of colour is furnished by it that some people would probably admire. An attempt is also being made to form a race of Picotee-edged varieties, and some steps have already been advanced in this direction, for varieties have been raised with white flowers distinctly edged with pink, but these at present are not yet fixed, though there is plainly room for some notable achievements.

It may be added that the Cinerarias are extraordinarily vigorous this year, and we have never seen plants with larger and more finely developed leaves. They certainly are most promising, and a grand display is expected early next year.—VISITOR.

A VINERY OF THE FUTURE.

WHEN on a visit to Bath a few days ago I ventured to trespass on the good nature of my late esteemed neighbour, Mr. Taylor, at his new home in this beautiful city. Having previously heard that a vinery very similar to the one at Longleat was being erected under his supervision for that enthusiastic and successful cultivator, J. Chaffin, Esq., I was not a little curious to see it in course of erection, and through the kind permission of this gentleman I not only did so, but was enabled to discuss every detail of its construction with my old friend, into which he freely entered with his usual frankness and good nature.

The position of the garden is a somewhat elevated one on the north-east side of the city. It declines somewhat abruptly towards the west. The vinery being situated on this side of the hill, about 50 feet below the site occupied by the mansion, which is about 100 yards distant, it is consequently partially sheltered from the north and north-east, but not sufficiently so, I think, to screen it from the good influence of the sun's early rays. It is span-roofed, about 140 feet long by 30 feet wide, and is divided into three unequal compartments. The ridge runs as nearly as possible north and south, the southern end perhaps inclining a little to the south-east. It is built on substantial walls of stone and brick, which are not, I believe, arched, the intention being to form the borders inside so as to shelter the roots.

Owing to the irregularity of the ground the excavation required at the northern end is considerably more than at the opposite one, and the house, instead of being built quite level, dips considerably to the southern end. This arrangement, without being perceptible, not only admits of the rain water gutters being fixed regularly along the plates from end to end and facilitates the rapid flow of water, but it also allows the hot-water pipes which are to be heated from the southern end being laid perfectly even with the courses of brickwork on the walls, and at the same time will secure a regular and even flow in each pipe throughout the range without resorting, as far as I could see, to a single unsightly or irregular bend or elevated pipe. This to some may appear a trivial matter scarcely worth notice, and yet in a house of this magnitude it is a most essential and economical one. The pipes, which are 4 inches in diameter and ten in number, are arranged perfectly level with and parallel to each other at regular intervals over the floor; additional heat will also be obtained from the mains, which are laid under the central pathway. Provision is, of course, made by valves for heating each compartment separately. Duplicate boilers, each capable of heating 3000 feet, are to be fixed at such a level as will insure every pipe being placed well above the boiler, and thus secure a rapid flow and return of water. These boilers, which have been manufactured by Messrs. Hartley and Sugden, may be called, not inaptly, hooded tubulars. They appear to be strong, well made, and calculated to last many years.

The fixing and arrangements are entrusted to Mr. Flint of Bath, and most simply and efficiently does his work appear to be done. The wood-

work, which was only partially fixed, consists of rather deep side sashes, all of which on each side are intended to open. The rafters, which for such a wide span appear somewhat slight, are to be secured and strengthened by truss rods. They are fixed at rather a low angle, so as to secure as far as possible an equable inside atmosphere; they are placed at intervals of about 20 inches from each other. Provision for top ventilation is made by alternate opening sashes on both sides of the ridge, each being about 4 feet by 2 feet wide. It is intended to throw a somewhat flat arched trellis across the house for training the Vines at a good distance from the glass, so as not only to secure a clear space between that and the foliage for free ventilation, but also to have the Vines at a convenient distance from the floor level.

The glazing is to be executed on an improved principle of Mr. Chaffin's own invention, and which consists of long squares about 3 feet by 20 inches. These are laid between strips of prepared felt, placed longitudinally on the rafters and then secured in place by an iron cap and screws inserted at regular intervals. Judging from the appearance of a small house glazed on this system, if good stout glass be used it must insure abundance of light, great strength, security from wet, and ultimate economy, as it forms comparatively an indestructible roof.

Mr. Chaffin has chosen good local firms for the performance of his work, Messrs. Hayward & Wooster being entrusted with the woodwork, and Mr. Long the masonry, all of which appears thoroughly well executed. The subsoil, which is heavy and tenacious, is being thoroughly drained, and preparations for making the borders inside in sections are already in progress. I need scarcely add that when finished this house will be a very imposing and noble structure. To see it, although still unfinished, afforded me great pleasure, and I left fully impressed that if superlative Grapes depended on thoughtful and judicious arrangements, good soil, excellent situation and climate combined with skilful cultivation, we should ere long see something good from this magnificent vinery.—C. W.



KITCHEN GARDEN.

ALL kitchen gardens have now lost their summer aspects. Many of the quarters are empty. The fruit trees and bushes have cast their leaves, and the effects of winter are everywhere visible. But this is no reason why the kitchen garden should be untidy; on the contrary, it should now be put in order for the winter. All old vegetable and fruit-tree leaves should be collected, weedy pieces hoed and raked or dug, and all walks made clean. This has been our work during the last week. Our kitchen garden is now as clean as it can be, and so far as dressing is concerned we will have little or nothing more to do in it during the winter. Manuring, digging, and trenching will now be carried on during every favourable opportunity.

Celery.—Where the rainfall is heavy this may show signs of decaying in the centre, and much of it may be lost in consequence if something is not done to prevent it. Flat ridges are a mistake. They should be made to taper up almost perpendicularly, and they should be beaten very firmly that a hard surface may be formed to throw off the wet. When finally earthed up a quantity of sand thrown around the plants is an advantage, and finely sifted ashes answer the same purpose. One good wisp of straw put round the collar of each plant during frost does more to protect it than a great quantity of loose material put about it carelessly. As a rule we always send the inferior heads to the kitchen, and the best to the pantry.

Young Peas.—When these are just coming through the soil the Dutch hoe should be run along each side of the rows when the ground is dry, and as soon as they are a few inches high the earth should be drawn up into a good ridge on each side of them. This affords excellent protection from wind. No attempt should be made to protect them during severe weather, as they will do very well without this, and coddling only makes them more tender. Stakes should be put to them as soon as possible after they are fairly through the soil. Where those sown a while ago have failed another lot may be put in now. Indeed, Peas may be sown with success almost in every month during the winter, the main object being to have the soil in good order.

Herbs.—A quantity of Mint roots should now be taken up for forcing. They may be put into any shallow box with a little light soil over them, and they will grow readily in any house or pit where the temperature is from 60° to 70°. Tarragon may be treated in the same way. Sweet Basil may be raised from seed under the same conditions, or this may be sown in a 6-inch pot and grown there until the plants are 2 or 3 inches high, when they may be pricked into boxes, and they will give a large supply. Much of the Parsley is now turning yellow, and where it is likely to become scarce the roughest of it should be gathered and dried at once for seasoning.

Forcing Kidney Beans.—A good batch of these should now be put in for fruiting in the early spring months. Osborn's Forcing is decidedly the best of all to deal with at this season. Put a few leaves in the bottom of a number of 3-inch pots, fill them half full of light sandy soil,

then put six or eight seeds into each and fill up almost level with the soil. They should then be placed in a temperature of 65° near the light, and give no water until growth has advanced a few inches. When the soil is saturated before the seeds germinate many of them generally decay at this season. A dry atmosphere suits them at first, and they may be retained in the small pots until a few leaves have been formed, when 8-inch pots will suit them best for fruiting in. Those in bloom just now must have a very dry atmosphere, or the fruit may not form. Give liquid manure to those plants bearing heavy crops.

Rhubarb.—Where this is valued as early as it can be had, a batch of roots may be put in for forcing at once. Those roots we advised to have lifted out of the ground some time ago will force most readily. A good hotbed of leaves and littery manure is a capital position on which to place the roots, and the tops should be covered with any old box or barrel. A dark end in the Cucumber pit or Mushroom house will also produce good Rhubarb, and there are sometimes odd corners near fires, flues, or over boilers which suit well for bringing on the produce. The crowns should merely be covered with soil, and as soon as growth begins liberal quantities of liquid manure should be given.

Seakale.—This valuable winter vegetable may be forced and treated in all respects like the Rhubarb; but while good Rhubarb may be grown in the light, Seakale is best when kept entirely in the dark.

Leaf Soil.—Now that this can be formed by collecting the fallen leaves and putting them in a heap to decay, I may say that for heavy soils nothing is better than a good coating of leaf soil; and leaves collected and stored now will be in excellent order for digging in with Potatoes and other crops next spring at planting time. It is astonishing how clean Potatoes turn out of leafy soil.

FRUIT FORCING.

Peaches and Nectarines.—Earliest House.—The buds are swelling, and sufficient fire heat should be given to admit of a free circulation of air by day and a little at night if the weather be mild, as a genial condition of the atmosphere is essential to the proper development of the flowers. The temperature should not be increased beyond 50° to 55° by day from fire heat, or 40° to 45° at night, until the blossoms are well advanced; the night temperature after the flowers expand should then be raised to 45° to 50°, and by day to 55°, with 5° to 10° rise from sun heat. Old trees that have been forced a number of years will stand more heat than young ones, yet it is best to err on the safe side, particularly in the early stages, and to make up for any lost time after the fruit has passed the stoning process; and much depends upon the state and position of the roots, as if inside, as those of early Peaches should be, and near the surface in good calcareous loam, forcing may be carried on much more rapidly and with less risk than when they are outside. Discontinue syringing after the blossoms show the anthers, but damp the walls and other available surfaces in the morning and afternoon, and until syringing is discontinued it should be done early, so that the trees become dry before night. Examine fermenting leaves on inside borders, keeping them frequently turned over for the purpose of obtaining atmospheric moisture, and to prevent injury to the surface roots by becoming too hot.

Pruning Late Trees.—Continue the pruning in late houses, which should consist of cutting out the weak wood and thinning where too crowded, laying in the wood sufficiently thin to admit of the full development of the foliage, so that fruit and growth may have full exposure to light and air. Lay in the wood its full length where there is space, and make provision for a proper supply of young growths by the removal of all gross watery shoots and shortening back to well-ripened wood, or the gross shoots if they must be retained, should be cut back to near their base. The fan system of training is the best for Peaches. See that inside borders are in a proper condition as to moisture, for if allowed to become dry it is likely the buds will fall.

Cherry Houses.—The house and trees having been thoroughly cleansed as advised in a former calendar, forcing may be commenced, but in a gentle manner. The night temperature may be kept at 40°, and the day at 50°, and when the house rises to 55° by natural means air should be freely admitted, taking it off or closing the house at that temperature. Moderate syringings will occasionally be necessary to maintain a moist genial condition of the atmosphere, but the trees must not be kept constantly wet; indeed, they should be syringed early on fine days, and in dull weather syringing will not be necessary.

Cucumbers.—Perhaps more mishaps arise in the growth of winter Cucumbers from the inadequate quantity of piping, which, to keep up anything like the heat necessary for these plants, is radiated at so high a temperature as to produce a parched condition of the atmosphere highly injurious to vegetation. Damping in such cases needs to be more frequently resorted to, and the alternate roasting and stewing process is one more likely to end in disaster than anything else, hence plenty of piping is always more economical than too little. Pay particular attention to thinning the fruit so soon as they have set, and cutting them as soon as they become fit for use, which will greatly facilitate the swelling of the young fruit. Remove all staminate blossoms as they show, and bad or injured leaves as they appear, tying down all shoots as they require it. Very little stopping of the shoots will be required now, excepting on vigorous-growing plants. The object should now be to encourage free growth. Avoid, however, overcrowding, light and air being essential to properly developed foliage. See that the plants do not suffer by want of water, but care must be taken not to overwater at this season. Atmospheric moisture should be given sparingly; at the same time a genial condition of the atmosphere is essential to success.

Dust with sulphur upon the first appearance of mildew, and rub the pipes thinly with the same if red spider is troublesome, rubbing quicklime into any cankered parts.

Strawberries in Pots.—Where there are structures specially devoted to forcing Strawberries, better results are obtainable than when they are grown in Peach houses or vineries. In the former case, and a batch being introduced of some early kind as Black Prince, Vicomtesse Hericart de Thury, or La Grosse Sucrée at the middle of last month, they will now be starting, and should not be brought on too quickly, the night temperature being kept at 50°, with 5° more by day artificially, and 5° to 10° advance from sun heat. Ventilate freely at and above 55°, and in mild moist weather admit a little air constantly, as it is important that the leaves and trusses be not drawn up weakly. Syringe lightly morning and early afternoon, and see that the plants have sufficient water. Aphides very often attack the trusses as they rise from the crown, and the house should be fumigated as necessity requires, so that they may be kept perfectly clean. Especially is this necessary as they advance for bloom, for if fumigation be then resorted to it will do serious injury, if not destroy the pistils, which are very tender, and too close and moist atmosphere will destroy the anthers. Plants that have been plunged in a sheltered position outdoors will need protection in severe weather, covering with dry litter or fern, which should not be removed so long as the frost prevails, the alternate covering and uncovering daily doing more harm than good. Plants plunged in pits or frames should be kept rather dry on the approach of frost, and should they become frozen cover them until a general thaw commences.

PLANT HOUSES.

Zonal Pelargoniums.—Those plants that are now in flower require daily attention in the removal of decaying flowers and foliage, for if the former are allowed to remain in the truss they soon spoil many more that surround them. These plants are very liable to damp at this season of the year, especially in moist localities and where fogs prevail. To prevent this keep the atmosphere of the house in which they are flowering as dry as possible, and give air with a little fire heat on all favourable occasions. The temperature in which they are flowering should be maintained at 50° to 55° at night, according to external conditions, with a little air left on when the nights are such as it can be done with safety. Under this treatment they will grow slowly and continue flowering without becoming drawn. Those that were housed later and have been up to the present time in cool airy structures will, if given the night temperature named above, soon be one mass of flowers. The double and semi-double varieties appear to do better in a temperature 5° warmer. We have just divided our late batch that has been kept cool, and placed all the double forms in heat, and in a very short time they will produce an enormous quantity of useful trusses for decoration and cutting. All plants that are in 3 or 4-inch pots, whether single or double, and required for spring flowering, should have a position close to the glass where the night temperature will not fall below 45°. If they have not been stopped the points of the shoots may be removed. The object to aim at is to keep the plants in good condition and sturdy, and then when the days lengthen and the sun has more power they can be potted and will be in the best of condition for flowering, which will not be the case if a soft growth is encouraged at this season of the year.

Gardenias.—Where the flowers of these plants are required over a long period it is a good plan to insert a few cuttings at the present time. Some of the plants in the early batch will now be flowering or swelling their flower buds rapidly, and springing from below these buds and flowers will be found short growths that are most suitable for cuttings. Cuttings will root readily and quickly if inserted in sandy soil and kept in a close frame or under bell-glasses. The main stock of new plants is grown from cuttings annually, and after flowering all the worst of the old plants are thrown away. A few are retained and grown on again for autumn and winter flowering; these are not subject to much pruning. It is impossible to flower during these periods plants raised from cuttings either now or in the spring. In addition to these, what old plants we retain are pruned hard back, and strong clean growths are the result. Those now setting their buds should not have an excessive supply of liquid manure, or the roots may be injured and the flower buds in consequence deformed. Give a surface dressing of artificial manure.

Impatiens Sultani.—This is a charming plant for the stove at this season of the year, in fact through the whole of the winter and spring months. It flowers in such a very small state, which adds very much to its beauty for purposes of decoration. It is just the plant we have wanted for associating with Lycopods and Ferns in 2 and 3-inch pots for purposes of edging. In no position does it look more attractive and beautiful. Little plants can be grown in the pots above named, and it looks more beautiful in a dwarf state than when the plants are grown to a larger size. If large plants are wanted those grown from seed are decidedly the best, as they branch more freely than cuttings, but for the purpose recommended cuttings are best. They are flowering when taken off, and will flower nearly the whole of the time they are in the propagating box, and go on until they are too large for the purpose and require topping. To maintain a succession of these small plants, as soon as one batch is rooted another batch should be inserted; for this purpose we retain one fair-sized plant, and it furnishes us with nearly as many flowering shoots as we require. Any moderately light soil suits it.

Cyclamen.—If seed has not been sown it should be done without further delay, and very good flowering plants will be produced by next autumn and winter. The seed pans must be well drained and filled with

light sandy soil, upon which the seed should be scattered and then lightly covered with very fine leaf soil and sand. After sowing give a good watering, and place over the pans a square of glass and plunge in bottom heat until the seed germinates, and then gradually expose the plants to light and air, and place them close to the glass on a shelf where the night temperature can be kept about 60°. Those having young plants from seed sown during the month of July, and now growing freely in a cool structure, should place them where the temperature will not fall below 45°, keep them close to the glass, and by the end of the month they will be sturdy plants that can be placed in 2-inch pots. We have just now a number of plants that were raised for late spring flowering, and which received a check through removal from a warm to a cool structure. These are now starting fairly well, and have had as much of the old soil removed from them as possible and new supplied. The blooms will be removed and the plants grown in a temperature of 50°; the largest will be allowed if we require them to flower in spring, and the smallest will be grown on for early flowering next autumn. If any extra fine forms appear amongst the seedlings remove the flowers for some time, and allow them to come into flower in spring for the purpose of supplying seeds; by this means only can a good strain of fine varieties be obtained, and the seed from them can then be relied upon.

Primulas.—Plants that have been flowering in the conservatory since the end of October, and have tall flower stems, should be removed. They will soon come into flower again, and will be in good condition in a few weeks. We can keep these plants in much better condition by removing a few of the worst weekly, and by giving them a light position and a little more air (after they become hardened) than what we can give them in the conservatory, they soon produce strong flower trusses again, much finer than they would in the other position. A top-dressing of rich material, or a light application of artificial manure to the surface of the soil, is very beneficial.

Chrysanthemums.—Plants that have flowered, of varieties that it is necessary to retain for cuttings, should be placed in a light airy position under glass, a late Peach house being a capital place for them. Any shoots from the base that have become weakly while the plants have been flowering should also be cut off near the base, and these will break strong growths that will be all that can be desired for cuttings after a while. Strong, robust cuttings are most important, and if the stools are not taken care of after flowering it is impossible to obtain them. Some of those grown as bushes, or that have produced one or two flowers in a small pot, generally yield us our strongest and best cuttings. The cuttings are often very few and weak from those plants that up to the time their flowers were thoroughly developed had every shoot that appeared at the base removed, and have been exhausted as well by flowering.

THE FLOWER GARDEN AND PLEASURE GROUND.

Protecting and Planting Roses.—We usually find it advisable to perform much of the work of planting of the new and replanting of the old Rose bushes and standards during November. Unfortunately the weather has much interfered with the operations, as it is very unwise to touch heavy land when constantly in a wet state. Where frosts are apt to prove very destructive among Roses, the simplest method of preserving standards consists of lifting and bedding them where they can be conveniently protected with rough litter or bracken. Lay them in a sloping direction and closely, yet so that they can be removed and replanted without injuring many of the young rootlets they invariably emit in these positions. Mulch the ground about them with rough litter, and whenever severe frosts are expected shake a liberal quantity of the same material over the stems and heads. Dwarfs may also be benefited by a mulching of litter or rough manure from the stable yard. Dwarfs or standards newly received from the nurseries may either be laid in for the winter or properly planted, as the weather permits.

Occasional transplanting greatly improves Roses, and is not so much practised as it ought to be. The position may be the same, providing a quantity of decayed manure or a mixture of manure and fresh loam be well and deeply mixed in with the old exhausted soil. Roses delight in a good deeply dug soil, and if the whole of the ground is not double-dug for them it is advisable to make the holes wide and deep, the bottom spit being enriched with manure. Planting should keep pace with the digging, or otherwise the newly moved soil is liable to become saturated with moisture and unworkable for some time to come. If planted on the lawn the turf should not be returned about the roots—at any rate to within a foot of the stems. Beds may be formed with the standards 4 feet apart each way, and between the dwarfs can be worked in. Should the latter only be planted these may be about 3 feet apart each way. Most dwarfs bought in are generally worked on the Manetti stock, and by burying the junction of the scion with the stock the former soon emits strong roots, and thus become independent of the stocks. Unless deeply planted the life of the plant will be short. Those who last season neglected to plant their dwarfs sufficiently deeply should at once plant deeper, the next best plan being to heavily soil over the exposed stocks. Roses budded last year may be moved now, but it is not advisable to disturb those successfully budded this season. Before planting, the roots of all kinds of Roses should first be lightly trimmed, then be distributed evenly in good fine soil, this being made moderately firm. Extra long shoots may be shortened in order to lessen oscillation; but pruning should not yet be attempted, and standards should be staked at once. Plant Briar stocks for budding next season in rows at least 3 feet apart and 18 inches asunder in the rows.

Climbing Roses.—Now is a good time to renew the soil about these, and also to replant where vacancies occur. The soil near walls and

fences quickly becomes impoverished, and the Roses in these positions being most valuable they ought frequently to have fresh liberal additions of half-decayed manure and loam. Much of the dry old soil may well be removed. No other climbers, especially Honeysuckles, should be planted near the Roses, or the latter will inevitably suffer from the contact both above and below ground. Choice Teas may be, and in some cases must be, protected from severe frosts with either mats, heavy coverings, or bracken tied thickly over them.

Selections of Roses.—In order to secure the best plants no time should be lost in procuring the requisite number. Those ordering last get the worst plants. Of Hybrid Perpetuals a really good dozen are as follows:—A. K. Williams, Charles Lefebvre, Comtesse de Chabillant, Duke of Edinburgh, Dupuy Jamain, John Hopper, La France, Madame Lacharme, Marie Baumann, Marquise de Castellane, Mons. E. Y. Teas, and Sultan of Zanzibar. To these may well be added Alfred Colomb, Bessie Johnson, Boule de Nieve, Capitaine Christy, Charles Darwin, Cheshunt Hybrid, Comtesse d'Oxford, Duke of Wellington, Etienne Levet, Ferdinand de Lesseps, François Michelin, Général Jacqueminot, Hippolyte Jamain, Jules Margottin, Madame Eugénie Verdier, Baronne de Rothschild, Madame Victor Verdier, Mlle. Prosper Langier, Marie Rady, Royal Standard, Sénateur Vaisse, Sir Garnet Wolseley, and Star of Waltham. Good Tea-scented Roses, and which are also adapted for furnishing sheltered walls, are Adam, Alba Rosea, Belle Lyonnaise, Catherine Mermet, Comtesse de Nadaillac, Devoniensis, Etoile de Lyon, Gloire de Dijon, Homère, Madame Lambard, Marie Van Houtte, Niphotos, Perle de Lyon, Rubens, Safrano, Souvenir de Paul Neyron, and Souvenir d'un Ami.

Some of the best Hybrid Teas are Distinction, Earl of Pembroke, Lady Mary Fitzwilliam, and Viscountess Falmouth. Such Bourbon Roses as Acidalie, Baron Gonella, Queen of Bedders, and Souvenir de la Malmaison are especially good when on their own roots in the open, and are very profitable where they receive shelter from walls.

Noisettes Caroline Kuster, Celine Forestier, Cloth of Gold, Jeanne Desprez, Lamarque, Maréchal Niel, and Triomphe de Rennes are all good for walls. All the China and Hybrid China Roses are worth growing, being well adapted for the fronts of shrubberies as well as walls. They are the most free-blooming of all, and are best known as "Monthly" Roses. Of Moss Roses Lanei, Reine Blanche, Souper et Notting, and White Bath are among the best.

THE BEE-KEEPER.

THE COMING BEE—CLIPPING THE WINGS OF QUEENS.

It may, perhaps, be thought by some that enough has already been written on the subject of the coming bee, but when we consider that the question of financial success or failure in bee-culture must eventually turn on this one point, we realise that we cannot investigate the matter too closely.

What is the coming bee? It cannot be the common brown bee: the importation of the Italian and other races of queens in such vast numbers has fixed the fate of the old brown bee. What is left of the pure brown blood must soon be superseded by the various mixed breeds, and soon will only be known in history.

We are of the opinion that it will not be the pure Italian, from the fact that the "new broom" has become somewhat old and fails to "sweep clean." The fever for bright yellow stripes is fast cooling down, and honey-producing bee-keepers are beginning to learn that a cross between the different races gives better workers and more honey. Some queen-breeders are already awake on this important point, and are putting into the market queens that are bred for paying qualities rather than fancy colours; and there can be no doubt but the coming bee will be much superior to any that we now have, if we manage wisely.

It will be well, however, for us all to be mindful that after all the most careful and judicious crossings have been made, we may, by other improper management, defeat the very purpose for which we are labouring. If the bees were left to manage their own affairs in their own natural way, then the law of natural selection would dictate that none but the fittest would survive; and that "survival of the fittest" means "improvement of the stock." That improvement would be slow, yet it would be sure all the same. The most prolific queens would produce the most young swarms, and the best winged drones would meet the most queens; and also, the best workers would produce more combs and store more honey for breeding and winter supplies. But when we take control of them and dictate what shall be their conditions and surroundings, then it is better that we go a little slow and careful, lest we, in our eagerness to advance our own present interest or convenience, do a great injury to the bees; for when bees are injured, then it is that apiculture suffers at a corresponding rate.

Longevity is a most desirable quality in the coming bee, and anything that shortens the working days of the bee is all the while sapping the very foundation of bee-keeping. It is well understood that our present bees live from September until April or May following, and be it understood that it is during these cold months that bees in the northern climate are subject to disease consequent to cold and confinement; and yet while struggling against these unfavourable conditions they are found living

six or even eight months, yet in June and July, and a part of May and August they only live about six weeks. Now, why is this great difference in the longevity of bees during the different seasons of the year? It cannot be that proper exercise in the open air is what shortens their life in summer, for we know that when they are diseased in winter a good fly in the open air restores health and quietude. This fact alone is ample proof that that outdoor exercise is not what shortens the life of the bee in summer. One writer has expressed his belief that bees in summer work themselves to death. I cannot agree that this can be true from the fact that natural law dictates that all animals live by their own efforts; and we find them prosperous just in proportion as they are able to surmount obstacles and overcome difficulties that they encounter. Labour promotes health, but indolence weakens it.

Each creature is endowed with faculties or members, the functions of which are adapted to the performance of the work of procuring a livelihood, and if any one or more of these members are by accident or otherwise disabled, then the creature labours to a disadvantage, and its life is shortened just in proportion to that disability or inability to procure a livelihood. A proper exercise of any one or more of these members increases their strength and dimensions, but inactivity renders them weak and dwarfed; and long-continued disuse reduces them to mere rudimentary conditions.

While the above is true, it is equally true that over-work or excessive strain would injure any member of the bee or any other animal. I hold that incompetent wings and wing power is the chief cause of the shortness of the summer life of the bee. The first indications that such bees are failing in summer is the torn and ragged condition of their wings. It would appear reasonable to any rational man that if one bee having perfect wings, and another having its wings torn and ragged, were at the same locality and a long distance from home, each equally loaded and having to face an opposing wind, there would be a survival of the fittest, while the other would perish.

We have no proof that the general health of the worker bee, at the age of five or six weeks in summer, is more impaired than that of the bee of the same age, in inactive life, in fall or winter; or that the former would die any younger in summer, if it could have perfect wings, than would the latter in confinement. It is true that the former is exposed to birds and storms, but it is equally true that the latter suffers equally as much from confinement and its attendant results.

Let us consider for a moment what we are doing with our bees. Some are expending thousands of dollars and years of valuable time in breeding bees that show the greatest number of and most brilliant stripes. Others are striving to produce large bodies; others trying to produce tongues long enough to work on red Clover; others trying to produce a red Clover having shallow tubes to fit the tongue of the bee; others (more practical) are working for the production of bees that manifest the greatest honey-gathering qualities. All seem to be hopeful that they will attain to those desirable ends.

Now please allow me to ask, What would we think of a man that would advertise that he was trying to raise a superior stock of yellow queens and using black queens and black drones for starters? What of another that was striving for the development of long tongues, and all the while depriving the mother queens of their tongues? What of another that was working for large bodies, and all the while using the smallest queens for breeding stock? We would pronounce them all crazy, or at least most woefully inconsistent. Are not many bee-keepers (and some who claim to be teachers), virtually acting just as inconsistent? All will agree with me that a bee may have bands (or stripes), colour, long tongue, large body, and ever so much energy, and yet with feeble wings, or no wings, all these faculties or qualities would be unavailing.

I have thus led the readers along this pathway, over which I felt assured they would willingly accompany me, until we had arrived at our present standpoint. See how hard we are trying to improve our stock, and then what next do we do? Why, we just allow our young queens five, or perhaps fifteen minutes to meet the drone, and then cut off her wing or wings, and never allow her to fly again. We thus throw her flying members into disuse, and as I have shown, continued disuse renders a member or faculty rudimentary.

Again, all will agree with me that a mother can by no possible means transmit that which she does not possess; and furthermore, that the offspring cannot inherit that faculty or quality which the parent was unable to transmit. If it be asked, How, then, can the stock be improved? I would answer, An individual, after birth, may, by proper management, have its members or faculties developed to a higher and better condition, and that improvement may be transmitted to its offspring. The improvement of the race can also be made, to a certain extent, by the crossing of the different breeds. If a faculty or member of the individual becomes weak by disuse, then that condition of weakness may be transmitted from parent to the offspring. Disease may be transmitted from parent to offspring; weakness is only another name for disease.

I would ask bee-keepers a question. In view of the above truths, which queen do you think would transmit to her offspring the greatest amount of wing power? The one that is deprived of her wings, and those members all through her life being in a dormant state, or the one that is allowed to retain her wings and compelled to fly as often as circumstances would justify?

If I were offering queens for sale as superior stock I would compel the brood mothers to fly often, even if I had to toss them up to give them a start.—W. H. STEWART (in *American Bee Journal*).

TRADE CATALOGUES RECEIVED.

V. Ingegnoli, Mailan, Italy.—*List of Seeds.*
 John Fowler & Co., Leeds.—*Illustrated Catalogue of Steam Ploughs for Continental Vineyards.*
 B. W. Warhurst, 33, Highgate Road, Kentish Town, London, N.W.—*Illustrated Lists of Boilers.*



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

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

Chrysanthemum Blooms (*A Subscriber*).—If well grown probably the variety, of which blooms were sent, would be admissible in a stand of Japanese varieties, but we do not recognise it. Could you not give us any information as to where it was obtained?

Scale on Arbutus (*J. W., Deal*).—The leaves sent are seriously infested with the scale insect, and we know of no better nor more ready means of destroying it than by syringing the shrub with the solution of petroleum made as described in answer to a correspondent on page 476 last week, bending down the branches so that the insecticide can be applied to the under sides of the leaves where the insect abounds. It will be well to choose a dull day for the work, as petroleum applied to plants in the sun not unfrequently results in injury to the foliage.

Growing Watercress (*Watercress*).—If the current of your stream is not strong you will have no difficulty in growing Watercress. All you have to do is to level the bottom and insert portions of plants about 6 inches apart, the same as if dibbling them in your garden, and they will grow and spread with rapidity. In properly made Watercress beds there is only a steady run of water which does not displace the young plants. If the rush of water is somewhat strong, you would find it advantageous to place large plants near the sides of the stream and fix them with stones. A few inches of soil or mud is only needed for holding the plants.

Flowers on a Wall (*Beggar*).—Unless the wall be old flowers will not answer upon it without pockets of brickwork or stone upon or near the top to contain soil. Even then you would not obtain a growth sufficiently dense or durable for a screen at the top of the wall. Far better will it be to plant Ivy *Rægneriana* now in rich soil at the foot of the wall and, with a little care in training and watering, it will soon cover a wall of 10 to 20 feet high. Yours is probably a low wall which may be covered with Ivy growth next year if extra strong plants are planted; and a trellis of wood or wire upon the top of the wall would, when covered with Ivy, form a permanent screen.

Plants for Rockery (*Idem*).—Do not confine your plants to those of a "creeping character," but mingle with them others of a dwarf compact or spreading growth, and the effect will be much more satisfactory. Among those which we find to answer are *Erica carnea*, *Azalea amoena*, *Kalmia nana*, *Erica Foxii*, *Phlox frondosa*, *P. Nelsoni*, *P. verna*, *P. setacea*, *Plumbago Larpentæ*, *Thymus lanuginosus*, *Silene maritima*, *Hypericum patulum*, *Lithospermum prostratum*, *Rhododendron ferrugineum*, *Andromeda floribunda*, *A. Catesbaei*, and *Gaultheria procumbens*.

Grafting Cherries (*Cambrian*).—If the trees are very large and vigorous, we doubt if it would be wise to head them closely down in the ordinary manner for grafting; a safer plan would be to shorten all the branches to where they are about 2 inches in diameter, thin out the young growths that would follow, and in these insert buds about August. If these should fail then you might engraft early in the spring on the same wood just when growth commences, but the scions should be taken off long before, and kept in a dormant yet fresh state by being placed in moist soil or cocoa-nut fibre refuse in a cool position. The success of budding and grafting such trees as yours depends greatly on the judgment and manipulative skill of the operator. It would be well, perhaps, for you to invite some competent person to inspect the trees and take his advice on the subject.

Vine Roots Corroded (*G. T.*).—We have examined carefully the roots you have sent, and find no traces of the presence of the phylloxera; but we have seldom seen Vine roots in a worse condition. The bark is quite decayed, and there is some ingredient in the soil that is affecting them injuriously. Is there an excess of iron in the loam that has been used? The Vines have done well for a time because the border was rich, and because there had not been time for the corroding agent to eat into the roots. We should lift the Vines at once, cut off some of the worst affected portions of the roots, remove as much of the decayed

matter as possible from the others, wash them well, and place them in fresh soil containing a large admixture of charred refuse, which with sand and other gritty matter placed round them would incite the emission of fibres, and these, having suitable soil, would speedily effect an improvement in the Vines. The border should not be too light and rich, and should be mulched in the summer to attract the roots near the surface, and by frequent top-dressings, with constant moisture, they could easily be kept there; then shorter-jointed wood with comparatively little pith would follow, also excellent Grapes. The wood you have sent is strong, but contains too much pith, this leading us to infer that your border has been fully too rich, and not sufficiently firm for producing well-constituted and long-lasting fruitful Vines.

Fixing Hot-water Pipes (*F.*).—As you appear to be aware that the pipes should rise gently from the boiler, it seems a little strange that you should have had them fixed quite level. We have had them quite level, and the circulation of the water has been good. They have been, however, distinctly above the level of the boiler, which is important. A steady rise of say an inch in 10 feet is what we prefer, and if you can elevate the pipes 2 inches at the end of the house, the greatest distance from the boiler, you will probably find the change advantageous. Are you sure there is not air in the pipes that impedes the movement of the water? The night temperature for a greenhouse should be about 45°, but 40° will suffice in severe weather, when the pipes have to be made hot, and there should be an increase of 5° in the day without sun. To your question regarding the plants you mention, our reply is in the affirmative.

Violas (*J. W.*).—If you examine the plants you will in all probability find a number of fresh green short-jointed shoots an inch or two long, several of which when drawn out will have white rootlets bristling from the base. These "rooted cuttings," inserted at once in light rich gritty soil, will make fine plants. If you want a mass of flowers as early in the year as possible you may divide the plants, inserting well-rooted tufts of the healthy portions, or you may cut off the long stems and top-dress the bed with decayed manure and fresh loam in equal parts. On this matter you must exercise your judgment, as it is not possible we can comprehend the exact condition of your plants. You can take cuttings without destroying the parent plants if you choose to do so, but inserted thus late they will not produce masses of flowers early, yet when the flowers are produced, they will, or ought to be, finer than on the old plants.

Maggots in Mushroom Bed (*Leeds*).—We fear the manure has not been well prepared and purified, and on this account we should have some doubt of the mycelium spreading freely. If the manure is really sweet, and the proper temperature is maintained, we do not apprehend that a few maggots would do much injury, but it would be better if there were none in the bed. If they are mixed with the manure, and this made up in a bed in which spawn is inserted, it is doubtful if you can destroy them without injuring the mycelium. If the manure is not made up, violent fermentation for a day or two might destroy the maggots.

Roses and Vines (*A Young Beginner*).—The Roses will be quite right in a cool light greenhouse, and if they are strong, well rooted, and have good attention, they will no doubt succeed. You have made no very great mistake about them, if a mistake at all. The best time, however, for repotting Roses is soon after they have flowered. You appear to have gone far back for information, though cultural notes equally good appeared only a few weeks ago. We fear you are either a very young or not a very attentive reader of the Journal, or you would not have planted your Vines at this season, since over and over again, and quite recently, spring planting has been recommended just when the Vines were starting growth. They may, however, do very well; and assuming they are young canes, you had better shorten them to half their length inside the house, and do it at once, dressing the ends with painters' knotting as a preventive of possible bleeding in spring; but there is very little danger to be apprehended on that score.

Raising Ash Trees from Seed (*E. R. B., Norfolk*).—Raising the trees from seeds appears to be a much slower process than you imagine, and they must be prepared in a very different manner from that indicated in your letter. Sowing on land infested with twitch would result in failure, especially as the seed is long in germinating the twitch would inevitably gain the ascendancy over the seedlings. In Brown's "Forester" the following instructions are given on this subject:—"The seeds of the Ash are enclosed in what is termed samaras or keys, which are generally ripe for gathering about the end of October. When gathered for the purpose of sowing, the seeds should be mixed with a quantity of dry sand or light dry earth, in which they should be kept for eighteen months, in order to rot off the outer coat; and in order the more effectually to insure this, the whole mass of seeds and sand should be turned every three months. This mass of sand and seed should not be much over 1 foot in depth, as, if more, it will be liable to heat, and in consequence the vitality of the seed would be injured. In the second March after they are gathered the seeds should be sown in rows rather thinly, and upon any moderately well-pulverised soil. They are sure to come up thickly and confine one another if not sown thin, and the covering of earth should not exceed three-quarters of an inch. In the following spring the plants will be ready for being transplanted into the nursery rows, which may be 15 inches one from another, and 4 inches plant from plant in the rows. When the plants have stood two years in the nursery rows they may be removed and transplanted into the forest ground; but if wanted of a larger size they may be left a year longer." Would it not be better to purchase the requisite number of trees of different kinds for planting? This is the usual custom, unless time is of little moment. In any case you will find it advantageous to have the land thoroughly cleaned, then if the ground is planted, a crop of Potatoes might be grown between the trees for a year or two, which would partially defray the cost of the work, and the working of the ground in planting and digging up the crops would be favourable to the growth of the trees and prevent the luxuriant growth of twitch. We have established plantations very much larger than that you contemplate in the manner alluded to, and the results were perfectly satisfactory.

Sparmannia africana (*Pen and Ink*).—This plant is a native of the Cape of Good Hope, and has been introduced nearly 100 years. We gave an illustration of the plant in this Journal, page 91, January 31st, 1878, when the following cultural directions were given:—"For the decoration of con-

servatories this is extremely useful, it being not only evergreen but perpetual-flowering. Fine bushes (and this we find much the best shape in which to grow it) can be had in 12-inch pots. The *Sparmannia* flowers but little in a young state unless extra sturdy growth is obtained. Cuttings taken from the ripened wood strike readily in the spring, and can soon be grown into large plants. Avoid crowding; pinch back and pot on till the end of June or early in July. A good head being obtained, discontinue pinching and potting, and turn out into an open and sunny spot. The temperature of a greenhouse is the most suitable during May and June. Old plants when no longer wanted to bloom are ripened by gradually withholding water, are cut back to within a few eyes of the old wood, and placed in a gentle heat till they break; they are then shaken out of the old soil and repotted, employing about the same sized pot or tub as they were formerly in. This is rather severe work, as the ball is one mass of roots, but when placed in heat they soon recover from the effects of their rough treatment. The soil used is composed principally of turfy loam with an addition of a little peat, leaf soil, sand, and broken crocks. When re-established they are gradually hardened off, and in June are placed in a sunny position outdoors. Early in September they are taken into their blooming quarters and commence flowering immediately. From that time an occasional dose of weak liquid manure is administered. They flower freely in a greenhouse temperature, 38° to 48°, but 48° to 53° is far the best, the blooms being finer and of a purer white; the foliage has also a better colour for the extra heat."

A Hardy Pitcher Plant (*E. L. B., Tooting*).—You have not been misinformed, *Sarracenia purpurea*, here represented in miniature, being quite hardy in favourable positions near London, and is grown by Mr. Ware at Tottenham. It is a native of the American swamps, where it forms a dwarf prostrate mass, producing large winged pitchers of a dark green colour, while the throat and lip are beautifully veined with crimson. The flowers are solitary, nodding, and of a deep purplish red colour; a fine associate for *Cypripedium spectabile*, *Parnassias*, *Pinguiculas*, and others of this character.



Fig. 98.—*Sarracenia purpurea*.

perhaps the best mixture you can apply to your fruit trees, Strawberries, and Roses. From 1 to 2 ozs. per square yard could not fail to be beneficial. For your flowers we have no doubt the article sold as *finus* would be exceedingly useful. During the growing season Rasp, Strawberries, and other fruit-bearing trees would be greatly benefited if further helped when swelling their crops by light dressings of nitrate of soda—an ounce to the square yard. Light soil which has no manure should only be very sparingly limed, if at all. Save every scrap of garden refuse for digging-in; mulch with cocoa refuse, and apply water plentifully when necessary, and there is no reason why you should not succeed in your object.

Names of Fruit (*R. P. Williams*).—Birmingham Stone Pippin. (*A. B.*)—1, Cox's Orange Pippin; 2, Margil; 3, Fearn's Pippin. (*P. A.*)—1, Beurre Diel; 3, Vicar of Winkfield; 4, Scarlet Nonpareil; 6, Yorkshire Greening 2 and 5, not known.

Names of Plants (*Pen and Ink*).—*Sparmannia africana*. See reply above. (*An Ardent Reader*).—1 and 2, insufficient; 3, *Cupressus Lawsonianus* var.; 4, *Juniperus chinensis*. (*W. B.*)—*Quercus lanata*. (*S. F. F.*)—*Pholidota imbricata*. (*A Constant Subscriber*).—The specimens were very imperfect, and as we have frequently stated, we cannot undertake to name plants from small shoots or leaves without flowers. 1, *Maxillaria picta*; 2, *Tillandsia* species; 3, *Linaria Cymbalaria*; 4, insufficient; 5, *Dieffenbachia marmorata*; 6, *Maranta Veitchi*.

Wild Bees and their Parasites (*A. M. B., Lincoln*).—The insect unearthed by you, and concerning which you have given interesting particulars, is undoubtedly one of the *Bombi*, from your description probably *B. terrestris*. A few of the females survive the winter snugly concealed under ground, and come forth during spring to found new colonies. It is well known to entomologists that these "big bees" are infested by parasites, which are scientifically called *Acari*, otherwise mites, allied to the familiar "tick" that frequently swarms in cage birds, poultry, &c. These bee parasites belong to the genus *Hypopus*. Their transformations are imperfectly known, but it is certain that in an earlier stage they do not live upon the bee. Some conjecture they fed in the nests of the bee, either upon the larvæ or upon the secretions of the bee, and so attach themselves to the insects when mature in order to be carried from place to place. It appears that when adult they have no mouth organs, therefore they cannot bite or suck the bees, and it is observable how dexterously they arrange themselves on the body of the bee, choosing positions out of its reach as far as possible.

COVENT GARDEN MARKET.—DECEMBER 5TH.

TRADE remains the same. No alteration of moment.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 4 0	Melons	each	0 0 to 0 0
"	per barrel	0 0 0 0	Nectarines	dozen	0 0 0 0
Apricots	box	0 0 0 0	Oranges	100	6 0 10 0
Chestnuts	bushel	10 0 0 0	Peaches	dozen	0 0 0 0
Figs	dozen	0 9 1 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts	lb.	0 0 0 0	" dessert	dozen	1 0 5 0
Cobs	per lb.	1 6 0 0	Pine Apples English	lb.	2 0 3 0
Grapes	lb.	1 0 3 0	Plums and Damsons	..	0 0 0 0
Lemon	case	15 0 21 0	Strawberries ..	lb.	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	100	1 0 0 0	Mustard and Cress	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 3
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes .. .. .	.. .. .	.. .. .
Capsicums	100	1 6 2 0	" Kidney .. .. .	.. .. .	.. .. .
Carrots	bunch	0 4 0 0	" .. .. .	.. .. .	.. .. .
Cauliflowers ..	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 0
Coleworts	doz. bunches	2 0 4 0	Scorzonera .. ..	.. .. .	.. .. .
Cucumbers	each	0 4 0 0	Seakale	basket	2 3 2 9
Endive	dozen	1 0 2 0	Shallots .. .. .	.. .. .	.. .. .
Herbs	bunch	0 2 0 0	Spinach .. .. .	.. .. .	.. .. .
Leeks	bunch	0 3 0 4	Tomatoes .. .. .	.. .. .	.. .. .
Lettuce	score	1 0 1 6	Turnips	bunch	0 0 0 0



ERADICATION OF COUCH, TWITCH, AND OTHER WEEDS.

(Continued from page 478.)

It has not been intended to recommend the use of the fork in any case where through neglect or otherwise the whole surface of the land has become a mass of couch or twitch, or both, for in such cases a long, or what is called a winter and summer fallow, is essential as a rule. Still there are other modes of cleaning the land in certain districts—for instance, paring and burning is stated to be one of the best modes of eradicating twitch, because the manure arising when the turf or foul surface of arable land has been stifle-burned is of more value than the cost of burning. This applies chiefly to the clays or strong loams, especially those situated on the limestone or chalk soils, because some particles of chalk or limestone found in the soil would be converted into lime or a valuable mineral manure of that character. It must, however, be quite understood that on sandy or almost any light soil the burning would not answer, because the act of paring would not take up the white and deep-rooted couch grass, which would afterwards require considerable tillage in fine weather to destroy it. There is yet another system on strong lands subject to couch or twitch, but more especially the latter, for it has been found that by growing and ploughing under two or three crops of white Mustard in one season, the land has been made not only clean, but also manured as well by the smothering as the poisonous and deleterious effect of the Mustard on the couch or twitch.

This brings us to the point where consideration is necessary as to the difference and habit of growth between couch and twitch; the former being white-rooted, and deeply piercing the subsoil where permitted to remain on all sandy, light, or loose soils of almost any district. The latter, however, is peculiar in growth, by running only on the surface, and at every knot or joint on the stems roots are formed, and take to the soil somewhat in the same manner as the runners of Strawberry plants, and is thus propagated. But they so differ in their habit of growth the same treatment will not eradicate both in every instance; but yet the forking-out plan, where only isolated bunches or tufts are found, each have been equally and successfully eradicated when the work has been carefully done.

After successfully accomplishing the eradication of these injurious grasses in one or two following seasons, we have yet to consider the insidious nature of their habits, for they are in some cases as it were indigenous to certain soils, for the young plants will frequently again appear on the surface, having started from seed. It must, however, be remembered also, if the home farmer has a farm thrown up by a tenant on the estate that it is usually, and especially in such times and wet seasons as we have experienced since 1874, to have been in the majority of instances left in a condition foul with couch or twitch. In such cases where bad farming has prevailed, the seed of injurious grasses have fallen and been incorporated with the soil under tillage, and these will be sure to prove serious and costly enemies. To obtain the full effect of fallowing for the purpose of eradicating either couch or twitch, the former must not be tilled or the earth moved by the common plough in the first instance unless it has gained such strong possession of the soil as to show like an ordinary pasture on the surface. It may then

be rafter or half-ploughed to lie during the winter and turned over in the spring, for it will then, as Sir J. B. Lawes says, prevent, like any other rooting crop, the loss of a large amount of fertility. It can likewise be successfully treated as regards tillage by the operation of scarifying with a strong implement like Coleman's, but only with the points in operation, for then the tillage may be considered complete by combing out the couch without breaking its roots into short pieces like the action of the same implement with shares used; now this latter point is a matter of so much importance that it should be avoided at all events.

The after tillage is of great consequence, for the object should still be carried out of not breaking the white roots of the couch, but to bring them to the surface and deal with them in an unbroken state as much as possible. After the deep scarifying with Coleman's implement we advise that, except in chain harrowing and rolling, the work should be done entirely with Howard's self-lifting drag harrow, and then if dry weather occurs and lasts long enough, the couch being loosened from the soil it may be burned. There is, however, an important consideration well worth our notice, for in the case of showery weather setting in just before the burning is done, the cultivation and future operations must not be delayed in consequence; but the couch which was ready for burning had the weather proved fine should be immediately carted away to a heap, to be either stifle-burned by a strong fire or left to decay as manure for pasture land.

The advantage of cleaning the land by carting away the couch is that the next ploughing or scarifying may proceed without hindrance, for the above observations will apply to all further tillage which may be found necessary. It is not every farm where steam cultivation can be obtained exactly when required if the power is only hired, but when it forms part of the cultivating power of the farm it will be found invaluable; for whether the deep-pointed cultivating tines are used in the autumn or spring, their action in lifting the clods and tufts of couch, however deeply buried in the soil, will be found complete, because lifted wholly and bodily to the surface for future tillage, whereas when ploughing or shallow cultivation is only applied, a large or considerable portion of the roots will be left in the soil, and they are sure to grow and make their appearance in the future, even when left below the ploughing depth.

We now come to the point of considering the operations necessary to destroy the twitch or surface grass, and as this sort of grass is usually found upon the surface of strong or heavy soils, we need scarcely speak of its destruction as requiring an ordinary naked fallow with all its attendant expenses for tillage. In the autumn period, the month of August, September, or the early part of October, if the land is deeply ploughed with an 8-inch furrow, the skim coulter being judiciously used, the grass on the surface will be turned under, so completely buried, that the land may immediately be worked down and sown with any green or catch crops like Rye and Vetches, which may be either fed off with sheep in the spring and scarified, not ploughed, worked down, and a second time seeded for either green crops or roots. After this, when the land may be ploughed for Wheat or winter Oats, the twitch roots and stems will be found dead if the work stated has been properly performed. We must now refer to those grasses or weeds which infest different soils, but are deep-rooted and very difficult to eradicate, especially upon strong land, which cracks open in dry seasons, into which the seeds of some will fall and others will propagate from the roots which may be left in the soil. It is therefore necessary that the whole of the following weeds should be forked out as the best mode of eradicating them. Broad-leaved Dock, Sheep Sorrel or Narrow-leaved Dock, Coltsfoot, Black Bent or Spear Grass, Corn Mint, tall Oat-like or Onion Grass, Hogweed, and common Nettle, with some others known only in certain localities.

WORK ON THE HOME FARM.

Horse Labour.—Wheat-sowing has now been so nearly finished in those districts where autumn sowing prevails that it will employ horse labour only at favourable intervals; but in the northern counties and Scotland much land is from necessity held over for spring seeding with Wheat in consequence of climatic influences. The horse labour, therefore in most districts in England will be now employed in ploughing the land intended for Lent corn, Potatoes, Mangold, and other root crops. The manner of lying the land during the winter months varies in different districts, and we must admit that those methods in use and approved by the experienced cultivators of the different soils and climates may be accepted generally as the best course to follow. Still it is necessary to remember that Sir J. B. Lawes in his papers relating to fertility in soils goes far to introduce alterations in the lying of land during the winter, as also the policy of cropping with early catch crops, such as stubble

Turnips and Rape, also the seeding with Rye, Trifolium, and Vetches, in order to retain not only the fertility of the land and its condition, but by the growth of the green or catch crops to obtain at all open and mild intervals of weather during the winter and early spring months the greater part of the nitrogen that enters into their composition. "We know besides," says Sir J. B. Lawes, "that these plants are only slightly influenced even when they are at all by the nitrogen of the manure that the soil may place at their disposal. This double proof is of such value that you ought to realise its full importance." Thus we see how the question of lying the land during the winter months is of far more importance than the old style of deep and naked fallows; because we are now advised not only practically but chemically that the ordinary mode of fallowing is a mistaken policy unless the land be full of couch, in which case it is our only alternative before starting on any improved system of cropping the land in the future.

Hand Labour.—Hedging, ditching, banking, and the planting of White Thorns where good and secure fences against cattle and sheep are required will now for some time be the chief work. Great attention should be paid to the water meadows, for although the trenches of both kinds needed for feeding with and draining away the flood waters, which have lately been so very beneficial owing to the deposits of soil left on the turf, yet the drowners or labourers employed in irrigating only allow the flood water to remain on the surface for a stated time, after which it is changed and diverted into other channels and divisions of the meadows with the same object. Irrigation may be continued with benefit even in the event or duration of ice or snow, because it is proved that the temperature of pasture lands as well as water meadows are highest when covered with either ice or flood water. Planting of land for woodlands with Larch Fir, Sweet Chestnut, and on the borders Scotch Fir for shelter to the woodlands, may be done during all open weather. The latest plan for either Larch or Chestnut plants is to set them close, about 2 feet apart each way when required to be thinned, and the thinnings sold for hop poles. In this way they pay well in certain districts; and even after taking large numbers for this purpose, it is often considered a good plan to leave Larch trees enough for timber, reserving the Chestnut stools for producing a future crop of underwood, which in due time will furnish a supply of valuable hop poles.

Live Stock.—Fattening cattle should now go into the stalls or boxes, the latter being by far the best accommodation for them. Stalled bullocks are never so comfortable either at feeding time or when lying down as animals which can eat and lie down without any interference with each other, and in well-littered boxes they are much more comfortable and lie warmer than tethered cattle. Where the fattening cattle have been grazing during the autumn they will as usual have left portions of grass uneaten on certain parts of their pastures. Store cattle, either steers or heifers, will do well to follow and eat down the coarsest grasses which have been left by the fattening cattle, especially if they go into littered yards and sheds at night time, eating a few roots and sweet straw. The dairy cows may be treated in the same way, except that as the nights get longer they should lie under cover, and at milking time, night and morning, should each receive in addition to Cabbage and hay some 2 lbs. of decorticated cotton cake at each feeding time. Sheep stock, especially the in-lamb ewes of any breed which are now forward and ready to lamb about Christmas, should be constantly changed from the best pastures to drier ones at night time, and we think without root-feeding, except a small bait or fold of Thousand-headed Kale with hay or sweet straw in their racks at the same time in the afternoon; but retiring for the night to the driest pastures on the farm, for the arable land makes a bad lair for ewes in lamb at this time of the year, when either heavy rains or frosty nights are expected. Dry stock, either hoggets or wethers, do not do so well nor dress the land so regularly when feeding off roots at this time of year, but should be fed with good Clover hay and cake, or bean meal mixed with cut roots in troughs.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.				IN THE DAY.				Rain		
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.		On grass.	
1883.											
Nov. and Dec.											
Sunday	25	29.104	53.9	52.2	S.W.	43.2	55.2	46.2	55.2	40.6	0.257
Monday	26	29.119	46.5	45.2	S.W.	44.6	51.2	44.4	68.4	40.3	—
Tuesday	27	29.943	38.6	37.5	W.	43.3	48.6	35.0	62.3	31.3	—
Wednesday ..	28	30.310	51.0	49.8	S.W.	43.2	55.8	35.9	65.5	35.0	—
Thursday	29	30.397	42.6	41.9	S.	44.0	51.7	39.0	55.8	36.8	—
Friday	30	30.287	46.2	45.2	W.	43.6	51.4	41.5	55.8	37.3	0.207
Saturday	1	30.252	43.8	41.7	N.	44.4	52.2	39.8	58.5	39.3	—
		29.916	46.1	44.8		43.8	52.3	40.3	60.2	37.2	0.464

REMARKS.

- 25th.—Rainy morning; fair afterwards; lightning in W. at 9 P.M.; fine sunset.
 26th.—Wet early; fine day.
 27th.—Cold, damp, misty morning; fair day.
 28th.—Fine and mild; brilliant sunrise and sunset.
 29th.—Generally overcast.
 30th.—Fine bright morning; overcast afternoon; rain in evening.

1st.—Fine clear day; beautiful sunset.
 A fair mill week, noticeable chiefly for the brilliant effects of colour at sunrise and sunset.—G. J. SYMONS.



13	TH	Royal Society at 4.30 P.M.
14	F	Quekett Club at 8 P.M.
15	S	
16	SUN	3RD SUNDAY IN ADVENT.
17	M	
18	TU	
19	W	Society of Arts at 8 P.M.

A NEW ROSE GARDEN.

PERFECTION IN EIGHT MONTHS.

NOT perfection of the exhibition table type, but the equally laudable perfection of culture, whereby one or a hundred newly planted Roses may be grown into pyramids of beauty 2 feet in diameter at the base, and tapering upwards to a height of 4 feet, clothed with large healthy foliage, and with some two dozen clusters of flowers just expanding by the end of August. This is what I want to explain now for the assistance of those who are planting Roses simply for the embellishment of their gardens, and who are therefore likely to welcome hints of culture calculated to accelerate the fulfilment of their wish for heaps of Roses.

That the Rose is and always will be one of our most popular flowers goes without saying, nor are the reasons of its popularity far to seek, for, in addition to the beauty and fragrance of most of its flowers, it gives very little trouble when once established in good soil, and continues flowering for many years—just so long, in point of fact, as it makes healthy wood growth. With the exception of an annual pruning a Rose bush may therefore be said practically to take care of itself; and this is probably the reason why in most gardens its culture resolves itself into feeding with manure to promote strong growth, which is subsequently reduced by pruning to three or four buds with little or no regard for the formation of handsome bushes. I submit that it merits better treatment at our hands, and that we should not rest contented with an unsightly bush and a few flowers, however fine they may be, when by the exercise of care and labour we may do so much better.

Rose culture has by no means reached its possible limit of excellence with us, and this is probably owing to the rage for exhibition turning attention so generally solely to the production of flowers up to the standard of prizewinners, and which are destined to be severed from the bush before they are fully expanded, the flower being all that is cared for, the bush only being valued as the necessary means for its production. "I must have a smell," said a well-known veteran exhibitor of Roses who stood gloating over a stand containing a superb specimen of *Maréchal Niel*; but the attempt to gratify this very natural wish ended in disgust, for it led to the discovery that the much-admired flower was an artificial one of wax so admirably finished as to deceive even such experienced eyes. If the disappointment induced a greater liking for uncut flowers it certainly did no harm.

THE SOIL.—Turning now to our details of culture, first of all comes the soil, which must be well drained so as to have no stagnant water near it. It must be 2 feet deep, and thoroughly enriched with stable or farmyard manure well mixed with the whole of it. Few gardens contain good soil of this depth, and in most cases the soil will have to be laid aside, the subsoil excavated to the required depth taken away and good soil supplied. Let there be no hesitation about doing this thoroughly, for upon its success or failure very much depends. See too that the soil has sufficient stones

or gritty matter to prevent it settling down into a compact hard mass as the manure becomes exhausted; for although our immediate aim is a fine late summer display of Roses, yet it is well to have an eye to the future and do all we can for the subsequent wants of our bushes. Everybody has a certain quantity of coal ashes at hand for this purpose, and I know no better medium for the thorough mechanical division of the soil.

THE PLANTS.—Dwarf Roses on the *Manetti* stock are the best which nurserymen offer for our purpose. Select vigorous plants, prune all the shoots to three buds except one, which should have five or six buds and be fastened to a stake to form a stem, the stakes to be put in at the time of planting. Plant carefully, and at once cover the soil with a mulching of half-decayed farmyard manure: pig, cow, or horse dung answer equally well for this purpose. Do not crowd the plants, but give them ample space for full development into slightly specimens. Six feet apart may be given as the best distance, and 5 feet as the next best, only to be resorted to where space is very limited; and even then it is questionable whether a few plants thoroughly well managed will not afford more real pleasure than many, with a perceptible tendency to crowding, and a lack of vigour in the growth of branch, foliage, and blossom.

FEEDING.—Thus far we have made due provision for a good start in spring, and when branch and root are growing freely we must be ready to assist them with a thorough drenching of liquid manure twice weekly. House sewage answers for this purpose very well, but my favourite manure is two ordinary garden trowels full of three-star crown manure well stirred into an old paraffin cask full of water. Failing this, recourse may be had to a plan which I once had to resort to—a hole excavated in the soil, its sides and bottom puddled so as to hold water enriched with sheep's dung collected from an adjoining pasture.

TRAINING.—The leading shoots of the stem and branches must have the tips repeatedly nipped off at the second or third bud, as appears necessary, to induce more lateral growth; the stem being taken up the stake to the required height, and the branches tied slightly downwards and apart. Lateral growth will come freely with our liberal diet, and early in August stopping the growth may cease, for the pyramids will be fully formed and the shoots may be left to produce flowers. The stronger growers will attain the size I have indicated, others will not reach more than two-thirds of that size, but all will have such a profusion of fine flowers as will well reward us for our care and patience.—EDWARD LUCKHURST.

NOTES FROM THE NORTH.

THE INFLUENCE OF STOCKS ON GRAPES—DUKE OF BUCCLEUCH AND GROS MAROC.

THE WINTER KING.—I feel constrained to ask if those whom this Grape concerns are warranted in offering it to the public, as it is inferred they intend to do, as a new Grape that will under ordinary circumstances maintain the altered character from *Gros Colman* that it has assumed on the stock which has so strikingly affected it. Having considerable experience of this Grape under different circumstances, I quite accept the evidence that has appeared regarding the change in colour, &c., that has been wrought on it by being grafted on the stock in question. At the same time it is very much to be doubted if, when propagated and grown on its own roots, it will retain its altered characteristics; indeed, my experience leads me to say that it is almost certain it will not. Is it to be offered to the public grafted on the *Raisin de Calabre* stock? Even under these conditions, will the stock be certain to maintain the change without also having a limb of the stock in active growth? We all remember the "apparition" of *Golden Champion* at *Culford*, and what became of it when raised from eyes. Although, of course, the case is in some respects different,

it is not so much so as to place it beyond the bounds of comparison.

GROS COLMAN GRAFTED ON MUSCAT OF ALEXANDRIA.—I have this year fruited three grafts of Gros Colman on strong Vines of Muscat of Alexandria. The grafts in wood and foliage, in proportion to the Muscat stocks, were as one to twenty. The bunches they produced were a bluish black more than a month before the same Grape on its own roots in the same house were much more than half coloured; and although on its own roots it coloured as well as I have ever coloured it, the bluish plum-like tinge which the few bunches on the grafts attained to so early was never put on by the fruit on its own roots, which was very much later in every respect. Numerous callers were much struck with the great change in this respect, and, until told, wondered what Grape was attached to the Muscat stocks, and I feel warranted in stating these facts as proof of another unmistakeable example of the effect of stock upon scion. At the same time I have not the faintest hope that if the wood of the said grafts were set on their own roots the Grapes would maintain the character assumed by them on the Muscat stocks; for, in the same house, and grafted on the same Muscat Vines, I have had Gros Guillaume that exhibited to a very considerable extent the same sort of change, having more compact bunches, larger and blacker berries, than on a Vine on its own roots in the same house; but when put on their own roots the fruit harked back to its original.

GROS COLMAN ON RAISIN DE CALABRE STOCK.—Early last spring in the same Muscat house I inarched a shoot of Gros Colman on Raisin de Calabre, which shoot was established on the Muscat. The union was so complete that the shoot was cut about midsummer just below its union with the Calabrian Raisin. Above the union were two bunches of Gros Colman, and below it—and entirely dependent on the Muscat stock—there was one bunch. This one bunch was jet black, and fit to use long before the two on the Calabrian stock, which never put on the bluish-black tinge of the one on the Muscat stock. I may mention that the growth of foliage on the Calabrian Vine was more than equal to that of the Gros Colman graft. Of course this graft was but for a short time solely dependent on the Calabrian stock, and was quite different from the Grapes on the Muscat stock, though for a time nursed by it. This Calabrian Vine is grafted on a stock of Trebbiano, but there is no leaf-growth of the latter. Another year's experience of these grafts will be interesting, especially as we grow Gros Colman on its own roots side by side with them.

DUKE OF BUCCLEUCH WITH ITS ROOTS IN INSIDE AND OUTSIDE BORDERS.—We have always been under the impression that the spotting of this Grape which so many complain of was caused by a damp atmosphere until this year, when, as it happened, there were four Vines with their roots entirely confined to an inside border growing alternately with rods from Vines with their roots entirely in an outside border. To our surprise every bunch on every Vine in the inside borders was more or less and some very much spotted, while not a spot was to be seen on those produced by the Vines in the outside borders. Both borders were dressed with the same sort of manure. The inside one was cautiously watered to my own order, while the outside border had the whole rain that fell on it during a very wet summer. I called the attention of numerous gardeners to these Grapes. Not one could solve the problem, but it seems to point to some cause other than atmospheric or too much water at the root.

GROS MAROC.—This Grape was fruited here this year for the first time, and it has not been liked. Your remarks, page 488, accurately describe it. It was tolerably sweet, but it lacks flesh, its skin is like parchment, and shrivelling began early. It was fruited in the Muscat house on a stock of Trebbiano. I wish so good a grower as Mr. McIndoe and others as well would try Gros Colman on a limb of Muscat of Alexandria. My impression is that this will prove to be the

road to the highest quality in this Grape.—DAVID THOMSON, Drumlanrig.

FIXING CHRYSANTHEMUM SPORTS.

PREDISPOSING TO SPORTIVENESS.

THE information on this subject given by Mr. Castle on page 484 is valuable, as it embodies the successful practice of cultivators who have "fixed" sports of considerable merit. No doubt many sports have appeared on plants from time to time, but have been lost through lack of the requisite information for securing and establishing them, therefore the reliable methods described will be welcome to many cultivators. This matter is the more important, since so few high-class incurved varieties are now raised from seed, and as sports from the leading kinds are almost certain to be good, none should be lost if loss can be averted.

The subject is, however, mainly referred to now for the purpose of noticing a suggestion on the page quoted relative to the possibility of predisposing the plants to sporting by experiments in grafting light-coloured varieties on dark-coloured forms as stocks, and *vice versa*. At the first glance there would seem to be an appearance of probability that the practice indicated would result in the object desired; but it is extremely questionable if grafting as it is ordinarily performed with the plants—that is, uniting the soft young growths, will conduce to any appreciable extent to sportiveness, and another plan might be tried with possibly better hope of success.

Grafting several varieties of Chrysanthemums on one stock has been done in numerous instances. Hundreds of grafts have been attached of different varieties in Mr. Turner's nursery at Slough, and with great success from a decorative point of view; for few of the scions failed to "take," and the plants were curiously attractive by their heads of variously coloured flowers. The system of grafting conducted on such a large scale might be supposed to induce the plants to sport, but no evidence that such was the case has been recorded. Several private growers have also adopted the practice of grafting, handsome standards with beehive-shaped heads of flowers in concentric colours having been exhibited, notably at the Walton-on-Thames shows; but we do not hear that any distinct sports have resulted.

A few years ago I had the opportunity of having a number of plants grafted with the above object in view, most of the leading varieties being intermixed in the hope that a transfusion of essences might find expression in the flowers. But there was no such result, no change whatever in any one case. Further, after reading the experiments of an American horticulturist—Mr. Meehan, I think—on the potency of split-grafting changing the character of Apples and resulting in distinct varieties, it occurred to me that similar changes might possibly follow in the case of Chrysanthemums by raising plants from split cuttings. Split-grafting means splitting two scions, say of the Ribston Pippin and Golden Pippin Apples, joining one-half of each to the other and inserting the twin scion in a stock. Split Chrysanthemum cuttings mean just the same as regards their preparation. A deep slice, quite to the pith, is taken from two cuttings of different varieties, and these are carefully joined and secured with matting, the ends being cut off close under joints of both, and at once inserted and placed in a suitable place for striking. Most of the best varieties were intermixed and joined in this way, nearly all uniting perfectly and emitting roots from both sides of the twin cuttings. In some cases the two growths were permitted to extend, one from the apex of each split cutting; in other cases one growth was removed, the twin set of roots supporting the other. The plants grew and flowered well, but not in one instance was a change effected, the entire experiment, so far as regards its object, proving a total failure.

A full consideration of the whole matter led to the conclusion, rightly or wrongly, that there was never really any chance of the plan succeeding, and that there were no transfusion of essences, for the sufficient reason that there were none containing the elements of the colouring matter to transfuse. In ligneous plants, of which the Chrysanthemum is one, it seems reasonable to suppose that the growth must approach maturity before the particular essences that produce or influence the colours of the flowers are developed; and that the succulent growths, such as the fleshy and almost leafless suckers of Chrysanthemums which are employed as cuttings contain little but water, the sap must presumably be very different in the matured wood towards the end of summer from that of pulpy cuttings in early spring and the mere soft tips of shoots at any time. It would, therefore, seem to follow that if Chrysanthemums can be induced to sport at all by the union of varieties it must be by uniting the wood in which all the constituents of the sap are developed.

I had intended experimenting in this direction, but have not had the opportunity, and as it does not appear very likely I shall have on account of my nomadic habits in the summer and early autumn,

other persons may if they choose do what I had intended. This was to inarch growths of Chrysanthemums in summer when the wood was getting firm and the sap what I may term perfected. This would not have been done by the removal of thin slices of bark an inch long, but by rather deep cuts at least six times that length, so as to bring as much as possible of the alburnum of both varieties in contact in each case, binding with moss and keeping it moist to effect an union. This could be done, and is much more likely to result in an intermixing of sap, conducing to sporting, than by operating on soft young watery shoots for the following reasons.

The wood of which the split Apple grafts above alluded to were made was necessarily matured and the full virtues of the sap secreted. Had young growths been united and attached to others under artificial conditions, it is extremely improbable that any change whatever would have been effected. From inductive reasoning I will turn to practical experience, which has perhaps some bearing on the theory propounded. Inarching the soft young growths of Vines has been done in thousands of instances. I am unable to say how many I have seen or even done, but I have never observed the slightest change in the character of the fruit by those unions, nor seen an authenticated record of such change having been effected. But if we turn to the practice of inarching matured wood the results are very different. Changes in size, form, colour, flavour, and time of ripening of the fruit have followed in numerous instances, not a few being very marked, such as a black and white bunch on the same rod; but as showing the fugitive character of the Vine, the eyes from the lateral bearing the white Grapes produced Vines that gave nothing but black ones. There is more stability in Chrysanthemum sports; and if there are any growers who are disposed to encourage their production, and it is certain there are many, the most direct way to success as suggested by failures with these plants and experience with others would, it seems to me, be by inarching the matured growths towards the end of summer.—J. WRIGHT.

A WORD TO YOUNG GARDENERS.

In your recent announcement of the "Work of the Journal" you include "Advice to Young Gardeners." This is no new item in your programme. It is now nearly twenty years since I first appealed to you for counsel, which was responded to in a manner quite unexpected by me, and the sound advice then given in a lengthy article by your much-esteemed late correspondent, Mr. R. Fish, very much stimulated my exertions at self-improvement. I must, however, confess that too much of my time when housed in a bothy was wasted in frivolous amusement. At the festive season, Christmas, with its family parties and friendly reunions, when the wrongs of the past are forgotten, and congratulations and good wishes are freely exchanged, it may not be altogether out of place to jot down a few thoughts for young gardeners a little in sympathy with the period, as the new year, with its retrospective thoughts and fresh resolves, is approaching.

A bricklayer may soon master the few technical terms in connection with his trade, as may most of the mechanical tradesmen in a longer or shorter term of years, much depending of course on the intelligence and aptness of the pupil. The gardener's education, on the other hand, may truly be said to have no completion. The field he labours in is so vast, and the subjects so numerous, that very few indeed ever attain a perfect knowledge of all the different branches of the science and practice of gardening. One man may find himself placed in a position to study a particular branch, and having a taste for it he makes it his hobby; another man, differently situated and with different taste, strikes out on another branch, and so there may be said to exist a class of specialists. To these men horticulturists are much indebted. Their experiences are being continually held up to us in the press, and so others are aided in their efforts to follow in their steps.

A good gardener must, however, be known as something more than a specialist; he must have a good "all-round" knowledge of the business. A man may be a first-class Orchid grower, and may suit his employer in this respect very well; but if the cook begins to run short of vegetables, or the butler of salads, he will soon get into hot water, much to the annoyance of all parties. Let me urge, then, on all young men, that whatever they may take up as a special subject, never ride a hobby to the exclusion of attaining a good general knowledge of their business.

I think all young men should have a good knowledge of the kitchen and fruit garden before going permanently indoors. Digging, trenching, manuring, rotation of crops, the dates of sowing to secure a constant supply of various kitchen garden crops, planting, pruning, root-pruning, nailing, grafting, budding, and a knowledge of the numerous varieties of hardy fruits are quite as essential elements in a gardener's education as anything

to be learned in the houses. Many young men, however, when once they are placed "under glass" seem to think such things beneath their notice, and scarcely ever take note of what is going on outside. This is a great mistake. There are so many things to be learned that it is impossible to learn only one thing at a time. Whether outdoors or indoors a young man who wishes to get on must never lose an opportunity of making himself acquainted with everything that is going on about the garden, and, if need be, take a note of all operations.

The next important subject is, perhaps, the flower garden. The various plants used in summer and spring bedding—carpet-bedding plants and the mixed borders, the formation and management of walks and drives, lifting and laying turf, in making lawns and their proper keeping, planting and management of shrubberies, and other matters connected with laying out a new or renovating an old place, are all subjects of importance and cannot be too soon laid hold of.

Indoors a knowledge should be had of the various sorts of Grapes, Peaches, Nectarines, Figs, and other fruits; acquaintance must be made of the occupants of the stove, the greenhouse, conservatory, and fernery; how to propagate them, how to pot in suitable soils, watering, shading, ventilating, &c., the growing of Melons and Cucumbers, the forcing of Asparagus, Seakale, Rhubarb, and Kidney Beans, are a few of the many things that have to engage the attention of the indoor gardener. And last, but not least, good practice in the stovehole and proper management of the circulation of the water in a heating apparatus,

Some knowledge of vegetable physiology is very desirable, and chemistry, as far as it relates to soils and manures, is also useful and important. As to botany, a lecturer recently impressed upon the Manchester gardeners that "the botanist and horticulturist were inseparably connected with each other, and no horticulturist, without some knowledge of botany, would proceed clearly in his work." To young men whose education, like my own, is but limited, the study of botany with its many technical terms is uphill work indeed, and only those who have a taste for it, and perseverance enough, succeed in mastering it; but few need despair of gaining such a knowledge of it as will be useful to them as cultivators.

Geometry is also a subject that every young gardener should have some knowledge of. In laying out a geometrical flower garden, in planning and planting carpet or large beds of ordinary bedding plants, where a design or figure has to be worked out, a knowledge of drawing is absolutely necessary. It is also of no less importance that a gardener be able to understand a plan of any garden structures about to be erected, that he may be able to check any mistakes in the construction or arrangement of pipes, paths, or staging before the work is executed, and so save expense to his employer and annoyance to all parties. These are a few of the subjects it is necessary that every young man should direct his attention to. To enumerate all the things a gardener is sometimes *expected* to know would fill a volume.

And now the question arises, How is a thorough knowledge of gardening in all its branches to be best obtained? I mean, how are young men to prosecute their studies to the best advantage? There are many readers of these pages who could give us valuable information on this, and I am sure it would be prized by all who have young men under them, as well as by many who are struggling at self-improvement where there are few helps and little encouragement, where there are three or four young men together with an intelligent foreman, or a head gardener who takes an interest in the improvement of his men—they help each other on; but there are thousands who have no such advantage. If a bothy census was taken, and an average struck, it is probable it would not exceed two or three young men to a bothy. Where there is only one or two they are generally both to a certain extent inexperienced; and if the gardener does not help them, it is only those who have natural intelligence and perseverance who make any progress, till they begin to come into contact with others who exercise an influence over them.

In the first place I think it necessary that they should be methodical in all they do, from the crocking of a flower pot, the washing of a plant, to the study of physiology, chemistry, or botany. While they work with their hands let them think and always be ready to give an intelligent reason for this or that if called upon to do so. A note-book and pencil should be their constant companion. The very art of writing anything down is often the means of impressing on the memory. This is especially commendable in reading any book or periodical which when read passes into other hands, and therefore cannot be referred to again. In quoting from a standard work, or from any other source, always make note of the author, and the pages, or the date of publication in periodicals. In like manner, when visiting any neighbouring gardens never fail to take a note

of anything striking and good or ingenious, stating where it was seen. And let me say in passing that gardens of the more humble order should not be thought unworthy of a visit, for in many of them there is much to be learned, as well as in those of a more pretentious character.

I have already referred to specialists. There are few minds so evenly balanced and self-controlled that it can be made to devote an equal portion of leisure hours to various subjects, and to prosecute each with an equal amount of success and pleasure. Whatever a youth may have a special fancy for, be it botany, chemistry, or drawing, let him make it a pastime; it will always be found a welcome change from anything which in his way of thinking is dry, but do not go botany mad or drawing mad to the exclusion of everything else.

In conclusion, I would pen a few words of warning. Let young gardeners keep a respectable distance from other domestics on the establishment. Especially would I say, Avoid a too close association with stablemen. This too often leads to card-playing, drinking, and betting, which gardeners should have nothing to do with. In some gentlemen's houses some temptation is held out to those visiting the hall in the shape of the inevitable horn of beer. Many get to like it through this alone; and although it may be said that gardeners are a sober class of men, yet there are black sheep in their ranks, and doubtless many a poor man has had to regret the horns of beer first handed to him by his fellow servants. I am not a blue-ribbon man, but let me advise young men to give drink shops and drinking a wide berth. In my younger days I at one time went to a dancing class, and for the time went dancing mad, and at another to a singing class, and went singing mad. These things are all very well in their way if taken in moderation; but as it is difficult to put old heads on young shoulders, so it is difficult to moderate the excitement of either dancing, singing, or drinking when once entered into.

There is one more little matter which I think I must refer to, as it is perhaps the one thing over which I have wasted more time than on all the others put together—viz., novel reading. This is one of the most baneful things that can obstruct the path of the student, who has to read much that seems very dry and unpalatable after an exciting flight of the fancy. If given way to it, unfits the mind for anything else. This is my experience, and I have wasted many a precious hour reading them. Very few of our weekly newspapers appear without their chapters of fiction, bearing testimony to the great waste of time by the thousands who read them. But this is not the worst form of novel-reading; it is when youths take to going to a friend or to a library, and coming home with a two or three-volume novel, that the greatest evil is done, as little else is thought of till it is read through. This is, therefore, a practice that is to be avoided.

Young gardeners are not over-remunerated we all know, and it is well for them to be careful for the future as for the present. Let each try to spare 6d. a week for some friendly society, and let them do so while they are young. No reader will now have to complain of not knowing where to apply to, since the claims of the United Horticultural Benefit Society have been so prominently brought forward. I have subscribed some eight years to an Odd Fellows Club, and had I joined the above Society then I would probably had nearly as much to my credit on the books as would be paid as funeral money by the Odd Fellows if I had subscribed to them for fifty years. I have even now, at a great disadvantage, offered myself for election as a member of the U. H. B. S. I think it is by far the best and fairest scheme to individual members of any society that has come under my notice, and I hope head gardeners and under gardeners will hasten to swell the number of the "United."

I hope some young men may gather some little hints from the above letter, should its contents see the light of day from 171, Fleet Street, and that they will accept the compliments of the season from—A WORKING GARDENER.

MARIPOSA LILIES.

SUCH is the euphonious name given to a small series of bulbous plants included in the genus *Calochortus*. I refer now to the genus as including those species which Lindley was pleased to designate *Cyclobothras*, for the deviation from the typical *Calochorti* is so slight that they do not merit the separation. What gems they all are! Are you acquainted with them? Now is the time to be on the look-out for them. Like many other good things these find their way to King Street, Covent Garden, and Mr. Stevens has frequently to knock down a dozen bulbs of *C. venustus* and others for 2s. 6d. or 3s. But, coming to the point, how to grow these bulbs to insure their being lasting adjuncts to the garden, I may mention that a few

years since I visited Mr. Ware's celebrated nurseries at Tottenham, and noticed some persons preparing several small beds of good soil, the old soil being removed, if my memory serves me rightly, to a depth of 18 inches, and the spaces filled with very good soil. Upon inquiry I found these beds were being prepared for the reception of *Calochorti*, and almost every time since, when associated with these charming plants, I have wondered how they succeeded. Perhaps Mr. Ware or Mr. Perry would kindly communicate this information for the benefit of other readers besides myself. My experience is adverse to such treatment, for the bulbs seem to have a tendency to force themselves to a great depth in the soil, especially if loose, and each year get weaker and ultimately disappear. I have often been surprised when searching for the bulbs to find them much lower than I expected. I have raised a number this year and replanted them, but have placed some pieces of slate of a good size directly under the bulbs to prevent their downward course. I was induced to adopt this plan from my experience with them this year under pot treatment, having flowered a large number of kinds in pots, and when the bulbs were turned out this autumn for repotting, I found they were finer than when potted last year, and promise well for next year's flowering but they were hard down upon the crocks. They were potted three and four bulbs in 6-inch pots in the following compost—good fibrous loam, leaf soil, a little good peat and coarse sand, potted firmly, and during growth well supplied with water, even to the withering of the stems, when they were ripened off under a light, and so far the result is very satisfactory. During the flowering period they were a great source of interest to many others beside myself, the beautiful form and blendings of colours in the flowers being quite as attractive as the choicest Orchids. I may say for the benefit of those who may be desirous of growing these plants, that they are now easily procurable from both British and American dealers. Happily the postal and parcel traffic between this country and the United States largely facilitates the importation of choice plants from all parts of that vast continent so rich in plant treasures; and without any prejudice against our own dealers, I recommend the readers of the Journal, if they are unable to secure bulbs at a reasonable price in this country, to apply to some of our American cousins, and there will be no difficulty in forming a good collection at a moderate price.

I give a full list of the species and varieties now under cultivation as far as my knowledge leads. Those described in full flowered with me in pots last summer, and I carefully verified the names.

Calochortus albus, Dougl.—A very lovely species, frequently called *Cyclobothra alba*, it having been figured in the "Botanical Register," t. 1661, under that name. It grows from 9 inches to 15 inches high, glaucous throughout, with lanceolate elongated leaves and large foliaceous bracts, the stem terminated by a few-flowered raceme; perianth globular, with concave pure white divisions, bearded above the gland, and copiously ciliated with long white hairs; the gland is fringed with short yellowish glandular hairs. This is one of the handsomest and most easily grown of the genus, and is very common and rather widely distributed, occurring on the basal hills of the Sierra Nevada, and on the hills from Los Angeles Co. to Sonoma. I had one pot of this last summer with thirty flowers, and it was greatly admired, and if I remember rightly the flowers were sweetly scented.

C. Benthami, Baker.—This is the name generally adopted for this species, named in honour of a world-renowned botanist, although Mr. Bentham himself named it *Cyclobothra elegans* var. *lutea*. It is a dwarf and slender-growing little species not often more than 6 inches high, with from two to six flowers; perianth bell-shaped, nearly erect, divisions about half an inch long, deep yellow, and densely covered with yellow hairs, with a deep brown claw beneath the gland. It is a charming little gem, very easily managed in pots. Pretty frequent on the Sierra Nevada from Mariposa to Butte Counties.

C. caeruleus, Watson (*Cyclobothra elegans* var., Benth; *C. caerulea*, Kellogg).—This rather rare species grows about 4 or 6 inches high, the stem branched, and carrying an umbel of from two to five flowers more or less bell-shaped in form, and with a solitary narrow leaf much longer than the stem; the divisions of the perianth are half an inch or rather more long, the inner ones deeply pitted and arching, of a lilac or light blue colour dotted and barred with a deep shade of blue, thickly covered and ciliated with slender hairs. I had only a few small bulbs of this species, but one produced two flowers, and it was very distinct from any of the others which bloomed. Native of the Sierra Nevada.

C. elegans, Pursh.—This is one of the earliest-known of all

the species, and is well figured in the "Trans. Hort. Soc.," vii., 278, t. 9, fig. B. It grows taller than the last, and has broadish rather glaucous leaves; perianth campanulate, erect, greenish white and purplish red at the base of the divisions inside; the inner divisions are not ciliated, but there is a fringe of hairs rising from the gland upwards extremely pretty in appearance. It is a very plentiful species in its native haunts, occurring in Oregon and Idaho and on the Sierra Nevada, and it thrives as well as any species in the open border, but I think is better in pots.

C. venustus, Benth.—This is an extremely handsome species. It grows from 1½ to 2 feet high with large flowers; the outer



Fig. 99.—*Calochortus venustus*.

divisions are whitish tinged with lilac, the inner one white or pale lilac, with a large reddish spot near the top and a brown spot in the centre with a zone of yellow, while the base is brownish; the gland is large and densely clothed with hairs, and more or less heavy round about it. This forms a beautiful contrast to the luteus series, and should certainly be much more abundant in our gardens, as it thrives as well as any. I remember this used to flower well near the old herbaceous ground wall at Kew, where it first engaged my attention. The woodcut (fig. 99) gives a good idea of the form of the flower.

The following names are often met with in lists, and I have bulbs which came to me as such but have not yet flowered, but I quite expect some of them are synonyms, while others may have an equal claim to specific rank to any of those described above. These are *Greenii*, *flexuosa*, *Nuttallii*, *Leichtlinii*, and *Lyalli*.

C. luteus, Dougl.—This beautiful species is free from synonyms as far as I know, and is well figured in the "Botanical Register," t. 1567. It grows from 1 to 2 feet high, with slender stems requiring support, with very narrow leaves shorter than the stems; perianth open, broadly bell-shaped; the outer divisions narrow, lanceolate, acuminate, pale yellow shaded with purple, with a brown spot at the base; the inner divisions are much broader, deep yellow lined with brownish purple, and slightly hairy about the middle, while the broad gland is densely clothed with yellow ascending hairs with others scattered round it. There is a beautiful variety of this named *oculatus* by Watson; the perianth divisions vary in colour, but the inner ones are most frequently white, with a dark brown-purple spot at the base, usually bordered with yellow, while the gland is clothed with yellowish hairs. It is very striking, and I believe scarce under cultivation. The normal form is abundant from San Diego to Mendocino Counties, and on the basal hills of the Sierra Nevada, while the variety *oculatus* and other marked forms are occasionally met with.

C. macrocarpus, Dougl.—This is rather a strong-growing species, with stoutish stems 1½ to 2 feet high, but not often bearing more than one flower, which is open, bell-shaped, and nearly or quite 3 inches across; the outer divisions white tinged with lilac, while the inner ones are purple-lilac with a greenish medial line; the gland is large and densely hairy, the hairs ascending about one-third of the way up. It is a showy species, and a good figure of it occurs in the "Botanical Register," t. 1152. It is rather plentiful on the banks of the

Little Shasta River, extending northwards to Washington Territory.

C. Maweanus, Leichtlin.—This is the *Cyclobothra elegans* of Torrey, and is figured in the "Botanical Magazine," t. 5976, under the name of *Calochortus elegans*, Pursh having previously named the true *C. elegans*. It grows from 5 to 9 inches high, branching at the top of the stem, and carrying from three to six flowers, which are bell-shaped and about 1½ inch across; the outer divisions purplish, rather smaller than the inner, which are white tinged with purple, especially at the base, the inner surface more or less thickly clothed with erect purplish hairs and the margins ciliated. It is a charming little species, rather scarce under cultivation, although according to collectors' statements it appears to be fairly plentiful in its native habitats, occurring from San Francisco northwards to Humboldt County and in Butte County, and I believe first flowered with Herr Max Leichtlin.

C. lilacinus, Kellogg.—This is not so showy as most of the other species, but is nevertheless well worth growing. It was figured under the name of *C. uniflorus* in the "Botanical Magazine," t. 5804, most likely through a weak bulb only producing a solitary flower; it also exists under the name of *C. umbellatus*. The stems grow from 4 to 9 inches high, carrying from one to several flowers more or less bell-shaped; the divisions nearly or quite an inch long, pale lilac, purplish at the base, the inner ones free from hairs on the margins, but hairy below the middle, and the gland is margined with a narrow ring of hairs. Found on hillsides about San Francisco Bay.

C. nudus, Watson.—Mr. Bentham makes this a variety of *Cyclobothra elegans*, while Mr. Baker calls it (*L. C.*, 305) *Calochortus elegans* var. *subelavatus*; but I like Watson's name, as the plant is entirely destitute of hairs, and I think is the only species. It grows from 6 to 10 inches high, producing in a simple umbel from one to six flowers, which are from 1 to 1½ inch across; the outer divisions white or slightly tinged with lilac; the inner ones pale lilac, fan-shaped. Plentiful in the Sierra Nevada, rather widely distributed. It is not so showy as most of the others, but is well worth having.

C. pallidus.—This pretty species is now known as *C. flavus*, under which name it is described by Mr. Baker. A pretty, bulbous-rooted, half-hardy perennial. It produces a tuft of grass-like channelled leaves, and from among them a flowering stem 6 inches or 8 inches high, supporting three or four blossoms, each on a slender peduncle; these peduncles



Fig. 100.—*Calochortus pallidus*.

grow in an umbellate manner from the base of two or three small leaves, which are produced at the top of the common stem. The flowers are hexapetaloid, the three outer divisions small, ovate oblong, obtuse; the three inner much larger, obovate, rounded at the apex, and attenuated at the base; they are pale yellowish buff colour, with a broad angular blotch of dark reddish brown in the centre. From Mexico; introduced to Belgium about 1844. Flowers in the latter part of summer. It

is not much grown in gardens now. Do any of your readers know it?

C. pulchellus, Dougl.—This charming species is usually known under the name of *Cyclobothra pulchella*, so named by Bentham, and so figured in the "Botanical Register," t. 1662. It grows from 9 to 18 inches high, with slender freely branching stems carrying from two to several nodding flowers, more or less globose in form; the outer divisions are yellow, rather shorter and narrower than the inner ones, which are broadly ovate in outline, deep golden yellow, copiously ciliated, and the inner surface is more or less clothed with stiff yellow hairs, while the deep sunken gland is densely covered with hairs. The flowers are sweetly scented. It is found along the coast ranges from Monterey to Mendocino County. It is a very beautiful kind, growing as freely as any under cultivation, indeed improving, as I have seen very large corymbs of flowers produced even larger than herbarium specimens, and the flowers are very lasting.

C. splendens, Dougl.—This very pretty kind grows about 12 or 18 inches high, with one or more flowers, about 2 to 2½ inches across; the outer divisions pale lilac, rather smaller than the inner ones, which are clear lilac, with a dark claw and white scattered hairs about the middle, while the gland is densely hairy. Frequent in the San Diego district.—MARIPOSA.

NOTES ON PEAS.

MUCH has been written about the many new varieties of Peas that are placed in the market every season. The prizes offered at exhibitions for them no doubt attract attention, and I certainly do not envy the raisers or vendors any profit they may derive from their enterprise; but I would like to say a few words to both raisers and buyers of these grand Peas. The former alone know the extra attention that is paid to the plants, and the enormous supplies of manure in a solid and liquid form they receive to produce the results chronicled. The successful exhibitor has found this out too, but the majority of buyers of Peas expect the same results without bestowing any extra attention in culture, and are generally disappointed. To the latter I would say. When purchasing new Peas at a high price, however good the soil may be, always open a trench as for Celery, and apply manure quite as freely, for (should the weather be hot and dry) without this the enormous fleshy pods cannot be produced.

Where a great quantity of Peas is required many of the old varieties are not excelled, as they stand cold weather better and fill much faster than the giants, without half so much expense and attention in culture. Peas nearly always suffer from drought, not having half enough water in dry weather. Many grow higher in wet weather than dry—some the reverse.

Seedsmen as a rule often do not give the full or even the average height of Peas. I do not know why this should be so. It is very disappointing, troublesome, and leads to waste, when Peas grow much taller than the height stated. The haulm gets broken and the crop is of little value. I attach the results obtained during the last dry season.

I was told by a clever Scotch gardener that Carter's Stratagem, Pride of the Market, and Telephone would not grow so far north as here. However, being successful last year with Telegraph and Telephone, I have tried the two others. They were sown between Cabbage rows, on ground neither dug nor manured, only adding a little soot and guano.

I think it no disgrace to either Pea or seedsmen that sticks are required for good Peas; but it is very disappointing to be told they are not when they are, and then not be prepared with sticks. Carter's Stratagem and Pride of the Market, sown May 5th, were gathered July 24th, height 3 feet. Dr. Maclean and John Bull, 4 feet, were a week later. The above two former, sown May 18th, were ready August 5th, height 2 feet. Telephone, sown at the same time, were nearly ready, height 5 feet. Laxton's Superlative, 6 feet, proved a heavy crop. I have grown my own seed of this for several years, and I find by using short inferior pods and late ones I have got a very much reduced pod, and apparently mixed sample, but the flavour of all is alike good.

I gave a few packets away in exchange for others, and was told they were mixed until I explained the cause.—J. E. WAITING, *Grange-over-Sands, Lancashire*.

FIRING AND VENTILATING.

HOWEVER correct Mr. G. Abbey may be on several points of the above subject, on others his remarks are somewhat hazy and ambiguous. Especially is this the case in his reference to Cucumbers, &c. (see 480). Having long had misgivings on the soundness of the usual stock-in-trade directions given in the calendars of the gardening press upon early forcing, airing, &c., I last year decided upon trying an experiment with early Melons. The house experimented upon is a span-roofed one, 30 feet long, 10 feet wide, and 10 feet from the floor to apex, stands north and south, is glazed with 21-oz. glass in squares 2 feet by 11 inches. It is ventilated on the top by a light opening the whole length of the house, and by 2-foot-deep side lights. In order to prevent the smallest amount of external air entering we had all the ventilators tightly screwed down.

On the 27th of December we sowed seeds of Scarlet Premier and Best of All. These in due time germinated, and were planted out on January 19th into a row of eleven plants on each side of the house. The weather during February being mild and open with a fair amount of sunshine, they made rapid progress, and opened their first pistillate flowers on March 3rd. These being duly fertilised the fruit soon commenced swelling, and on April 14th those first set were observed to be changing colour, and upon entering the house the following morning a strong perfume so acceptable to gardeners proved that the period of ripening was near at hand. From December 27th up to this date no ventilation was given, although many times on bright sunshiny days the thermometer indicated a temperature of from 100° to 110°, and at bedtime stood from 85° to 90°, and this, too, without a burning heat in the pipes. The first fruit was cut on the 17th perfectly ripe and finished in every way.

The crop produced was seventy-four fruits, and to speak of their quality would on my part be mere affectation; but having more than was wanted for the requirements of my employers the surplus was sent to that source where all fruit finds its true value—viz., the Covent Garden fruit salesman. The first consignment when brought under the hammer realised 12s. 6d. each. It will be interesting to know if Mr. G. Abbey or any of your numerous correspondents can show better results from the air-giving system. I have some notes upon the early forcing of Peaches and Nectarines with a minimum of air-giving. Should you think these worthy of a place in the Journal I will gladly send them.—J. MCINDOE.

[We will readily publish the notes referred to.]

GLOXINIAS FOR FLOWERING IN WINTER.

WE have at the present time a very pretty batch of these in flower; and seeing how very easy of culture they are, the wonder is that they are not more generally grown for stove-decoration at this dull season. The plants under notice were grown from seed sown last March, but instead of their being grown in the stoves or warm pits, they were hardened as early as possible after being established in small pots, and grown all the summer on a shelf near the glass on the north side of a span-roof greenhouse. As this house was kept as cool as possible, and shaded from bright sun, the Gloxinias did remarkably well, soon filling their small pots with roots. About July they were placed in their flowering pots and again placed on the same shelf. The soil used for this last potting was of a somewhat rough character, being chiefly loam and road sand well mixed together; in this the plants made a much slower growth, but as they had a good time to fill the pots with roots, they were not hurried in any way, air being freely admitted night and day, and no fire heat being used. With this treatment the leaves were much thicker than any I have seen, and, what is more, they are perfectly free from insects of any kind. In some cases the foliage entirely hides the pots the plants are grown in. Another great point in their favour is that the flowers last much longer than could possibly be the case at any other time of year, for the reason that the sun would be too strong for the well-being of Gloxinia flowers, unless heavy shading were resorted to, and that would not suit other occupants of our stoves. Again, when arranged, as in our case, in front of a group of Calanthes, Poinsettias, and Maidenhair Ferns, they make a good finish with their "finest spotted" and charming "erect" flowers. These remarks are intended for those of your readers who may not have grown Gloxinias in the way indicated and would like to try them.—GEORGE MERRITT, *The Hoolearaens, Welwyn, Herts*.

STORED-UP SAP IN VINES.

It would serve no good purpose to follow Mr. Taylor in the irrelevant issues he raises this week. I should have thought he would have offered some kind of answer to the questions I put driving at the very heart of his argument, but he does not. I must, however, point out his misquotations and the false inferences he draws from them. Contrary to his imaginings, I have Johnston's "Elements of Agricultural Chemistry," as well as many more works bearing more directly on the subject. But the work named is quite correct on sap, and in no way controverts me. If Mr. Taylor was as familiar with it as he professes to be, and wished to be accurate and fair, he would have gone further, and at page 42, eighth edition, have found and quoted the words, clearly derived from Lindley—viz., "In spring and autumn the motion [of the sap] is more rapid. In winter it is sometimes scarcely perceptible; yet the sap, except when frozen, is supposed to be rarely quite stationary in any part of the tree." From this your correspondent will see I am as well acquainted with the works he kindly recommends me to procure and read as he is. As to my quotation from Lindley, no physiologist of standing has ever contradicted or questioned it, and I challenge Mr. Taylor to lay his hand on any authority that does. Lindley is wrong in some things, like other authors, but not in that.

Nobody disputes about the hairs of the roots being "chiefly" concerned in absorption; but they are not the only agents, and we have only Mr. Taylor's word for it that the root-hairs are "non-existent" at certain periods. Besides, we have the admission of the very authorities he quotes, that the sap is always in motion in all parts of the tree. These points, however, whatever value may attach to them, are quite overruled

by the one patent fact that, root-hairs or no root-hairs, the sap in Vines is in motion weeks and months before the rods are "in action" in Mr. Taylor's sense, for a leafless Vine will suck up a basin of water by the root, and pour it out at the top of the rod in bleeding and in a short time. Until Mr. Taylor faces that question he wastes his breath by such side issues as he raises. He quotes other authorities, but none in the sense he writes—viz., that established Vines are "dependent" on stored-up sap till the lateral shoots are 7 inches long and the leaves 5 inches in diameter. Where are his supporters on that head, which is the real point of contention? The question is *Vines*, and whether or not they absorb sap from the ground from the moment they are started. I say they do, I give him everyday, familiar, and visible proofs of it. Will he tackle these first? Why does a Vine bleed, and why does it stop bleeding when deprived of its roots?

"I most positively deny having implied that Vines had completed their store of sap at the fall of the leaf," says Mr. Taylor. Very well; let us see. He has constantly implied that stored-up sap is "elaborated" sap, and in his letter this week he quotes the "Gardeners' Assistant" to prove that "these shoots are supported by sap contained in the trunk and which has been elaborated by the leaves." Where, then, was the sap elaborated that in another part of the same letter he says was stored up in his Vines "six weeks" after the leaves fell? Again, in his first article he says "the stored-up 'food' was prepared last autumn and preserved in the stems for early use." The word "food" here and "prepared" imply elaborated sap, and, therefore, that it was stored when the leaves were on the Vine, and not as he says now. In another letter he tells us that the sap pumped up when the Vines are leafless is "pure water" only. There is, therefore, no mistake about what Mr. Taylor "implies," only his theories and his facts are now completely out of joint, and this is what comes of writers who get out of their depth I always notice. But Mr. Taylor's troubles do not end here. If his Vines went on storing sap weeks after the leaves had "fallen," which would be late in the year, they must have been storing it up to, if not beyond, the time he started them, which means they had hardly ever ceased sending up sap at any time. I might pursue him further in his dilemma, but I have said enough to show the unreliable, indeed totally untrustworthy, nature of his teachings on this subject.

In answer to "J. C.," let him lift a newly started Vine eye out of the soil and note its behaviour, or that of any rootless cutting, which alone disposes of Mr. Taylor's "hair-roots" theory.

P.S.—As I am only anxious to get at the facts in this matter, may I ask any competent authority at Kew, or elsewhere, if, in the present state of our knowledge, it is a fact that the root-hairs (of Vines, for example) which supply the food and sap to the stem, are "non-existent" till after young roots are produced? Would they kindly answer that question, and also say if a Vine does depend solely on the "sap preserved in the stems" from the following autumn till the shoots are long and the leaves 5 inches broad?—NON-BELIEVER.

In common with many other readers of the Journal I have been watching the discussion between Mr. Taylor and "Non-Believer," with much interest; and though not wishing to interrupt their consideration of the subject, I am desirous of pointing out what may be considered defects in the arguments on both sides. Possibly this may clear the ground a little for a better understanding.

In the first place with regard to "Non-Believer's" quotation from Lindley's "Theory and Practice of Horticulture." In my edition (published 1840) the passages cited do not occur on the pages named—viz., 26 and 52, but the first is on page 17, and as only a portion of it was given I will complete it. "There is no period of the year when the roots become altogether inactive, except when they are actually frozen. At all other times during the winter they are perpetually attracting food from the earth and conveying it into the interior of the plant, where it at that season is stored up till it is required by the young shoots of the succeeding year. The whole tissue of the plant will therefore become distended with fluid food by the return of spring, and the degree of distension will be in proportion to the mildness and length of the previous winter. As the new shoots of spring are vigorous or feeble in proportion to the quantity of food that may be prepared for them, it follows that the longer the period of rest from growth, the more vigorous the vegetation of a plant will become when once renewed, if that period is not excessively protracted."

The second quotation, which reads as a continuation of the former, to the effect that "the tubes are nearly empty at the fall of leaf," I have searched for without success. Will "Non-Believer" state the chapter in which it occurs? as, if there is no context qualifying or explaining this observation, I have no hesitation in saying that it is quite contrary to the facts. Undoubtedly Lindley has some errors to answer for, but I can scarcely think that he would have made so strange a one as this, especially as I can find no passage either in the work quoted or in any other of his that would lead to such a conclusion.

It would seem that the real difficulties in the matter are the following. First, that Mr. Taylor has confounded root-extension with root-action, which "Non-Believer" rightly asserts are distinct; and, second, that Mr. Taylor considers sap is stored up in summer and autumn, which is utilised by the plant in its first growth the following season, while "Non-Believer" regards the growth as due, not to a reservoir of elaborated materials, but to the constant supply of crude sap rising from the roots. These were the two matters under consideration, and as it appears to me the difficulties on both sides admit of easy removal. There can be no doubt that root-extension, meaning thereby root-growth, is

quite distinct from root-action; and though in some cases they are contemporaneous, in many others root-growth follows root-action. Further, as Lindley states in "Theory and Practice," page 37, "The flow of the sap must not be confounded with the motion of the sap, which takes place in winter as well as in the summer, and is a mere repletion of the system, caused by the attraction of the roots, unaffected by the exhalation of the leaves." When growth is started in the spring the upward current is increased, sap passes into the partly formed leaves, is exposed to light and air, altered in its chemical constitution by a process of deoxidisation, and is returned to the stem, thus producing a downward current which causes growth of the tissues of stem and root.

Turning to the second part of the subject, the storing of sap, it seems that though Mr. Taylor is right in the main, he has carried his views a little too far. That the stem of a Vine, as of most other deciduous plants or trees, contains in autumn and spring an accumulation of elaborated sap—that is, sap which has been passed through the leaves and chemically changed in its nature, there can be no doubt, as the firmness acquired by ripened Vine wood is entirely due to the hardening of the cell-walls and the matters stored within them. Similar examples are found in nearly all trees, the cells of which become gradually filled with various substances until that peculiar solidity is reached which characterises the heartwood of timber. The comparatively small amount of crude sap absorbed during winter and until leaves are formed serves in the case of the Vine as a diluent of the elaborated sap, and it is possible that chemical combinations may take place to a small extent; but before it can become of real service to the plant it must pass into the leaves, which in a measure correspond to the lungs of animals. When the buds commence expanding in the spring they unquestionably obtain their full supplies from the "stored-up sap" in contiguous cells, but immediately a green surface is exposed to the air elaboration commences, and the crude sap is then speedily utilised. It is in this respect that I cannot think Mr. Taylor quite correct in assuming that the leaves are entirely dependent on the stored-up sap until they are 5 inches broad, as the smallest green foliage surface exposed to light suffices to produce the requisite change in the fluid absorbed from the Vine. At the same time they undoubtedly derive much assistance from the previously elaborated cell-contents.—CREDO.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY held December 11th, James J. Wheble, Esq., in the chair, the following candidates were elected Fellows of the Society—viz., George Chorley, Mrs. A. Harford Pearson, W. H. Michael, Miss Michael, Edward Edwards, and William Peayters Stock.

— "NOVICE" writes respecting EXHIBITING CHRYSANTHEMUMS as follows—"Will some of your readers kindly state if Chrysanthemum Snowball is admissible in the same stand as Empress of India? also if White Queen of England is synonymous with Empress of India? In this locality the variety grown under the first name has petals more flat and more obtuse than Empress, as well as having a slightly glazed or shining surface, something like White Venus."

— WE have been favoured with a report of the YORK CHRYSANTHEMUM AND FRUIT SHOW, but it did not reach us in time for insertion. The Exhibition is described as a very good one. Mr. J. Hazel, Cockcroft Hall, Morpeth, won the cup for cut blooms, and Mr. Smith the first prize for specimen plants. Fruit and vegetables appear to have been also well represented, and miscellaneous collections of plants.

— "T. W. S." writes—"The exceedingly showy SENECIO PULCHER is still flowering with us in the open borders. We have groups of them in the herbaceous borders and on rock beds, and these have yielded without intermission a constant supply of its purple-crimson flowers for months past. The recent frosts seem to have had no injurious effect on their blooming propensity, for the flowers continue to open. This is a decided acquisition as a late-flowering plant, and deserves to be more generally grown."

— WE are informed that at the first Chrysanthemum Show of the TAUNTON AND DISTRICT GARDENS ASSOCIATION (a benefit and mutual improvement society) held recently, there was a very good display in the various classes, and altogether the show, although chiefly local, was a great success and highly creditable to the Managing Committee and Mr. R. H. Poynter as Hon. Treasurer. Among the exhibits most worthy of

mention were the stands of cut blooms of *Chrysanthemums* from Mr. E. Wills, gardener to Mrs. Pearse, Southampton; the groups of plants from John Marshall, Esq.; cut flowers, 150 trusses of *Pelargoniums*, &c., from G. Fownes Luttrell, Esq.; the Apples of Sir W. Trevelyan; Pines, Grapes, and Cucumbers from W. Speke, Esq.; the beautifully luxuriant young Palms from E. E. J. Esdailes, Esq.; the *Cyclamens*, Heaths, and hardy shrubs, and collection of Potatoes from the Taunton Nurseries (Mr. Poynter's); and the prize fruits (collection) from C. L. Collard, Esq. Also the local exhibits of cut blooms and specimen plants of *Chrysanthemums* were of more than average merit, especially those of Lionel Patton, Esq., W. Marshall, Esq., F. Woodland, Esq., Mrs. Reynolds, Captain Adderley, all foreshowing, with equal good and energetic management, the establishment of an autumn show second to none in the west of England.

— A CORRESPONDENT writes—"For covering bare patches of ground under the shade of trees near frequented walks no plant excels the small North American *MITCHELLA REPENS*. It is a plant having a dense creeping habit, with small oval-shaped dark green leaves, which lie nearly flat on the ground, entirely covering it. The flowers, which are produced in August and September, rise about 2 inches, white or pinkish, and very fragrant. It is partial to peat or decayed leaves, but will also grow in ordinary soil. It is a good companion for *Sibthorpia europæa*."

— THE CULTIVATION OF *SORGHUM SACCHARATUM* and the manufacture of sugar from its stems has of late occupied a large share of attention by the Government in America, reports on which have been issued at different times. The most recent of these is an "Investigation of the Scientific and Economic Relations of the Sorghum Sugar Industry." This is in the form of a report drawn up by the Committee of the National Academy of Sciences, in which the subject of the cultivation, production, and manufacture of the sugar is treated in considerable detail. The report is one of considerable value, especially to those interested in the progress of this industry.

— MR. G. F. WILSON writes to us as follows:—"Allow me to add to your remarks on *SARRACENIA PURPUREA* (page 499), that it was uninjured when growing on our 'Wilson raft,' though the ice was 6 inches thick on the water below it. If 'E. L. B.' plants it out I advise him placing it in the full sun. In the shade of our wood at Wesley, though the plants flowered well, the pitchers were always green. I send by post with this a couple of pitchers cut to-day at the side of our Wesley pond to show the rich colour they get in the sun. Feeling one of the pitchers heavy I found it was full of ice." [The specimens referred to are very fine, and extremely rich in colour; we have never seen more satisfactory examples.]

— THE last meeting of the Royal Irish Academy was particularly interesting, as being made the occasion for presenting the Cunningham gold medal to DR. EDWARD PERCEVAL WRIGHT, Professor of Botany, T.C.D., in recognition of his attainments and industry, not alone in his immediate department, but in almost every branch of natural science, as also for his personal research and discoveries in the Mediterranean, the Seychelle Islands, &c., all of which were alluded to in eloquent terms by the President, Sir Samuel Ferguson, and endorsed in terms equally eloquent and emphatic by the Rev. Dr. Haughton, S.F.T.C.D., in proposing Dr. Wright as Dr. M'Allister's successor to the honorary secretaryship of the Academy, to which he was unanimously elected.

— MR. JOSEPH MALLENDER sends us the following record on the WEATHER OF NOVEMBER at Hodsock Priory, Worksop:—"The sunshine during the month was 59.2 hours, or 23 per cent. of possible duration. We had eight sunless days. Total rainfall 2.54 inches. Rain fell on twenty-one days. Wind principally from S.W., average velocity 11.5 miles per hour. Mean temperature of the month 42.2°; maximum on the 28th 56.3°, minimum on the 12th 23.3°; maximum in sun on the 11th 90.9°, minimum on the grass on the 12th 20.5°. The warmest day was the 25th, maximum temperature 48.7°. Coldest day was the 12th, mean temperature 34.3°. Mean temperature of air at 9 A.M. 41.7°. Mean temperature of soil 1 foot deep 42.9°. The thermometer in the shade fell below 32° on six nights, and on the grass on nineteen nights. The highest reading of the barometer was on the 1st, 30.318; lowest reading was on the 25th, 28.876. Altogether a fine mild month, closely resembling November, 1882."

— A STAMFORD correspondent who has read Mr. Robert MacKellar's remarks on the *EUCCHARIS* on page 445 with interest, would be much obliged if Mr. MacKellar would detail his mode of culture. Our corre-

spondent also desires to know the most successful method of treating *Pancreatium caribæum*.

— THE following GARDENING APPOINTMENT has been made through Mr. D. T. Fish, Hardwick House:—Mr. Philip Chinery, late of the propagating department at Kew, to be gardener to Mrs. Tyrwhitt-Drake, Shrimpling Thorne, near Bury St. Edmunds, Suffolk.

— AN interesting course of lectures on FARM INSECTS was delivered by Miss E. A. Ormerod, Honorary Consulting Entomologist of the Royal Agricultural Society, at the South Kensington Museum, daily from December 3rd to 7th. The various families of insects were taken and fully discussed, their leading characters explained, the injury they do, and the best mode of destroying them described. The lectures were illustrated by accurate coloured drawings, representing the more destructive species, greatly enlarged, and in their several stages of growth.

— AT the meeting of the SALE BOTANICAL SOCIETY held last week "Poisonous Plants and their Uses" was the subject of a lecture before the members and their friends, Mr. F. J. Broome presiding. Dr. Armstrong, the lecturer, said he intended his remarks to be not of a botanical, but of a practical nature. A poison was defined as a substance, not heat or electricity, which either destroyed some portion of the human body or so altered the functions of its important constituents as to render life impossible. It was stated that out of sixty natural orders of plants only about one-fourth were poisonous. Of these three were permanently poisonous—namely, *Ranunculaceæ* or the Buttercup tribe; *Papaveraceæ* or Poppyworts, which consist of herbs or shrubs with milky or coloured juice, the order possessing well-marked narcotic properties; and *Solanaceæ* (*Nightshades*), also of a herby or shrubby nature, mostly natives of tropical countries, and remarkable for their strong narcotic-poisonous qualities. A number of the newest introductions of poisonous plants into medicine, including Lily of the Valley, Jessamine, and Lobelia, were alluded to. Specimens of the active poisonous principles of plants, such as morphia, aconitina, and salicylic acid (lent for the occasion by Mr. Roberts, chemist, Sale) were exhibited, advice being given as to the best steps to take in cases of poisoning where immediate medical aid cannot be had.

— AT the next meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 19th instant, at 7 P.M., the following papers will be read:—"On the Explanation of Certain Weather Prognostics," by the Hon. Ralph Abercromby, F.R.Met.Soc.; "Preliminary Inquiry into the Causes of the Variations in the Reading of Black-bulb Thermometers *in vacuo*," by G. M. Whipple, B.Sc., F.R.Met.Soc., F.R.A.S.; "Report on the Phenological Observations for 1883," by the Rev. T. A. Preston, M.A., F.R.Met.Soc. The meeting will be adjourned at 8 P.M. in order that a special general meeting may be held to consider certain alterations in the bye-laws. As the draft list of officers and Council for the year 1884 will be prepared at the next Council meeting, it is requested that those Fellows who wish to suggest names for the new Council will send them in before the 19th instant.

— FROM Dr. King's annual report of the Royal Botanic Garden, Calcutta, for the year 1882-3, and Mr. J. F. Duthie's report of the Government Botanical Gardens at Saharunpur and Mussoorie for the year ending March 31, 1883, we learn something of the progress of botany at these botanical centres in India. It is satisfactory to note that at Calcutta considerable improvements have been effected during the year, not only in the general arrangements of the garden itself, but also in the scientific department. As usual at Calcutta considerable attention has been given to various economic plants, notably those which produce the valuable article indiarubber, and which have occupied so much attention of late. Dr. King says the cultivation of the Soy Bean of Japan (*Glycine soja*) has of late been pressed on the people of India, and "more in obedience to the loudness of this clamour than from a belief in its soundness" he has arranged for a supply of the Beans from Japan, which he proposes to distribute extensively for trial. Much consideration has also been given to the utilisation of the various fibrous plants. In the Lloyd Botanic Garden, Darjeeling, much damage continued to be done by the cockchafer grubs until pretty nearly every plant in the garden was killed. "The whole of the grass in the garden and all herbaceous plants rapidly succumbed to its ravages, as did many of the flowering shrubs, only the deeper-rooting shrubs and trees being spared. Even the plants in the conservatories did not altogether escape; eggs of

the insect having got in considerable numbers into the soil of the pots." In response to vigorous efforts to exterminate this plague about six millions of the grubs were collected and destroyed by the garden labourers. In Mr. Duthie's report it is satisfactory to find that economic plants, as at Calcutta, are largely cared for, and that the cultivation of medicinal plants and the preparation of drugs from them is being proceeded with. Amongst them may be mentioned Alexandrian Senna (*Cassia acutifolia*), Henbane (*Hyoscyamus niger*), and Belladonna (*Atropa belladonna*).

— THE forty-fifth ordinary meeting of the ESSEX FIELD CLUB will be held at the head-quarters, 3, St. John's Terrace, Buckhurst Hill (opposite the church), on Saturday, December 15th, 1883, at 7 o'clock P.M. The following papers will be read:—1, "Fungi and their Spores," by Arthur Lister, J.P., F.L.S. 2, "On a Specimen of a Whale, Rudolphi's Rorqual (*Balaenoptera borealis*, Lesson.) lately taken in the River Crouch, Essex," by Prof. W. H. Flower, F.R.S., F.L.S., Pres. Zool. Soc., &c. 3, "Some Additional Notes on Essex Watersheds," by Prof. Boulger, F.L.S., F.G.S., &c. 4, "Natural History Notes," by R. M. Christy. In accordance with rule 4, the Council and officers for 1884 will be nominated, preparatory to the annual meeting to be held in January. Members are requested to bring or send "Exhibits" for the meeting. The rooms will be open at six o'clock as usual. It is intended to form a Working Committee for the purpose of arranging details of field meetings, &c., during the ensuing summer. Members willing to take part in the work are requested to send in their names. The Librarian will be glad to give 1s. 6d. for clean copies of Part 4 of the "Transactions."—WILLIAM COLE, *Hon. Sec.*

— THE fortnightly meeting of the MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY was held on Thursday evening in the old Town Hall, King Street. There was a very large attendance. Mr. R. Tait, who occupied the chair, said the Society, which has only been in existence about eight weeks, has already attracted much attention. Letters had been received from gentlemen in Shrewsbury and Birmingham asking for information respecting the formation and the methods of procedure, as similar societies were about being formed in their respective localities. Mr. R. MacKellar read a paper on Vines and Vine culture. He said that all that seemed necessary to make Grape-growing profitable in England out of doors was a summer of a month's longer duration. In Bedfordshire he had noticed that the Vines grew very well, showed abundance of fruit, and brought it partially to maturity; but just as the first berries began to ripen the cold weather begins, and the early frosts put a stop to all further progress. A good result, therefore, need not be expected from Grape-growing outside, but by artificial aid the matter is much simplified. Mr. MacKellar dwelt upon the form of structure necessary, whether span-roof or lean-to, inclining in the majority of cases to the latter, and he showed how indispensable it is that it should be erected in the most sunny position. Ventilation should be amply provided, and at all times used with care and caution. The formation of the borders was then treated of, showing the need of good drainage, and gradual additions as the Vines increase in size and vigour; composition of the soil; sorts to be planted, mentioning particularly the old Black Hamburg and Muscat of Alexandria as two of the best; pruning, disbudding, setting of the fruit, thinning of the berries, and perfect ripening of the fruit, particular stress being laid upon the proper thinning of the berries and keeping the Vines clear from insects. Considerable discussion took place, Mr. Neild (Wythenshawe), Mr. Upjohn (Worsley), Mr. Ellis, Mr. C. Jones, Mr. H. Driver, Mr. Butterworth, and others adding to the information. Mr. W. Swan, the Hon. Secretary, announced that at the next meeting Mr. W. Birkenhead would read a paper on the Cultivation of Ferns.

LEAF SOIL v. FUNGUS.

SEEING on pages 292 and 436 notes on the subject of fungus on Beech leaves, I send you my experience. Close by the gardens here there is a Beech wood, and it used to be the practice to collect a large quantity of the leaves and put them in a heap to decay, and use them in potting; but I found they created much fungus. I afterwards tried them mixed with manure from the stable to make hotbeds. I then did not notice any fungus, and plants and cuttings grew fairly well in a portion of the decayed matter mixed with the soil in which they were potted. I afterwards went to a place in the wood where the leaves had drifted in some places to the depth of 18 inches. I removed the top

8 inches or a foot, and the bottom 6 inches of thoroughly decayed leaves I took for potting and mixed a fair quantity with the soil for cuttings. I may add that the leaf soil was nearly dry. The result was that I lost nearly the whole of the cuttings; it was nearly one mass of fungus. I almost decided to use no more Beech leaves, but shortly afterwards when going through the wood I found a large hole full of leaf soil where the leaves had been drifted. There were two or three cartloads. I decided to give it a trial as manure for Potatoes, the ground being a rather stiff loam. The trial gave me every satisfaction, the crop was far superior in quality and quantity to that on which I had used stable manure. I then tried the same leaf soil for potting, and it excelled all other I had previously tried. I have since cut a place about 5 feet square and 2 feet deep and always keep it full of Beech leaves. It is near where we keep the manure for the garden, and it sometimes gets nearly full of liquid manure, and the enriched leaf soil I do not hesitate to use for whatever I think needs decayed vegetable matter.—J. C.

MUTUAL IMPROVEMENT IN GARDENING.

THE subject broached by "E. B.," at page 485, is one deserving of notice from all connected with gardening, but perhaps more so from those resident in large private establishments. It is true "improvement societies" are too few and far between, but there is another way by which young gardeners would be greatly benefited—namely, as "E. B." suggests, in "home-improvement classes." I am now in charge of a garden, but was formerly foreman in a garden in Kent, where such a class was carried on under the guidance of the head gardener. There were three of us in the bothy, and every Wednesday evening, from October to May, was set apart for the class to be held. We each in turn read a paper upon a certain subject selected by the head gardener, upon which afterwards would follow a discussion and explanations, our chief giving us the value of his experience upon any question we liked to ask. He also took his turn in reading a paper, dealing with the more difficult subjects, and I am sure we all derived great pleasure and benefit from listening to them.

Most young men who aim at becoming gardeners take some interest in their work, but I feel sure they would take much more were they encouraged by the holding of such classes as I have tried to give an outline. I ought perhaps to say we were not allowed to copy from books. We were expected to write upon the subject allotted us from the study of books and our own experience. Being four of us we each had a month to prepare our paper, so that there was nothing amounting to tediousness or restraint about the matter. I felt grateful to our chief then, but I feel more so now the test has come, and the value of such classes made apparent to me.—J. C., *Down Ampney.*

THE WHITE ELEPHANT POTATO.

I AM exceedingly glad to see the account of this Potato on page 465 I beg to endorse every word Mr. Muir has written. I grew one peck of it, had from the firm who advertised it as a disease-resisting sort. It had exceptional facilities—viz., was put on fresh ground, green sod, having been dug in one spit deep six months previously, no farmyard dung or manure being applied at the time of planting, which was done on the 17th of last March. I put in the drills a coating of fine sifted ashes, on the top of that nothing but Mr. With's carbon manure, as made and supplied by him, then the sets; and when the Potatoes were well up and had been once earthed with the draw hoe, I gave a thin top-dressing of the manure on a showery day. Five other sorts of early, medium, and late Potatoes were grown under exactly the same conditions. Here this was an exceptionally fine Potato season. Four of my six varieties have entirely escaped disease when growing, and since being housed. The fifth sort, Mona's Pride, badly diseased with me last season, has been a splendid crop this season, not one-fourth diseased, and the remainder still sound and superior table Potatoes. Next to them were these White Elephants. They showed disease on the leaf on the 22nd August; it went on rapidly till I cut off the stalks. When these were dead I dug the crop the first week in October. The result was what ought to have been, according to the seedsman, a splendid crop of disease-resisting Potatoes, badly diseased; all the tubers were enormous, on an average 16 to 18 ozs. in weight each, many as large as quoted by Mr. Muir, but nearly all these went very rapidly. None of them are eatable for a connoisseur in Potatoes. All that remained sound, not half taken out of ground, are being used baked, only fit for pigs if boiled. I consider all of us are bound to give our experiences of the new varieties of Potatoes as we find them, and for the good of the nation, and give all particulars as to the growing and cultivation and soil.

I beg pardon for writing at such length about an article "not worth its salt;" one has to use an extra quantity of in eating it, and which would make "a poor man" drink more after it than might be good for him.—SAXONING, *Hereford.*

GAS STOVES.—It is to be hoped that some of your correspondents who have had these in continuous use in their conservatories will reply to "F. W. C." The makers of the stove in question publish extensively a testimonial from Messrs. J. Veitch & Sons, given some time ago, but several persons who have inquired on the premises in Chelsea have found that Ritchie's stove has been replaced by an improved make known as Clark's "Syphon" stove, because of its durability and more effectual

condensation of the sulphurous vapours given off from burning gas in the ordinary way. In no case should such a stove of either make be used in a plant house without a dish to produce moisture, the heat given off by stove, though slight and local in its effect, being too dry of itself.—EXPERIENCE.

GATHERING PEARS—BISHOP'S THUMB.

THIS is one of the most fruitful Pears grown here. It never misses a crop, and it is in no way delicate, as the trees of it are large ordinary orchard bushes. In Messrs. Richard Smith & Co.'s fruit list it is described as being "large-sized, long, slightly tapering from the crown to the stalk; skin yellowish green, dotted all over with russet, dark brown on the sunny side; flesh greenish yellow, melting, juicy, and sweet; an abundant bearer." This character suits it admirably, and October is said to be the month in which it is ripe. This is correct too, but by gathering the fruit at different times we have changed its season of ripening. In October we frequently have strong gales, which blow down and spoil many Apples and Pears. Knowing about the time these may be expected, we generally gather part of our crops to have them safe. Towards the end of September we gathered about half our crop of Bishop's Thumb Pear and stored them in the fruit room. These ripened about the end of October. At that time a good quantity remained on the trees, and they were gathered and stored the first week in November. At that time they were quite hard and not fit for dessert, but they are just softening now, and will be in good condition until Christmas or thereabouts. Had they been all gathered in October we should have had none of them left good for December; and had none of them been gathered until November, none would have ripened at their stated time, so that the two gatherings have given us a very acceptable succession of ripe fruit. As a rule, when Pears are all taken in at once they ripen at once and must almost be used at once, as Pears do not keep after being ripe like Apples, and the want of a succession is often much felt. We often hear cultivators say "We had a grand lot of such and such a variety. Many of them decayed before they could be used, and we wish we had some of them now;" and I am inclined to think that gathering and storing at intervals would cause many varieties to ripen in long and useful succession, and our Bishop's Thumb proves that it may be treated with advantage in this respect.—J. MUIR, *Margam*.

NOTES ON KEW—YOUNG MEN'S LODGINGS.

As an old Kew man I gladly welcome any information respecting these magnificent public gardens, and especially interesting were the remarks made by "Veritas" in last week's issue of the Journal, page 491. All improvements are hailed with delight by a multitude of old employes widely scattered over the globe, among whom I am happy to be included; and it strikes many as most remarkable that the authorities have been so slow in many instances to appreciate what are the requirements of their own establishment. Large sums of money have been expended upon matters of far less importance than those hinted at by "Veritas" to the ultimate purposes for which the gardens exist, or for which they should exist—viz., to extend botanical knowledge in all its details and bearings; and any exhibition of feeling should be deprecated which would make it a playground, or even monopolise it for specialists. At Kew there is ample room for a spirit of broad liberality, which, I am bound to say, has not on all occasions been shown.

Alluding again to heavy expenses in matters of less importance, brings one directly to deal with the question respecting the accommodation provided for the young men, which "Veritas" has so ably advocated. Of course the young gardeners there are employes, and unhappily much disparity is generally made between them and those in authority. If employes are dutiful there is equal obligation on both sides, and I am sure this has not been sufficiently taken into consideration. If such a building as "Veritas" mentions were erected and liberally managed for the accommodation of the young gardeners, although it would involve considerable outlay, it would bring great credit to our Government, and be an immense advantage to all. Imagine a young gardener with no means but those accruing from the service of the gardens—viz., 16s. per week, with at least 3s. per week to pay for lodging, or, if he requires a room to himself, a higher sum; how is it possible for him to keep himself in good appearance superficially and bodily, as well as keep pace with the mental pursuits which the authorities require? Many a young man in his sincere endeavour to do this has greatly impaired his health, and others have become disgusted with the system and taken but little interest in their duties. Whatever arguments may be directed against this line of thought, these are facts patent to everybody that cares to investigate. It is high time something was done to increase the happiness and facilities of accumulating knowledge for the young men, either by increasing the wages or, what would be far better, by the erection of a suitable building for their accommodation, so that the small pittance they now receive for keeping what is considered the botanical landmark of the world in a state of efficiency should not be taxed by expenses incidental upon living in lodgings, without considering the inconvenience arising from the distance many of them have to walk to and from their meals.—EX-KEWITE.

ON page 491 of the Journal, under the heading of "Notes at Kew," I was pleased to see that "Veritas" had made reference to the desirability of providing better accommodation for the young gardeners there. There is ample convenient space in this establishment for the

erection of suitable dwellings, without in any way interfering with the beauty of the gardens. That the employes should be duly considered in this respect is evident from the many inconveniences they have to contend with in lodgings. In the first place, we will take into consideration the time expended in going to and from their meals. Those gardeners who are conveniently situated, and whose work lies near to the exit for the workmen, do not feel this inconvenience so much, but with others—the majority—it means something approaching running to meals. I have had practical experience of this inconvenience, as well as of others, as it was my lot to occupy lodgings a distance of nearly twenty minutes' walk from my work, and as the time allowed for breakfast was three-quarters of an hour it left about five minutes to indulge in that meal. It is obvious that, speaking generally, the lodgings are not comfortable, and in my own case I found it necessary to make several changes during my stay at Kew, and had it not been for the pleasures and knowledge afforded to me by the gardens I could not have endured it. I think if those at the head of our national garden would only seek to remedy these keenly felt inconveniences so detrimental to the well-being of the improvers there, they would deserve the thanks and support of the whole gardening fraternity. As a national outlay the cost of the erection of a suitable building would be trifling. Gardeners from all parts of the United Kingdom, from the Continent also, are to be found at Kew, and it is nothing short of a disgrace to such an establishment that better provision is not made for them.—EXPERIENCE.

KEEPING LATE GRAPES.

THE attention of those who grow late varieties of Grapes is naturally directed at this time of the year to the means of preserving them in the best possible condition during the next six months. Perhaps a few remarks upon this subject may not be out of place at the present time. Our Grape room is at one end

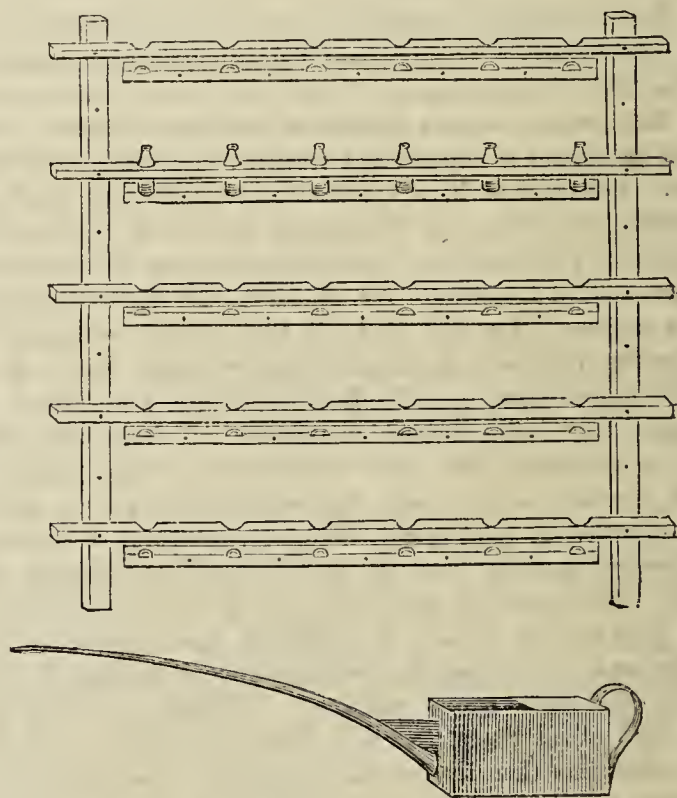


Fig. 101.—Grape rack.

of the fruit room, being a part of the same, divided by a wooden partition; the interior is lined with deal boards tongued together, a space being left between the board lining and the wall; the floor is also boarded and raised above the level of that of the fruit room. Racks for holding the bottles are fixed to the sides of the room, and are made in the following manner:—Uprights are fixed to the wall 5 feet apart, to which are nailed rails with scallops cut out on the inner side to hold the necks of the bottles, corresponding scallops being provided on a batten on the wall behind, a little below the rails, for the base of the bottles to rest in; 15 inches is allowed from rail to rail, and the bottles are 8 inches apart. Five rows round the room can thus be accommodated all within easy reach, for any attention that may be required to the Grapes, or for filling the bottles with water. The diagram (fig. 101) will help to illustrate this arrangement.

For filling up the bottles we have a long-spouted tin can, a sketch of which I enclose, which holds half a pint. The spout is 18 inches long, and, being small at the end, can easily be inserted in the neck of the bottle without disturbing the Grapes. Bottles with clear glass should be used, so that the operator can see to a nicety how much water is required, and stop instantly enough has been poured in to come within an inch of the mouth of the bottle. Ventilation is provided by means of a skylight, across which we can draw a shutter to darken the room.

Having thus briefly described our room I will venture to offer a few remarks upon the mode of cutting and bottling the Grapes. The bottles must be perfectly clean both inside and out. Having filled them with clean soft water place them in the racks. This is best done some days before the Grapes are cut. Muscats are the first to claim attention. We like to cut these as soon as the foliage is ripe, and before much of it has fallen off. If left until the Vines are bare many of the bunches will be brown on the sunny side through exposure, greatly marring their appearance, also being much against their keeping.

Ripe Muscats are easily damaged if shaken or roughly handled; therefore sever them gently from the Vines by means of a pair of secateurs, with as much wood as can be obtained. Trim off any knobs that will not easily go into the necks of the bottles and hand them to your assistants. When as many have been cut as can conveniently be carried proceed with them to the Grape room and place them in the bottles, returning for another lot. In this way two or three pairs of hands can soon clear a vinery. These details may appear trifling to some, but they all contribute towards success. With some of the bunches only very short pieces of wood can be obtained; these should be placed together in the Grape room, as they will require more frequent attention than the others to keep them supplied with water.

Some writers maintain that it is immaterial which end of the wood is inserted in the water, the Grapes keeping equally well either way, but such is not in accordance with our experience. We have several times proved, when the wood beyond the bunch was placed in the water, the stalks of the berries soon began to shrivel, the berries themselves following suit.

The later kinds, such as Lady Downe's, Gros Colman, Alicante, &c., we do not cut until after Christmas. About this time of the year we examine the Vines and shorten the wood beyond the bunches to three or four eyes, which greatly facilitates their removal when the time comes.

The temperature of the Grape room should not be allowed to fall below 40°, and very little above this figure is required at any time. At all times avoid an arid atmosphere, which will cause the berries to shrivel. Great care should be exercised in filling up the bottles not to spill any water on the bunches, or decay will inevitably follow. Once a week every bunch should be examined, and any decaying berries promptly removed. Those with the smallest speck of decay should not be left, for they will eventually have to be taken out, and are better removed at once as soon as detected.—A. BARKER, *Hindlip Gardens*.

CHOU DE BURGHLEY.

THE opinions respecting this vegetable are so various that the question arises as to whether the divergence is due to taste or to there being spurious varieties. I confess to having but a very indifferent opinion of "Cabbage Broccoli," which I considered identical with the "bastards" not infrequently in Broccoli, especially the autumn or early winter heading kinds such as Snow's Winter, which in stocks not uncommonly finding their way into commerce are more "rogue" than true, and form heads like a Cabbage, hearting well, and ultimately forming useless heads of Cauliflower. I thought if Chou de Burghley were no better than these it were poor indeed, hence it was through prejudice condemned before trial, and I certainly was not prepossessed in its favour by what others had to say in its commendation. To solve matters to my own satisfaction I procured a packet of seed, sowed part in March and part in April. The plants were in both cases put out when ready. The first sowing gave heads by October simultaneously with the Cabbage sown at the same time, and had much of the Sugarloaf Cabbage character similar to Shilling's Queen, only the heads were not so large—rather they were not so heavy and close-hearted. Some were cut and boiled, and as I am particular about having vegetables well boiled they were in capital condition, "tender as a chicken," and the quality excellent, being mild in flavour, not having the strong flavour of autumn Cabbage, nor Cabbage sprouts or Coleworts. I found Chou de Burghley tender and good; but I failed to detect the "smack" of Broccoli flavour, which is not any disadvantage in my estimation, as open-headed Broccoli are about the strongest flavoured vegetable I know. There is one thing in particular I like it much for, and that is not forming a close hard heart like a Cabbage, as it does not "split" like the Cabbage in wet weather as fully two-thirds of our autumn Cabbage have done this season, also Savoy, and there is not a single "rogue" in any of the plants from the two sowings, the plants being very even and all hearting well. Chou de Burghley is as "hard as nails," wet does not split its head, frost does not wither it, and it forms a first-class winter vegetable; indeed is a very delicious-flavoured Cabbage Broccoli, surpassing anything in delicacy of flavour of the Brassica tribe in the winter season. When cooked it is of a pale green colour, the hearts are of course white, and I can only say, Well done, Gilbert.—G. ABBEY.

acquainted with the subject. *Cinchona Ledgeriana* has been known in the colonies for many years, and it is by no means proved that the particular variety known as *C. Ledgeriana* comes true from seed. "*C. Ledgeriana* is a new species of *Cinchona* which promises very well. The bark is said to yield 10 to 13 per cent. of quinine. Hitherto the difficulty has been to obtain seeds, but an authority on these matters has now succeeded in getting them and raising seedlings for those interested in the plant."—X.

SINGLE CHRYSANTHEMUMS.

WE alluded to this "new departure" type last week; and as some of our readers suppose that the flowers referred to are varieties of *C. coronarium* or *C. frutescens*, we have engraved one to show that they are forms of the ordinary *Chrysanthemum indicum* or *chinense*. This is apparent by the foliage, which is identical with that of the popular



Fig. 102.—*Chrysanthemum Mrs. Langtry*.

favourites. These single Chrysanthemums, which we are informed were first brought into notice by Col. Teesdale of Winchester through Messrs. Cannell & Sons of Swanley, are not only likely to become popular for vase-decoration, for which purpose the ordinary double forms are fully too heavy, but they are naturally late in flowering, which renders them additionally acceptable, and the foliage is usually free from mildew. Mr. Cannell states, that although the foliage of the fading double forms in his nursery is now as white as millers, the leaves of the singles are as green as Leeks; and certainly all the examples that have been sent to us were free from the unsightly parasite. During the week we have received flowers of the type under notice from Mr. H. Lister, gardener to Lord Brooke, Easton Lodge, Dunmow, cut from plants that were raised from seed sown in the present year. One of the varieties is blush white, bearing a general resemblance to the Paris Daisy, and is named Mrs.

CINCHONA LEDGERIANA. — The paragraph noted below appeared in "Cassell's Magazine," which may prove misleading to anyone not

Webb; another a bright shining yellow like *C. segetum*, named Lady Brooke; and a third a purplish colour, the base of the florets white, forming a ring as in the tricolor varieties of *C. carinatum*, or a large particoloured *Cineraria*, and is named Lady Beresford. This is another "departure" and a pretty one, while Mr. Lister's flowers suggest that these single *Chrysanthemums* will not be the less freely grown, since, like the single Dahlias, they may be so readily and quickly raised from seed. The spray figured is of a charming blush variety taken from Mr. Cannell's bouquet, and is named Mrs. Langtry.

VINES IN A NARROW BORDER.

I SEND you along with this samples of the growths made by young Vines planted last year. We have two houses, each 200 feet long—one of them span-roofed, filled with Vines planted last year, and all equal in strength to the pieces sent; indeed, some of the rods are much thicker, the pieces sent being simply the tops of the rods. On one side of the span house the Vines have a border only 2½ feet wide by 1½ foot deep, all inside; on the other side the Vines have the chance of getting to an outside border through holes in the wall, and they have availed themselves of the opportunity to the utmost. These two houses were previously devoted to growing plants for market, and therefore are not the most convenient for Vine culture; but in spite of shallow borders—or it may be because of them, as some growers think—the Vines have produced splendid canes. The borders were composed of pure loam and a very liberal dressing of Thomson's Vine manure, which has proved in this case, as in previous ones, eminently suited for the production of grand results in Vine culture. These Vines made very strong growths last year, and at pruning time were cut down to within 1 foot of the ground. This spring they grew away splendidly, made growths 25 feet long, and have ripened the same to the very extremities. — JOHN THOMSON, *Clovenfords*.

[The growths sent are of wonderful excellence—solid, short-jointed, and with only a speck of pith. They measure 2½ inches in circumference, and 5 inches between the nodes, being even better than the good example figured on page 71, vol vi., January 25th, 1883.]

POTENTILLAS.

PERHAPS you will permit me to supplement the remarks of "Herba" upon *Potentilla fruticosa* last week, which were accompanied by such an admirable illustration of this pretty but rare species, by a few general remarks upon this and a few other species which I have grown for some time with much pleasure and considerable success, more especially as occupants of the rosery.

Potentillas have within recent years become, and deservedly so, very useful florists' flowers, and the care and attention given in the hybridising of these has been amply repaid by the fine-formed flowers we are in the habit of seeing at exhibitions, and also in gardens where they are made a speciality. Such forms as *P. atro-sanguinea*, bicolor, *Macnabiana*, insignis, &c., although too coarse and straggly for an ordinary rockery, are all that can be desired when grown in a rich border. They require comparatively little attention after planting, and show to more advantage when allowed to scramble at will. The following are very useful for the rockwork:—*P. fruticosa* (the Shrubby Cinquefoil) is one of the few shrubby species contained in the genus, and notwithstanding its being a native of this country is rarely seen in any of our gardens, although a plant that will bear neglect better than most herbaceous perennials. It is easily recognised from *P. Salesowii* from its alternate leaves consisting of five, sometimes seven, quite entire oblong leaflets covering the branches, while the leaflets of *P. Salesowii* are deeply serrated and never less than seven, quite glabrous and of a shining brown colour, *P. fruticosa* is always covered with stiff silky hairs, which lend a lively silvery appearance to it. The flowers are terminal, being borne on solitary stalks, and are bright golden yellow. It grows from 1 to 2 feet in height, often forming a dense bushy head, and seems to specially fit it for rockwork. It varies much in size and bushiness from different localities, and a fine procumbent form has been introduced from the Himalayas. There is a white variety called *P. glabra*, which is also very useful.

P. ambigua is a very handsome prostrate perennial, a native of the Himalayas, where it is found growing in the fissures of rocks. It has a compact habit, and the flowers, which are bright yellow, are borne well above the oval-shaped leaflets notched at the extremity. It closely resembles *P. tridentata* in general appearance. The leaves of the latter are quite entire, flowers white, useful for massing on projecting stones.

P. nitida is a very low-growing species found growing on the Alps, where in summer its beautiful wedge-shaped leaflets never fail to attract the traveller. It should be grown in a dry south position.—M., *Stirling*.

NATIONAL ROSE SOCIETY.

ANNUAL MEETING, DECEMBER 6TH, 1883.

THE open mild weather which had continued throughout November underwent a great change with the first few days of December, and the ground was covered with snow when the representatives of Queen Rosa journeyed from Hereford, Worcester, Manchester, Oxford, Norfolk, Ipswich, Hertford, Kent, Surrey, Bucks, Essex, and Middlesex to the

Horticultural Club, 13, Henrietta Street, Covent Garden, on Thursday last, to hold their annual meeting, and to make arrangements for the coming season. R. Bloxam, Esq., Eltham, Kent, was voted to the chair. There were also present the Hon. Secretaries, the Rev. H. H. D'Ombraïn and Edward Mawley, Esq., and Messrs. B. R. Cant, J. Cranston, C. E. Cuthell, Rev. A. Cheales, A. Turner, G. Prince, G. W. Piper, A. Slaughter, J. D. Pawle, G. Paul, T. Gravelly, T. B. Haywood (Treasurer), Rev. H. A. Berners, Rev. F. H. Gall, W. Brockbank, F. D. Pawle, C. E. Cant, J. W. Moorman, C. F. Hore, H. P. H. French, Rev. Page Roberts, Cecil Green, Rev. T. N. Flintoff, J. Gurney Fowler, and W. M. Westall.

The Hon. Secretary, Mr. Mawley, read the circular convening the meeting. The minutes of the last annual meeting were next read and confirmed, after which the Chairman appointed Messrs. C. E. Cuthell and G. Paul scrutineers for the election of Committee and officers. The Hon. Secretary, Rev. H. H. D'Ombraïn, read the following report:—

REPORT OF THE COMMITTEE FOR THE YEAR 1883.

The Committee, in presenting their annual report to the members of the National Rose Society, have once again the pleasure of congratulating them upon another successful year. Their exhibitions, which were well attended, proved larger than any hitherto held, and owing to the more favourable character of the seasons a higher average degree of excellence in the exhibits has been attained than in any previous year. The number of members has been fully maintained, and the influence of the Society continues to be generally recognised as authoritative on all matters connected with the Rose. Indeed this Society may now be considered as having thoroughly established itself in the good opinion of all Rose-growers and Rose-lovers both at home and abroad.

It will be felt to be a recognition of much international courtesy and co-operation that your Committee propose electing from time to time foreign rosarians as hon. members of the Society. To this position they have this year elected Mons. Camille Bernardin, Editor of the "Journal des Roses," and Herr Friedrich Schneider II., Secretary to the German Society of Rosarians, a Society recently established on the lines of the National Rose Society.

The catalogue of exhibition Roses being out of print, a sub-committee has been formed to prepare a revised edition and to add to it a similar list of garden Roses. This enlarged catalogue will, it is hoped, be issued to the members during the course of the coming spring. In order to guide the Judges at the Society's exhibitions in making their awards in the case of two stands being judged to be of equal merit and on other minor points, a short list of instructions was drawn up early in the year for their use. Again, a wish having been generally expressed that the Society should supply printed exhibition labels of some uniform pattern for the use of exhibitors, a sub-committee was instructed to decide upon a suitable form of label for the purpose. Labels of the selected pattern may now be obtained of Messrs. Blake & Mackenzie, School Lane, Liverpool, at a moderate cost. These labels, which have been much used, not only supply a want long felt, but have also added much to the general appearance of the stands.

At the meeting held in March last the General Committee adopted a resolution to the effect that in future this Committee should consist of only forty members, and that each year one half of their number should retire by seniority, such retiring members being eligible for re-election. The list of the Committee and officers submitted to the annual general meeting is therefore framed in accordance with this resolution. It was also decided that the Executive Committee should consist of eighteen members instead of twelve members, with power to add to their number.

AFFILIATED SOCIETIES.

Under this head it need only be stated that one or two additional societies have become affiliated, raising the number now connected with the Society to twenty-four.

ARRANGEMENTS FOR 1884.

The metropolitan exhibition will again be held in the gardens of the Royal Horticultural Society at South Kensington, the date fixed for this show being Tuesday the 1st of July. As regards the provincial exhibition, the Committee, having been cordially invited to visit Salisbury next year, have arranged for holding this show there on Wednesday, July the 9th; while a third, or northern show, will take place in the Botanical Gardens at Manchester later on in the same month.

MEMBERS' PRIVILEGES.

Members subscribing £1 will be entitled to two private view tickets, and also to four transferable tickets admitting at the same time as the general public. Those subscribing 10s. are entitled to one private view ticket, and also to two transferable tickets. All these tickets are available for either one of the Society's exhibitions. Pass tickets will, as usual, be given to exhibitors with their show cards, enabling them to leave and return to the place of exhibition at any time during the day.

The Committee have again the pleasing duty of returning their warmest thanks to their local Secretaries, who have endeavoured to advance the Society's interests and increase its resources by procuring new members. It is earnestly hoped that they will kindly continue their services, for the Committee feel that, considering the great number of Rose-growers scattered throughout the kingdom, the Society ought soon to number at least five hundred members.

FINANCIAL STATEMENT.

As the exhibitions under the present arrangements entail no risk to the Society, it is not thought necessary to accumulate any very large balance; nevertheless, the Committee are of opinion that the amount now remaining in the Treasurer's hands is smaller than it should for the future be allowed to become. In 1881 the balance in hand amounted to £97, in 1882 to £53, and in the present year to £6 8s. 9d. These rapid reductions are not in any way caused by any falling-off in the receipts, which have, on the contrary, been steadily increasing; but are almost entirely due to the much larger amount expended in prize money. The fact being that, in addition to the extra expense of a third show, the competition at the Society's exhibitions

will rise before your eyes. Adventurers who have been attracted to Borneo with the hopes that an unknown country might prove itself an El Dorado, finding themselves face to face with forests that appear impenetrable, to clear which would require considerable capital, are somewhat disappointed. Visitors who have only seen the coasts of Borneo, being appalled by the magnitude of its jungles and swamps of Mangrove, pronounced it a worthless wilderness of vegetation. North Borneo, as seen from the deck of a ship, is, in the main, one dense forest, covering flat or gently undulating ground. Between this mass of green and the ocean a strip of sand of dazzling whiteness forms a beach. Here and there a bluff of sandstone or a hummock-shaped hill crops up, while far in the interior, from many points, you see the rugged head of the precipitous Kiui Balu, a mountain some 13,000 feet in height. At the principal settlements in North Borneo—of which there are two, Kudat and Elopura—paths have been cut through the forests. By walking along these a visitor easily obtains an idea of Bornean vegetation, which, in the phraseology of the residents, is spoken of as "jungle." That easily penetrable forests, consisting of magnificent trees, averaging from 100 to 150 feet in height, capped with bush-like heads, which shut out the sun from Ferns and Palms which grow beneath them, should be called "jungles" is certainly calculated to create wrong impressions. These forests may be bought up at the rate of 1 dol. per acre. To fell and clear them costs about 12 dols. per acre. The hardness of the wood renders felling a difficult operation. After ground has been cleared it may be planted with Coffee, Tea, Sugar, Cocoa, Pepper, Tobacco, Plantains, and a variety of other tropical fruits. From the estimates which have been made of the cost of buying, clearing, and planting land it would seem that a settler possessing a capital of £2000 ought after his first year's residence to be in receipt of a handsome income.—(*The Times*.)

LYSIMACHIAS.

A SHORT time ago, at one of the meetings of the Lancashire Botanists' Association in Manchester, I noticed on the table of specimens for naming and discussing a spray of the old but now rare and little known *Lysimachia stricta*. It was contributed by our esteemed member, Mr. Jas. Percival, of Smithy Bridge near Rochdale, who grows it in his garden. The fact of seeing this unexpected member of the genus reminded me of others which I have grown, and a few notes of reference to the more important of them may prove of interest to some readers of our Journal. Several species are but little known in general collections, though possessing considerable value as garden plants, and for this reason they are well worth attention.

Lysimachia clethroides (Duby).—This Japanese species is one of the handsomest and latest introductions. The date of its introduction appears to be somewhat obscure. I recollect it nine years ago, at which time it was regarded as new to British gardens. Possibly some reader of the Journal can give a little information regarding its introduction. Stems smooth, simple, 2 to 3 feet high, terminating in a dense raceme of white flowers, which are scarcely half an inch across. Racemes 5 to 6 inches long, slightly curved or inclined at the apex. Leaves 4 to 5 inches long, alternately arranged, smooth, distinctly stalked, usually broadly lanceolate, but are very variable in outline. It commences to bloom about the end of July, and continues throughout August to September. This plant proved one of the most striking objects in the corridor here during the latter part of summer. I have just planted out a dozen strong self-sown seedlings, some of which I expect to flower next summer. Although it may be increased rapidly by division in autumn or cuttings in spring, it appears as yet uncommon in gardens. The first plant which came to my notice in the neighbourhood of Manchester was from the garden of a working-man botanist in Lancashire.

L. Ephemerum (Linn.).—Stems 2 to 3 feet high, simple, erect, terminating in a dense raceme of small white flowers. Leaves linear-lanceolate, sessile. Blooms from July to September. A native of southern Europe. It is the most common of the white-flowered species, and a most desirable plant.

L. vulgaris (Linn.).—The most common of the erect-growing species in gardens, and apparently at home in all soils and situations. This is abundantly evident from the fact that it is found in the majority of small town gardens in Manchester. For moist places in the wild garden this is an indispensable plant. It is an erect branching plant 2½ to 3 feet in height, and is more or less downy throughout. Leaves usually in whorls of three or four, furnished with black glandular dots, broadly lanceolate to nearly ovate, very shortly stalked; those of the branches usually in pairs. Flowers generally in much-branched leafy panicles, yellow, and more than half an inch in diameter; more cup-shaped than rotate. It is found occasionally in a wild state in Britain on shady banks and the borders of streams, and in similar places in continental Europe and northern Asia, and the fact of its reappearing in temperate Australia is a very marked example of the irregularity in the distribution of certain plants.

L. punctata (Linn.).—This is allied to *L. vulgaris*, but of dwarfer stature, 1 to 1½ foot in height. Leaves ovate-lanceolate, slightly stalked, opposite or whorled. Pedicels usually one-flowered, rarely branched, and confined to the axils of the stem-leaves. Flowers yellow, fringed with minute glandular hairs. Central and south-eastern Europe, and is said to exist in a wild state in Devon.

L. ciliata (Linn.).—Stem erect, unbranched, 1½ to 2 feet high and glabrous. Leaves 3 to 4 inches in length, ovate-lanceolate, cordate, with prominently ciliated petioles three-quarters to 1 inch in length. Flowers about the size of those of *vulgaris*, but flatter, more rotate, and of a paler yellow colour; slightly cernuous, disposed in pairs on long slender pedicels which spring from short stems or peduncles borne in the axils of the leaves, which are, I should have said, oppositely arranged. In the upper part of the plant this peduncle is wanting, and the slender pedicels spring directly from the axils of the leaves. A North American species, flowering in June and July.

L. verticillata (M. Bieb.).—This is one of the dwarfest of the erect-growing forms, but not the least in importance. It makes dense little bushes a foot or little more in height, and is admirably suited for a place towards the

front part of the herbaceous border. Stem simple, densely furnished with leaves. Leaves in whorls of four, the lower ones broadly ovate, the margins ciliate; petioles half an inch long, the upper ones ovate-lanceolate, with shorter petioles to almost sessile. The whole plant, especially the stems and petioles, densely pubescent. Flowers yellow, half an inch in diameter, on slender stalks three-quarters of an inch long, usually in whorls of eight, except the upper ones, which contain a less number and the leaves much reduced. Thus the terminal whorled raceme is seen to the best advantage. A native of eastern Europe.

L. capitata (Ph.).—Like the preceding this is a low-growing species, and is one of the earliest to bloom, expanding its blossoms about May and remaining gay till July. Stems simple and spotted. Leaves opposite, sessile, lanceolate-acuminate, spotted. Flowers yellow, in compact heads, suggestive of its specific title. North America.

L. stricta.—An erect, slender, and much-branched species, 1½ foot high, the main stem terminating in an erect raceme of small yellow flowers, the whole plant quite smooth. Leaves opposite, lanceolate, those of the main stem 2½ to 3 inches long. Branch leaves small, not more than half the size of the others. One of the most distinct species. A native of North America, and flowers in July and August.

L. longifolia (Ph.).—This is strikingly remote in its general characteristics from all the foregoing, and a very desirable species. The whole plant is glabrous. Stem erect, 1½ to 2 feet high, and much branched. Leaves linear, pointed, 3 to 4 inches in length. Flowers yellow, over half an inch across, in terminal and lateral umbels of four or five, springing from a more or less dense tuft of small linear and pointed leaves; corolla segments serrulate; pedicels slender, 1 to 1½ inch in length. A North American species, and flowers in July and August.

L. lanceolata (Walt.).—This uncommon and greatly interesting North American species is allied to *longifolia*, but the leaves are shorter, more lanceolate than linear, and less taper-pointed. Flowers yellow, and disposed similar to those of *longifolia*, but with shorter pedicels. Flowers from July to September.

L. davurica (Willd.).—A little-known well-marked species from Siberia. Stem simple or slightly branched, 1½ foot high. Leaves glabrous, opposite, sessile, narrowly lanceolate, glaucous beneath. Flowers yellow, more campanulate than flat, in terminal, simple, or more or less branched panicles. Produces its flowers from July to September. A most desirable species, and well adapted for growing in swampy ground or as a sub-aquatic.

L. thyrsiflora.—A native plant only occasionally met with under cultivation, undoubtedly on account of its being a plant requiring a swampy place or the margin of a pond or ditch where to grow. It is so desirable a plant as to fully deserve a place being prepared for it in the absence of a natural pond or swamp. A strange-looking species 1 to 2 feet in height with opposite, sessile, lanceolate leaves 2 to 3 inches long. Flowers in dense axillary racemes more or less pedunculate, but fall considerably short of equalling in length the leaves. Corolla segments very narrow and deeply cut, spotted as well as the calyx with orange. Stamens and styles much exerted, and the inflorescence has much a bottle-brush-like appearance. A native of Europe, northern Asia, and America.

L. nummularia.—This is the most familiar member of the genus, and very much grown under the local name of Creeping Jenny. This name is unknown to the artisans of Manchester, except by the few who have made British botany a study. Moneywort seems to be the most popular appellation in this part of the north. So well known is this plant by one or other name that description is needless. Like *L. vulgaris* it does well in smoky towns, but is less disposed to produce its blossoms freely; but the presence of its evergreen branches alone make it valuable for an urban garden. It is best known to the gardener through the variety *aurea*, the golden-yellow leaves of which make it a most valuable plant for a permanent edging. If it can get a position exposed to full sun the golden colour is richer; indeed, its full beauty is never seen when grown in places that have but little sunshine. It is employed in some places in carpet bedding, with this in its favour—that it can be grown out of doors all winter. It is especially useful for associating with other plants for suspended baskets and for growing in pots for the conservatory, its gracefully hanging branches producing a pleasing effect when judiciously arranged with the other inmates.—T. ENTWISTLE, *Wood Lawn, Didsbury*.

MURRAY'S VINE COMPOSITION.

A CORRESPONDENT in your issue of November 29th asks if anyone has used Murray's Vine composition. I have frequently used this composition for the destruction of scale and mealy bug, and one dressing has always proved sufficiently efficacious. In one house which I had under my control the Vines were so bad with mealy bug, that after I had been pruning them my hat and coat were so covered with the bug that I had the appearance of having had a sheet of cotton wool drawn over me. I dressed these Vines with the composition, and the result is they broke strongly, and have borne an excellent crop of fine fruit. A Maréchal Niel Rose, too, was covered with scale, and I dressed it with the composition, but applied the brush carefully so as not to rub off the scale, and in about two days the ground underneath the tree was covered with the insects. I will not trespass more on your space, but can strongly recommend this composition to any who may be troubled with these pests.—A. C.

[We have received other letters on this subject. This composition should be advertised.]

LATE PEAS—FREDERICK ROACH.—Noting remarks in the Journal about late Peas, I should like to say a few words about a late variety that I have grown, Frederick Roach. It was sent out by Messrs. Sutton & Sons of Reading last spring. It grew with me about 5 feet in height. Its growth is remarkably strong and branching, the foliage dark green, an immense cropper, producing peas of a delicious marrow flavour; in fact it was the best quality Pea that I grew last summer out of about twenty

varieties. I think when this grand Pea becomes more known it will be a general favourite.—A. STEVENS, *Holywell Park*.

CLASSIFICATION OF CHRYSANTHEMUMS.

MR. CASTLE'S remarks in last week's Journal respecting the classification of the Chrysanthemum will, no doubt, open up a little discussion, and many will be inclined to ask, Why is classification necessary, and what purpose will it serve? I cannot see that it will be of any benefit for exhibition purposes, as I much doubt that ever we shall get the types so distinct in character as to be able to offer prizes for the different sections, as is the case with the Carnation or Tulip. Still, it will serve one good purpose if we can come to some little understanding as to the terms to be used in describing the many fantastic forms and characters of the Japanese section. It will enable the trade growers to more fully explain and define to what type any new introduction may belong. Nothing varies more than the public taste, and I think the Chrysanthemum varies sufficient to suit all tastes—one of the reasons it obtains such a hold on the public favour. The incurved section I should certainly not attempt to sub-divide, and I should be sorry to see Barbara or Mrs. Haliburton left out, although Lady Talfourd is usually so quilly that her presence does not enhance the merits of a good stand of incurved blooms. As regards the Japanese, the plan adopted by Mr. Castle is certainly the only one that is likely at all to answer the purpose of defining the sections, and with a little addition may be made most useful and answer all purposes, although the Japanese Chrysanthemums vary so much under different cultivation that it will be sometimes eligible for one section and sometimes another. An early flower of M. Ardene, for instance, would be so quilly as to be entitled to be included in section 2, while the floret of a later flower would be as flat as a Fair Maid of Guernsey, and would be eligible for section 1. To the three sections named should be added a fourth—to include those with incurved petals, Japanese—viz., Comte de Germiny, Chang, Japonaise, Madame C. Audiguier, Grandiflorum, &c. They are certainly of a different type to the ordinary flat-petalled varieties.—C. ORCHARD, *Coombe Warren, Kingston-on-Thames*.

SIX MONTHS IN A VINERY.

MARCH 24TH.—The 18th opened with a sharp frost, the thermometer at 4 feet from the ground registering 24°, and that on the grass 16°. The sun rose brightly, and air was given to the vinery at 7.45. At 10.30 clouds being visible on the windward side, the air was reduced, and a little later it was taken off altogether. The temperature had risen to 75°, and we kept it up as well as we could by moving the fire a little. This was one of our red letter days, for the well-known sweet perfume told that a flower had opened. A little hunting revealed its whereabouts, and before night there were two or three more open.

The next day (19th) brought a still severer frost, the minimum thermometer registering 20°, and the one on the grass 5° lower. The morning was foggy, and no air was required till ten o'clock, when a little blue sky became visible, and soon after the sun shone brightly. We closed at one o'clock with a temperature of 85°, and the heat kept up fairly well till dark. We decided on raising the minimum temperature from 60° to 65°, and lowering the maximum sun heat from 95° to 90°. The day temperature aimed at without sun is about 70°. Written directions are given to this effect, but circumstances followed which rendered it difficult to act up to the letter of this, as will be shown further on.

The 20th brought a change. The thermometer had only descended to 31° during the night, but the ground was covered with 2 inches of snow. This was followed by rain with a south-west wind, and we fondly hoped that winter had departed.

But the 21st was worse than ever. There was no frost, the lowest point reached was 33°, but the wind had returned to the east, and there was no sunshine. With rather hard firing we could not at any time of the day get our temperature up nearer than 5° of the regulation point. It was a difficult matter, too, to keep the atmosphere of the house sufficiently moist. Water was sprinkled about five or six times during the day over the boards and the hot-water pipes and the walls were freely syringed, making almost a vapour bath for the leaves and flowers, for above all things we must prevent any drooping of the organs of which the flowers are composed. I remember being threatened with a very long holiday some years ago for spilling a little water in a house when the Vines were in flower, as that was supposed to be fatal to fertilisation, but men's knowledge and ideas have changed since then.

The 22nd was a bitterly cold day outside. The wind was in the east and it blew half a hurricane, but the sun shone for a few minutes at a time. By 2 P.M. our temperature had risen to 70°, and we managed to keep it up to that figure for two or three hours. The damping and steaming were repeated.

On the 23rd we had a return of frost, our thermometer registered 24° and 21°. The wind was still in the east and it blew hard. Our vinery was down to 55° at 6 A.M., but the sun rose brightly, and by

keeping the house closed and firing rather hard it reached 86° at noon and 88° at 2 P.M. At five o'clock it had only fallen to 80°; at 7 P.M. it was 70°; and at nine it just reached the regulation point of 65°. Altogether, considering it has been freezing hard all day in the shade, and a strong east wind has been blowing, we are very well satisfied with our day's work. The damping and steaming were again repeated.

To-day (24th) opened with the sharpest frost we have had this year; we registered 16° and 11° respectively. Happily the wind was still, and although outdoor vegetation must have suffered considerably our houses were not so badly off as they had been on many other occasions. It was a little hazy at first, but the sun quickly gained the mastery, and we gave air at 8 A.M. This was the first time since the 19th. The roof being pretty well covered with foliage now, the sun has not so much power on the house as it had a few days ago, so that less ventilation suffices. We now opened only three lights about 2 inches, and they were closed again at 2 P.M. with a temperature of 87°, and it kept as high as 80° till five o'clock.

The wind shifted to the west once to-day and seemed to promise better things, but it has not remained there. We damped down heavily in the morning and again at 2 P.M. The dose will be repeated again before 9 P.M. We do not damp down while the ventilators are open unless it is for the purpose of cooling the air; it is of no use as far as keeping the atmosphere of the house humid is concerned when there is 50° or 60° difference between internal and external temperature, for the moisture is quickly gone through the openings, and we might as well try to make humid the air of the whole country.—WM. TAYLOR.

A MODEL FORCING HOUSE.

MR. BARDNEY'S description of this structure on page 490 is interesting, but there is to me something tantalising in the want of information on one critical point—as to how the small intermediate rafters or roof-bars are supported at the eaves, where the eaves plate would ordinarily be. Otherwise the building is not extraordinary; and though it is said that it reflects "the greatest credit upon both the builder and its owner," I think the designer ought to have the first share, and the gardener who consents to such an innovation the second share, after which the fortunate owner who pays for it may take what is left. The builder, unless he be the designer, is nowhere in the matter, as he merely builds "to order," and presumably is fairly remunerated for his work. I shall take a note of this house as being an approach to what I suggested some time back—namely, a description of the best kind of house for a particular purpose by a competent authority. Though, as I have said, it is not an extraordinary building, being but a modification of the so-called curvilinear roofs with straight lines, it is an innovation by its abolishing the gardener's dearly beloved pet side lights, with their heavy framing, which for years I have vainly tried to induce the fraternity to do without. At the same time the necessity or advisability of such a height as 4 feet for brick wall, with at least 4 inches more of woodwork up to the glass line, is not at all evident, as the beds are usually only 2 feet 6 inches high.

The weak point of this house will prove to be the junction of the roof and sloping side glass. The rafters 5 feet apart are said to be "not heavy," and are secured by angle irons, but the three lighter ones between can only be joined together at the bottom in a very slight manner, and the pressure of wind and driving rain or the weight of a heavy fall of snow will try this part considerably in a year or two. If there was a slight connecting plate or rail to receive the foot of the roof and the tops of the front bars it would be an improvement, and the 2 inches of light it would intercept would not be worth consideration.

I wonder some of your able contributors have not yet discovered that the equivalent of what is gained by endeavouring to secure one object is often lost in another direction equally important. For instance, to obtain light you often lose heat by the adoption of wide panes of glass and the use of slight timbers, which the pressure of wind causes to bend, and so there is admitted double the amount of cold air at each lap that would be possible if the glass was narrower and the roof more rigid. I cannot say that such is, or will be, the case in this roof (or in the "vinery of the future," page 494), as there are said to be only two laps down the roof, but the lower one must admit more air than three ordinary laps would, though possibly not more than would be admitted all round the side lights. The obstruction of light caused by two or three light bars of wood in every 10 feet is imaginary, as the white paint on them reflects as much as the density of the wood obstructs, while a 12-inch pane will be 50 per cent. more rigid than one 15 inches wide, and will not admit anything like half the amount of cold driving wind at its laps.

The formation of a gutter in the wall plate is a mistake, as the best wood the world produces will crack there in a few summer's suns, and other disadvantages will show themselves in such a length in stormy weather.—B. W. WARHURST.

STORING GLADIOLI.—In the last issue of the Journal "D., Deal," says, on this subject, when referring in some reasonable observations to florists flowers—"I should like to ask 'W. J. M.' who recently detailed his

method of storing, and referred to me. Does he mean he absolutely never loses a corm? or, that he never loses one after they are taken up?" The former assertion would be absurd, though to the best of my judgment this year I did not lose one in twenty; while many of the corms increased twofold, and a few threefold. I have so often in your columns detailed my method of culture and storing I need not repeat it now; but you must allow me a line to express the indebtedness of all your readers and lovers of florists' flowers, to "D., Deal," for his always instructive notes in your columns.—W. J. MURPHY, *Clonmel*.

PRIMULA OBCONICA.

I sowed a packet of seed of this Primrose in April, and grew on the plants during the summer, giving the plants their blooming pots (6-inch), late in August. The plant is very similar in habit and foliage, but is less indented, altogether more rounded, than *P. cortusoides*, and is of dwarf compact habit. It commenced to flower early in October, and it is now (December) throwing up many umbels from the crowns, which it appears to form very rapidly, and by Christmas promise to be a mass of flowers. The umbels or trusses of bloom are large, the flowers individually about an inch across and quite flat, which are of a pale lilac colour, very pretty—charming indeed when associated with the bright-coloured varieties of *Primula sinensis*. It appears to be a continuous flowerer, and the flowers are very persistent. Good loam with a little leaf soil or decayed manure and a sprinkling of sand seems to suit it. Making a good pot plant and flowering in the autumn and winter when raised from seed sown in spring it will become as great a favourite as the beautiful *Primula cortusoides*, if not more so, from its earlier and continuous flowering. The treatment given to *Primula sinensis* vars. suits it—namely, an ordinary greenhouse position near to the glass after summer, with slight shade in the hot season. It is from China, and was collected and distributed by the Messrs. Veitch.—G. A.

AMONG the many plants lately introduced by the Messrs. Veitch *Primula obconica* is by no means least. It was lately figured in the "Botanical Magazine" as *P. poculiformis* from its curious cup-shaped calyx. The flowers are borne well above the leaves, and although larger, much resemble both in colour and general appearance the variety of *P. involucrata* called *Munroi*. The leaves are caudate, slightly undulated at the margins, of a dark green colour, and produced plentifully. This promises to be a very useful greenhouse plant, and no doubt when better known will take the place of those of less horticultural value. It requires to be kept moderately moist during the growing season, and with a little judicious management may be had in flower all the year round.—M. S.

ROYAL HORTICULTURAL SOCIETY.

DECEMBER 11TH.

THE last meeting of the year was fairly attended by members of the Committees, and the exhibits were sufficiently numerous to fill one table the whole length of the conservatory. A number of new plants were certificated, *Primulas* and *Cyclamens* being shown in excellent condition.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Mr. John Henderson, Haffield Gardens, Ledbury, sent a seedling Pear raised from *Beurré Diel* and *Beurré Rance*. It is a fruit with coarse and gritty flesh, thin sweet juice, and fine rosewater perfume. It was said to be rather past its best, and the Committee did not think it of great merit. Messrs. Cranston of Hereford sent specimens of *Mère de Ménage* (called *Davies' Red*), *Golden Spire*, *Parker's Pearmain*, *Ashmead's Kernel*, *Improved Plum Apple*, *Horne's Nonesuch*, *Butter Apple*, *Spring Pippin*, *Tyler's Kernel*. Rev. S. M. Laken sent a seedling Apple which had been kept too long for the Committee to form a favourable opinion of it. Rev. W. Murton, Sutton Vicarage, Wansford, sent an Apple of small size, somewhat resembling *Court of Wick*, but very inferior to that variety. Mr. Jas. E. Nelson, Stanwell, Staines, sent a seedling Apple called *Nugget*, raised from *Downton Pippin* fertilised by *Emperor Alexander*. It is a handsome, deep yellow, conical Apple, with a good, though not a rich flavour. Mr. R. Bland of Fordham, near Soham, sent a seedling which did not possess any merit. Mr. S. Facer of Northampton sent an Apple called *Perkins' A1*, raised by Messrs. J. Perkins & Son, The Drapery, Northampton. It is a handsome Apple, beautifully coloured, with tender flesh and pleasantly subacid. Mr. Perkins was asked to send it to the January meeting. Mr. John Parr, Ledbury, sent a Pear sold under the name of *Knight's Monarch*, but which was *Downton*. Mr. David Thomson of The Gardens, Drumlanrig Castle, sent four very large and handsome *Smooth Cayenne* Pines, their aggregate weight being 31 lbs. 2 ozs. They were grown from plants in 11-inch pots, the base of the fruit being about 10 to 12 inches from the rim of the pot. A silver Banksian medal was awarded. Mr. P. H. Cousens, Bower Street, Maidstone, sent specimens of *Blackberry Pippin*, an Apple popularly so called on the Hampshire coast, and which stands the sea breeze without the young shoots being killed back. A large collection of varieties of *Celery* were shown from the Society's Gardens at Chiswick. Several varieties were shown, but it was generally considered that they were very similar, the red and white being the only strongly marked sections. Mr. W. C. Leach, gardener to E. P. Monckton, Esq., Fineshade Abbey, exhibited a large collection of vegetables, comprising Onions, Turnips, Brussels Sprouts, and Beet. They were tastefully arranged with moss.

FLORAL COMMITTEE.—G. F. Wilson, Esq., in the chair. A bronze Banksian medal was awarded to Messrs. H. Cannell & Sons, Swanley, for four stands of magnificent *Zonal Pelargonium* blooms, single and double. A fine collection of *Primulas* was also staged with single *Chrysanthemum* blooms, and the pure white double *Neapolitan Violet Comte Brazzi*. Of the single *Zonals* the finest were Mr. Brunning, scarlet; Mr. Lord, crimson; Kate

Greenaway, pink; Snowball, white; Rose, salmon-scarlet; Kate Farmer, salmon; New Guinea, orange; and F. Kauffer, violet-crimson. Of the doubles the best were F. Raspail, scarlet; E. Bandonin, pink; Gen. Campenon, maroon; F. Charbonnier, orange; and La Quintinie, white. In the single *Chrysanthemums* the most noticeable were *Yellow Gem*, neat and bright yellow; *Brunette*, deep reddish brown; *Henry Irving*, pale rose; *Willie Beckwith*, rose with a white base; *Miss Cannell*, white; and *Mrs. Langtry*, blush white. Col. Clarke, Welton Place, Daventry, sent flowers and stems of a *Tropæolum* for comparison with *T. Lobbianum*, the former being stronger and deeper in colour. A cultural commendation was awarded to Mr. J. C. Tallack, Prideaux Place, Cornwall, for a number of fine flowers of *Helleborus niger altifolius*, some of which were nearly 5 inches in diameter.

Mr. B. S. Williams, Upper Holloway, sent three plants of *Adiantum cuneatum compactum*, a very dwarf form with small dark green fronds about 4 or 5 inches high. Messrs. J. Veitch & Sons, Chelsea, showed several new plants, some of which were certificated. *Begonia Autumn Rose*, a hybrid between *B. insignis* and *B. socotrana* with small but numerous rich pink flowers, was very pretty. A bronze Banksian medal was also awarded for a group of about a hundred handsome *Cyclamens*, bearing large, pure white, parti-coloured, purple, or crimson flowers. The substance of the blooms and general condition of the plants indicated the most careful culture. A bronze Banksian medal was awarded to Mr. Wiggins, gardener to W. Clay, Esq., Elm Villa, Grove Road, Kingston, for a large and handsome collection of *Primulas* and *Cyclamens* extremely well grown and profusely flowered. A cultural commendation was awarded to G. F. Wilson, Esq., Weybridge, for a plant of *Odontoglossum Alexandræ* with fifty flowers on one spike with several long branches. A spike of *Eryngium pandanifolium* was also shown 7 or 8 feet high, for which a vote of thanks was awarded. Votes of thanks were awarded to the following:—Mr. C. Turner, Slough, for a stand of the neat white *Princess Teck Chrysanthemum* and a stand of good and distinct Japanese varieties, comprising fine blooms of *Fanny Bouchardat*, *Madame C. Audiguier*, *Mons. Lemoine*, *Ethel*, *Etoile Toulousaine*, *Cry Kang*, and *Baronne de Prailly*. Mr. G. Springthorpe, gardener to G. H. Palmer, Esq., Tuddington House, Egham, sent a bloom of a sport from *Chrysanthemum Parasol*, pure bright yellow, but similar in petal and bloom to the parent variety. To Mr. A. G. Bridgeman, gardener to T. S. Cocks, Esq., Thames Bank, Marlow, for six grand clusters of *Luculia gratissima* flowers. To Mr. J. King, Rousham, for single *Zonal Pelargonium Rousham Model*, the flowers are very large, round, and symmetrical, deep scarlet; one of the finest varieties of the type. Votes of thanks were also accorded to Mr. Green, The Gardens, Pendell Court, Bletchingley, for flowering branches of the bright orange *Bignonia venusta* and *Aralia papyrifera*. A collection of well-grown *Primulas*, Ferns, *Justicia speciosa*, *Poinsettias*, and a good plant of *Cypripedium Maulei* with fourteen flowers were sent from the Society's Garden at Chiswick.

SPECIAL PRIZES.—Messrs. J. Carter & Co., High Holborn, offered six prizes for the best collection of twelve dishes of vegetables, the first prize being £5, the second £3, and third £1 10s. Only three collections were entered, and after some consideration the premier position was adjudged to Mr. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher; Mr. Phillips, gardener to Dr. Baker, The Deodars, Meopham, Kent, being placed second; and Mr. Marriott, The Gardens, Skirbeck Park, Boston, was third. Much difference of opinion existed regarding the justness of the two first-named awards, but the general verdict was that Mr. Phillips' collection was several points ahead of that awarded chief honours. In Mr. Beckett's collection the majority of the examples were too large and coarse (*Carrots*, *Parsnips*, and *Beet* especially so), while one dish of *Onions* was far from satisfactory. In all these Mr. Phillips' productions were decidedly superior, *Cauliflowers*, *Celery*, and *Sprouts* being about equal, while the *Kentish collections* had an excellent dish of *Leeks* and fairly good *Turnips*. The varieties shown in the first-prize lot were *Carentan Leeks*, *Maltese Parsnips*, *Magnum Bonum Potatoes*, *Golden Globe*, *Silver Ball*, and *Golden Queen Onions*, Veitch's *Autumn Giant Cauliflower*, *Leicester Red Celery*, *Aigburth Brussels Sprouts*, *Snowball Turnip*, *Long Red Surrey Carrots*, and *Carter's Perfection Parsnips*.

First-class certificates were awarded for the following:—

Cypripedium Schroderianum (Ballantine).—A magnificent Orchid, the flowers very large and richly coloured. The lip is full, over an inch in diameter, deep rose, white inside, spotted with rose; the petals of a similar colour, 4 inches long, about half an inch across at the base, with a few short hairs, and tapering. The sepals are broad, light in colour, with a few rosy and pale green veins. It is a cross between *C. caudatum* and *C. Sedeni*.

Cypripedium cardinale (Veitch).—A hybrid between *C. Sedeni* and *C. Schlimii album*. A charming form, with a globular lip, deep rich rose, light in the throat. Petals an inch broad, about 1½ inch long, blush white, with a few rosy hairs at the base. Sepals white, with a few faint greenish veins. Very strong in habit, with bright green leaves.

Cypripedium calurum (Veitch).—A hybrid between *C. longifolium* and *C. Sedeni*. A strong form, with three spikes of rosy purple-tinted flowers, the sepals and petals greenish, but veined with rose.

Cyathea microphylla (Veitch).—A graceful Tree Fern, with fronds 4 feet in length and 2 feet broad. The ultimate divisions of the frond fine and closely set.

Ilex laurifolia aurea marginata (A. Waterer, Woking).—A variety with neat oval leaves, having few spines, deep green edged with gold.

Pelargonium Erl King (King, Rowsham).—A double *Zonal*, with a compact neat truss of a salmon-scarlet hue. Habit of plant dwarf and sturdy.

Primula Swanley Purple (Cannell).—A free compact-growing variety, with rich crimson-purple well-formed blooms. Very handsome and useful.

Primula Queen of the Whites (Cannell).—One of the Fern-leaved type, with pure white large blooms, having a deep orange centre.

Primula sinensis Julian Lee (C. Lee & Son, Isleworth).—An interesting bright crimson variety; flowers of great size and substance, but not very even, and with a deep yellow eye. Dwarf and free.

Carnation Mrs. Keen (Veitch).—A grand variety of the tree section; blooms full, and 3 inches in diameter, of the deepest maroon tint, almost black. Very distinct and beautiful.

SCIENTIFIC COMMITTEE.—G. F. Wilson, Esq., in the chair.

Sclerotoids in Potato Leaves.—A communication from Mr. A. S. Wilson was read, in which he raised the question whether the oxalate of lime, of which Mr. Murray found them to consist, were not mixed with a protoplasmic plasmodium from the mycelium. Mr. Murray negated the idea, as, after treating them with dilute nitric acid for half an hour, no trace of any such substance remained.

Protecting Tubers by High-moulding.—A communication was read from Mr. Plowright (and which will be printed) upon experiments carried on this season, in which he again maintains the efficacy of high-moulding over low-moulding or not at all. Mr. Murray observed that there would be required fuller details of the experiments before the conclusion could be arrived at which Mr. Plowright made. He admitted that spores could impregnate the Potatoes through the eyes, but not the skin; but that the main if not sole cause of disease in the tubers was by the mycelium descending the stem.

Cephalotaxus Fortunei (?).—Dr. Masters reported on this plant, exhibited by Sir J. D. Hooker at the last meeting, and after a careful examination of the fruit and leaves he is inclined to think it an undescribed form of the female of some species.

Picea pungens.—Several young Firs were sent by Mr. Waterer and described by Dr. Masters—viz., *Picea pungens* (called by gardeners Parryana glauca), and the green and glaucous varieties of *Picea Engelmanni*.

Cunninghamia lanceolata proliferous.—Dr. Masters showed specimens with the branch protruding through the cone. He had examined it and found the so-called "carpellary scale," which carries the naked ovules in this instance, to be a cellular outgrowth from the bract, and not a separate foliar organ.

Cordiceps purpurea.—Mr. G. Murray exhibited specimens of ergot which he had cultivated, and which had borne the so-called claviceps or cordiceps, the ascigerous condition of the fungus.

Caraguata sanguinea.—A bright red and green-leaved Bromeliad, found by M. André in the Cordilleras of New Grenada, and which received the gold medal by M. Bruant.

Hypertrophied Root of Plum.—The Secretary exhibited a large tuberous root with a rugged corky bark from a Winesour Plum. It was found 10 or 12 inches below the surface. The tree had grown vigorously, but bore only a scanty crop of fruit. It came from the garden of Mr. Nelson, Hanger Hill, Ealing.

Books, &c., Presented to the Lindley Library.—"A Bushel of Corn," by A. S. Wilson. "Answapl von Ausser Tropischen Pflangen, &c.," translated by Dr. Goege (Baron V. Mueller). "Agricultural, Botanical, and Chemical Results of Experiments on Pasture Land," by Sir J. B. Lawes, &c. (from the author). "Field and Garden Crops of North-west India," part I. (from Dr. Duthie). *Books purchased*: "Flore Forestière de la Cochinchine," par L. Pierre, vol. i., 4to, 50 pl. "Nouvelles Remarques sur la Nomenclature Botanique," par A. de Candolle. "Illustrations of British Fungi," by M. C. Cooke. "Farm Insects, &c." (Curtis), new edition. "British Moss Flora," by Dr. Braithwaite. "Iconographie des Azalées," Van Gert, vol. i.

LECTURE.—The Rev. George Henslow, in drawing attention to some of the plants exhibited, first noticed a fine specimen of *Fatsia* (*Aralia*) *papyrifera* exhibited by Mr. Green. The leaves are described as being 1 foot across, but this under cultivation had become 3 feet. It is the plant the pith of which forms the well-known rice-paper of Japan and China, first discovered to be from this plant by Sir William Hooker in 1852, who described it in the "Journal of Botany" (vol. iv., page 347). Mr. Green also exhibited a fine spray of *Bignonia venusta*, figured first in the "Botanical Register," 1817, and received from Brazil. He next drew attention to a plant called *Caraguata sanguinea*, discovered by M. André in the Cordilleras of New Grenada. It is a Bromeliad with red and green foliage. It appears to be the custom to use it as a decorative plant with Tree Ferns in its native home when any spot is signalled for some remarkable event. A curious *Eryngium pandanifolium* sent by Mr. G. F. Wilson showed how one plant may, in its foliage or otherwise, imitate others. The British species common on the seashore is called Sea Holly, from its prickly leaves, and has heads of flowers resembling a Composite. As other cases of mimicry, the lecturer alluded to the genera *Euphorbia* and *Poinsettia*, the coloured involucre or leaves of which mimicked or were a substitute for coloured flowers where-with to attract insects to fertilise the small inconspicuous flowers in their centres.

He next drew attention to a fine cut specimen, brought by Mr. Green, of *Dahlia imperialis* from Mexico, a species which attains 12 to 20 feet in height or more. He remarked upon the present taste of "reverting" to single Dahlias in preference to the common double form, a reversion which Mr. Cannell had attempted in his display of fine single Chrysanthemums; but the many beautiful double forms of this genus are scarcely yet likely to be ousted by their revived progenitors.

As instances of skill of cross-fertilisers there were several of the genus *Cypripedium* and its allied form *Selenipedium*, recognisable generally by the long tails to the petals. There was a difference in the ovary in that it is one-celled and not three-celled, as in all other Orchids. Hence the first result from *C. Schlimii* (a true species?) and *longifolium* (also a true species?) was *C. Sedeni*. This crossed with *C. longifolium* gave rise to *C. calurum*, while *C. Schroderianum* was the result of crossing *C. caudatum* and *C. Sedeni*. Gardeners do not distinguish between the two original species, *Cypripedium* and *Selenipedium*, calling them both by the former name.

SOUTH SHIELDS CHRYSANTHEMUM SHOW.

DECEMBER 5TH AND 6TH.

THE above Society held their second Exhibition in the Free Library Hall, South Shields. This is the only Society in England north of York, and it promises to be a great success, as the past Exhibition had nearly twice as many entries as the previous one, and the quality of the exhibits was much improved in every class. The exhibition is under distinguished patronage. The Committee are good business gentlemen, and much of the success is due to Councillors Smith, Thornton, Thomas Binks, John Wright, Adam Hope, and R. Chapman for the energy they have shown in raising the subscriptions. This year the Society increased their prize list, which they intend to do gradually each year. Altogether the Society offer nearly £60 in prizes. In the class for a group of foliage and other flower-

ing plants, 8 feet by 6 (£2, £1 10s., and £1), there were five competitors. Mr. W. East, florist, Fowler Street, was first; Mr. H. Smail, gardener to J. C. Stevenson, Esq., M.P., Westoe, was second; Mr. W. Forsyth, gardener to G. Cairns, Esq., Monkton Hall, third. Mr. Whiting, gardener to Geo. Walker, Esq., Shot Tower, Newcastle, showed a grand *Oncidium Cavendishianum* on his stand with thirty flowers on. For six Chrysanthemums, large-flowering, Mr. G. Corbett, gardener to J. Liddle, Esq., Benwell Hall, was first with superior plants, well trained, 4 to 5 feet through; Mr. Paul Blanchard, gardener to Dr. Gibb, Sandford Park, Newcastle, was second with good plants, but taller and not so well trained; Mr. T. Richardson, gardener to Geo. May, Esq., Simonside Hall, was third. This class was much admired on all sides, and there was much improvement since last year. For three same as above Mr. Corbett and Mr. Blanchard occupied the same places. For four Pompons Mr. Corbett was again first, followed by Mr. Richardson. For two the same exhibitor was also first.

The Japanese varieties this year were also much improved. Mr. Corbett and Mr. Blanchard were again in the same positions, the former having finely trained plants. For two Anemone-flowered Mr. Fred. East, gardener to Matthew Wood, Esq., Westoe, was first, and Mr. John Allen, gardener to Henry Wilson, Esq., Westoe, second. The Society offer a prize for the best amateurs' plants in North and South Shields; both prizes were carried off by Mrs. B. W. Stainton, Westoe, with very creditable examples. There were thirteen lots of Primulas staged, Mr. Geo. Corbett again taking the first place; Mr. E. H. Turnbull, gardener to Mrs. Turnbull, High Barnes, Sunderland, second; and Mr. James Forsyth, Sunderland, third. The above were very good. Table plants, Cyclamens, and foliage plants were all well represented.

Cut Flowers.—For twelve incurved blooms Mr. S. B. Morton, Bowden Bridge, Darlington, was first with splendid blooms, similar varieties to those he had at York last week, but larger and better flowers. Mr. Fred. Bollom, gardener to Sir H. A. Clavering, Bart., Axwell Park, was second; and Mr. F. W. Jameson, Queen's Dock, Hull, third, with good flowers. There were six stands. For six incurved blooms the same exhibitors were first and second again. For twelve reflexed Mr. T. B. Morton; Mr. J. Brown, gardener to Mrs. Joicey, Whinney House; and Mr. James Anns, Gateshead, were placed respectively first, second, and third; and for six reflexed the same exhibitors were placed again in the same positions. For twelve Japanese blooms Mr. S. B. Morton, Mr. F. W. Jameson, Hull, and Mr. Anns, Gateshead, were awarded the prizes as named. Mr. Morton's flowers were here very good indeed and much admired.

For twelve bunches of Pompons the Judges disqualified Mr. Brown because he had Anemone Pompons in his stand; but the Committee annulled the decision, as they take Cannell's catalogue as their standard, therefore two firsts were awarded to Mr. Brown and Mr. Anns.

Hand Bouquets and Epergues.—Prizes were offered for the above, which produced a most spirited competition. There were eleven hand bouquets staged. Mr. T. Rutherford, Durham, was first with a graceful arrangement of Eucharis, Camellias, and other winter flowers, also tastefully draped with *Adiantum gracillimum*. Mr. E. H. Bradley second, and Mr. J. Webster, Sunderland, third. There were seven epergues. Mr. S. Adams, Swalwell, was first with a well-arranged stand containing red and white *Lapagerias*, *Gardenias*, *Camellias*, all draped with *Lygodium scandens*, and margined with *Davallia Mooreana*. Mr. Wm. Whiting was second, and Mr. T. Rutherford third.

Grapes.—Prizes were offered for black and white Grapes. There were eight lots of black. Mr. H. Smail was awarded first with Gros Colman, truly superb in berry and finish, weighing about 2 lbs. each. Mr. Wm. Jenkins, Durham, second, and Mr. Wm. Forsyth third. White Grapes were also well shown by Mr. Smail.

Not for competition was a grand stand of Coniferae which adorned the band stand by Messrs. W. F. Fell & Co., nurserymen, Hexham; and Messrs. H. Cannell & Sons, Swanley, Kent, sent a superb stand of Primulas.

The Exhibition was opened with great ceremony by the Mayor, T. J. Mabane, Esq., accompanied by the President, J. T. Ettringham, Esq., J.P., and several influential members of the Councillors' Chamber. After the proceeding the President, Council, Committee, and friends dined together. After the loyal toasts were proposed, the President proposed "The Prosperity of the Society," accompanied with the Hon. Secretary's name, Mr. Bernard Cowan.

GARDENS ABOUT BRISTOL.

COTE HOUSE, WESTBURY-ON-TRYM.

THIS pretty old-fashioned residence, of which H. St. Vincent Ames, Esq., is the much-respected proprietor, is beautifully situated in a well-wooded district, and is approached through a park furnished with many fine old trees. Mr. St. Vincent Ames takes great interest in both the park and gardens, and in the former, in addition to replanting where required, every care is taken to preserve the large trees, many of which are Elms, and unfortunately have attained an age when decay sets in, thus rendering them peculiarly liable to be blown down by heavy gales of wind. In order to obviate this danger several large trees have had their heaviest branches considerably shortened, and this it will be evident renders them less top-heavy, therefore less liable to be uprooted. This practice I commend to the favourable notice of other owners of large old Elms, who may perhaps find, when too late, that no number of young trees will compensate for the loss of a few giants.

There is no conservatory at Cote House, but the rooms which open out on to the lawns were gay with choice plants and cut flowers. The house itself is nearly covered with various climbers, and is partially surrounded by an undulating and well-kept lawn. No "fancy" flower garden disgraces the beautiful expanse of turf, but the grand old specimens of Evergreen Oaks, Tulip Tree (*Liriodendron tulipifera*), deciduous Magnolias, *Wellingtonia gigantea*, and *Cedrus deodara*, which either fringe or are dotted about the lawns, are all worthy of admiration. The few flower beds and borders I noticed were all well planted, but call for no particular comment.

The plant and fruit-growing houses are built in the kitchen garden,

this being separated from the pleasure grounds by a heavy belt of deciduous and evergreen trees and shrubs. Mr. W. Bannister, the practical gardener in charge of these gardens generally, has long been well known as a successful exhibitor of fruit, plants, and vegetables, his successes not being confined to the Bristol district. At the time of my visit, or early in September, the vineries were very attractive, notably a house of Black Hamburgh. The crop of this good old Grape was heavy, the colour and quality being especially good. Another house contained a full crop of such Grapes as Muscat of Alexandria, Lady Downe's, and Venn's Black Muscat; but as these, although good, were giving signs of deterioration, the work of renovation was to be commenced this autumn. The borders are both inside and outside, and as the latter has been made for some time and is full of roots it was intended to cut and clear a wide trench along the house, or that part of the border farthest away from the stems, and to substitute a quantity of good fresh compost. This will undoubtedly greatly benefit the Vines and improve the weight and quality of the crops next season. A good-sized lean-to structure, devoted principally to Peach and Nectarine culture, is decidedly worthy of imitation, especially where the owners of gardens happen also to do much of their own gardening. Perforated zinc in sheets is substituted for sash-bars and glass along the whole front of the house, and more zinc is worked into the front of a raised and top glazed lap which is formed along the ridge of the house. Besides being cheaper and needing no subsequent repairs, this perforated zinc does away with apparatus and the necessity for ventilating, besides keeping out the wasps. The house is completely furnished with Peach and Nectarine trees, and a failure to crop never occurs. Melons are well grown, Mr. Bannister's favourite sorts being High-cross Hybrid and William Tillery.

In the plant houses I observed very fine batches of *Pancreatium fragrans* and *P. grandiflorum*, the stock of these being imported in the first instance. A few Orchids, including a good batch of *Calanthes*, and many of the best Crotons, *Dracænas*, and other choice plants required for house and table decoration, are well grown, as are also numbers of Ferns, including several large and good seedling *Gymnogrammas*. A very fine plant of *Allamanda Hendersonii* is trained over the roof of one of the plant stoves. It is rooting in a small raised pit filled with good loamy soil, and being kept freely thinned out and otherwise well attended the result is an abundance of showy blooms from May in one year till February in the next, and very valuable the blooms prove for dinner-table decoration during the dull winter months. In the cooler houses such serviceable flowering plants as *Begonias*, single and double Zonal *Pelargoniums*, *Celosias*, and *Fuchsias* were in excellent condition.

Hardy fruits are a speciality with Mr. Bannister, and nothing could have been more satisfactory than the heavy crops of fine Apples and Pears. Particularly good were such Pears as Marie Louise, Glou Morceau, Beurré Superfin, and Easter Beurré especially were receiving the shelter of walls, and a large bush-shaped tree of Alexander Lambert was crowded with fine fruit. The rather new Worcester Pearmain Apple is found to be a good bearer, and the very handsome fruit forms an attractive dish both on the dining and exhibition tables. In spite of the poor position and heavy clayey soil of the kitchen garden, it is made to produce excellent crops of vegetables, some of which easily gained the first prize for a collection at the late Bristol Chrysanthemum Show.—W. IGGULDEN.



HARDY FRUIT GARDEN.

Renovation of Soil.—In our last calendar attention was called to the importance of adding fertile soil periodically to the stations of trees established in what is naturally a poor thin soil. This is of such vital moment to the health as well as the fruitfulness of the trees, that we revert to it in view of making provision for the future as well as doing what we still may for the present. Well would it be if such work could always be done immediately after the year's growth is over before the soil has become very wet from the heavy rain of autumn. As a means to so admirable an end, we are making provision now of a heap of soil for use next autumn, and are gradually getting a considerable quantity of ant hills carted from an old pasture. These will be chopped to pieces coarsely with spades, and thrown in a heap with about a third part added of farmyard manure, a fourth of finely sifted coal ashes, and a fourth of spent lime, for the simple reason that our poor soil contains neither lime nor coarse gritty matter. This heap will be turned and mixed two or three times in the course of the next eight months, and it will be in prime condition by the time it is required for the trees. From a rich pasture the ant hills or a top spit of turf sods would alone suffice for the trees, and would preferably be used at once; but ours is an extreme case, and we give it for the assistance of the numerous readers of the Journal who have to contend with the difficulties of a poor soil. If the trees were planted with due care there will be no occasion for any disturbance of the soil of the stations; it is the poor soil between the stations which is to be excavated to a depth of 2 feet and replaced with some such compost as we have indicated. Where the soil is too poor for fruit culture turf sods taken from an adjacent pasture are not to be depended upon, for when the vegetable matter

becomes exhausted the trees inevitably deteriorate, and it is in such cases that nitrogenous manure is beneficially mixed with the soil in the first instance, and also subsequently as often as appears necessary.

Top-dressing.—To all trees in shallow soil top-dressing with rich compost is highly beneficial. It sustains health and vigour, induces root-growth near the surface, and helps materially to prevent canker, which is frequently so baneful to trees in such soil. Care must, however, be taken not to bury the stem to a hurtful degree, especially of Cherries, or it may lead to the loss of valuable trees.

Pruning and Training.—Lose no opportunity of pushing on this work so as to make sure of finishing long before sap-movement begins again. Large arrears carried over to the new year often have to wait till spring draws nigh, and the trees suffer from hurried work, and are also enfeebled by very late pruning. Pay particular attention to spur-thinning now, so as to avoid much fruit-thinning in summer, and to afford full play to light and air upon every part of the tree. Crowded spurs form harbours of refuge for noxious insects, and are also objectionable for the unnecessary quantity of fruit produced, which is worthless if left unthinned, and leads to much wasted time in fruit-thinning at a busy season of the year.

Old Trees.—The lichen-covered branches of old trees undoubtedly harbour insects, which attract birds, whose searching after the larva leads to the destruction of blossom buds, often to a hurtful degree. Something may now be done to lessen this evil by a thorough dusting of fresh-slaked lime when the trees are damp. Such trees often suffer, too, from insufficient drainage, and from having many roots deep down in a cold inert subsoil. The remedy for these evils is obvious, and the necessary attention to it may soon be well repaid by renewed vigour and abundant fruit crops. Hasty measures with old trees are not advisable. Old spurs may be removed with advantage, but not always, and we would certainly do all that is possible to promote the health of a tree before bringing the pruning knife to work upon it.

FRUIT-FORCING.

VINES.—**Late Grapes.**—Muscats and all thin-skinned Grapes for use during this month and January must be cut early in December and bottled; but the thick-skinned varieties, such as Lady Downe's, Alicante, Gros Colman, Gros Guillaume, and the latest-keeping white varieties not attaining their full flavour and quality until they have remained on the Vines some time, which is generally not the case until the turn of the year, when their removal to a properly arranged and managed Grape room will insure their keeping fresh and plump for more than four months, or until May, without shrivelling or any depreciation of flavour. Former instructions having been attended to, the bottles will be filled and ready for the reception of the stalks of the Vine shoots, which should be cut off down to a promising bud, in order that they may go well into the bottles and admit of the bunches hanging free of the bottles. In cutting and removing the bunches the berries must not be rubbed or disturbed, nor must any of the points of the shoots or laterals above the bunch be removed, as every wound or cut acts as a channel for the escape of moisture. The room should have openings in the roof so arranged as to allow of the escape of moisture without producing a draught, and if the walls be hollow or thick there will be less occasion for dispelling atmospheric moisture, and no more fire heat should be given than to maintain the temperature about 45°, and the less it fluctuates the better. The bunches will require examining once or twice a week for decayed berries; but if the Grapes are properly ripened the loss will be small, as in the even temperature of the Grape room the Grapes will keep much better than when left on the Vines until March. This subject is referred to more fully in another column.

Pruning Late Vines.—As soon as the Grapes are cut the Vines should be pruned in order that they may have a long season of rest, with free exposure on all favourable occasions, keeping them as cool and dry as possible, a few degrees of frost doing no harm provided the atmosphere be dry. Spare the Vines if practicable the moist or damp atmosphere induced by wintering plants in the house.

Figs.—**Earliest Foreed Trees in Pots.**—Those shut up in November with fermenting materials in the pit will now be swelling the terminal buds and the fruit be gradually expanding. The roots, too, will be active, sending out young feeders, being influenced that way by the genial warmth obtained from the fermenting material. If the heat does not exceed 75° the materials may be trodden down firmly round the pedestals and bottom of the pots, and a further supply of sweetened fermenting Oak or Beech leaves introduced from the reserve heap. Care must be taken that the heat about the sides of the pots does not exceed 70° to 75°. The heat and moisture given off by the fermenting materials will greatly facilitate forcing by mitigating the aridity consequent on the employment of fire heat, of which no more than is necessary should be employed, which in severe weather need only be used to maintain a night temperature of 50° to 55°, and on very cold nights a lower minimum will do no harm; but with light an advance of 5° to 10° should be given, with a still further advance from sun heat, and lose no opportunity of admitting air without subjecting the tender growths to cold currents. Syringe the trees and all available surfaces in the morning, and again in the afternoon if the day has been fine and dry, but it should not be practised later than 2 P.M., and if only a moderately fine day the morning syringing will be sufficient, as too much moisture is apt to induce a soft growth, whereas the aim should be to secure a sturdy and well-solidified development. The glass must be kept clean, and a little extra fire heat turned on if necessary, so that a little air may be given to expel accumulated moisture.

Pruning in Succession Houses.—Lose no time in having this completed.

Cut back or entirely remove old spurs, and then cut the least promising shoots that have reached the extremity of the trellis, to make room for free sturdy growth and give a chance to the development of foliage and wood, which must have free exposure to light and air to insure a crop and colour. Spare no pains in cleansing the trees of insects. If there be scale syringe with petroleum two or three times at intervals. A wineglassful to three gallons of water kept well mixed whilst being applied is suitable and efficacious.

PLANT HOUSES.

Clerodendron Balfourianum—No plant is better adapted for forcing into flower early than this useful and beautiful stove climber. Plants that have been thoroughly ripened and at rest for some weeks past in a temperature of 55° may now be started. Place the plants in a temperature that will not fall below 60° at night, and syringe twice daily. If a little bottom heat can be given so much the better, but good results can be obtained without it. Give a little water at the roots, but not sufficient to thoroughly moisten the whole ball until signs of growth are visible. Those that have been carefully dried or are now at rest must not be placed in too low a temperature, or it will prove fatal, and the plants will not start into growth. Those that bloomed later, and have still their foliage upon them, must have—if the wood is well ripened—less water at their roots, but the supply must be gradually diminished, and the plants should occupy a drier position than the stove.

Allamandas.—Where the flowers of these are required early for filling shallow vases, in which they look remarkably well with a little Fern, a start may now be made. The plant selected for this purpose must have been well ripened and at rest for the last six or seven weeks. If the plant is large enough to cover the space required prune close back to one or two eyes. If grown in a pot it should be turned out and the whole ball reduced to half its size, retaining as many fibry roots as possible. After this the ball, if thoroughly dry, should be soaked in tepid water and then allowed to drain before it is again potted. The same size pot may be used, or a larger, according to the space the plant is required to cover. Drain the pot liberally, and place over the drainage a little decayed manure. In potting press the new soil as firmly as possible round the old ball, and use a compost of good fibry loam, a seventh of decomposed manure, and sufficient sand to render the whole porous. Place the plant after this operation in the temperature advised above for *Clerodendrons*, and syringe at least twice daily, but do not give water at the roots, for if the soil is in proper condition for moisture at potting time none will be needed until the plant commences growth. Another plant should now be at rest to succeed the one to be started, and if water has been gradually withheld it may be kept dry until the time arrives for starting it into growth. Keep it in a temperature 5° lower than advised for starting them into growth after resting. Gradually diminish the supply of water to other plants that it is necessary to bring to rest, but do not withhold it entirely until the foliage has ripened naturally. Plants from which blooms are still required must be encouraged by feeding and brisk heat. These plants produce an enormous quantity of flowers, and three plants are ample for a continuous supply of flowers for eight months out of the twelve.

Bougainvillea glabra.—This plant supplies most useful flowers for cutting, and a plant or two if grown in pots may now be started under the same conditions as advised for *Allamandas*. If the plants have not been pruned thin out liberally all weak growths, for a few strong shoots will produce more flowers than a much greater number of small ones. The old soil must be picked carefully from amongst the roots until the old ball is reduced by one-half, but this we prefer doing just as the plant is starting into growth. This, however, is not of vital importance, for good results can be obtained by potting when the plants are started, but more careful treatment is required until root-action commences. The soil should be good loam, a seventh of manure, a little broken charcoal, and a liberal dash of coarse sand.

Gloxinias.—A few of the tubers that were rested first may now be started, and the plants when in flower will be found valuable for the stove or conservatory, or the flowers for cutting. Shake all the old soil from the tubers and soak them previous to potting in tepid water. The tubers, according to their size, may be placed in the pots in which they are intended to flower in. Very fine plants can be grown 5 or 6-inch pots. If possible plunge the pots where they will receive bottom heat in cocoa-nut fibre or other plunging material. The rim of the pots may be covered, which will prevent the application of water until the tubers commence growing. If possible let the bottom heat range at from 75° to 80°, and the top heat from 60° to 65° at night. Use a compost of loam, manure, leaf soil, and sand.

THE BEE-KEEPER.

NOTES ON BEES—PRACTICAL MANAGEMENT.

Food in Hives.—We know of nothing which will conduce in a greater degree to successful bee-culture than a little extra care and attention in preparing hives for passing through the winter well. To accomplish this, the main points to be looked to are food, ventilation, dryness, and warmth. With regard to the first and main point—food—the generally accepted notion is that a stock of bees should have 25 lbs. or 30 lbs. of food to carry it safely over the winter—

that is, from November to March; but we differ from this notion entirely, and have proved in numbers of instances that a stock properly prepared will be abundantly provided if it has 15 lbs. or 16 lbs. of sealed food in November. To insure them this amount we give to a stock from which all the honey has been extracted five quarts of thick syrup, weighing about 18 lbs., and as about 2 lbs. or 3 lbs. will be lost in storage it leaves the first-named nett weight for use.

Protecting Hives.—When preparing the hive for winter nine combs are removed in the spare frame box, and in this removal we take care that only the best combs are left; all faulty ones or those which contain too much pollen being taken away. These nine combs occupy the centre of the hive body, and when the dividers are pushed close up on either side, the 6-inch hair quilts are laid on edge against them, forming a warm wall, and avoiding the litter and mess which loose chaff packing causes. The section crate with a piece of calico tacked on to its under side is filled with 3 or 4 inches of cork dust and forms the winter covering (first fixing a feeding stage 4 inches square, with high sides between the cross bars of the crate, so that the cork dust is kept clear of the feeding bottle), one thickness of carpet is laid on the wood quilt, and over this the crate prepared as above. The great advantage of this simple arrangement for wintering is that it can be so easily removed and replaced. The feeding stage, if covered with a square of glass, can have barleysugar or candy cake placed in it, thus avoiding the objectionable practice of disturbing the quilts in order to lay the barleysugar across the tops of the frames. The diagram below will explain the arrangement better than a mere verbal description.

Spring Management.—Supposing the hive to remain undisturbed until the middle of February, advantage should be taken of the first

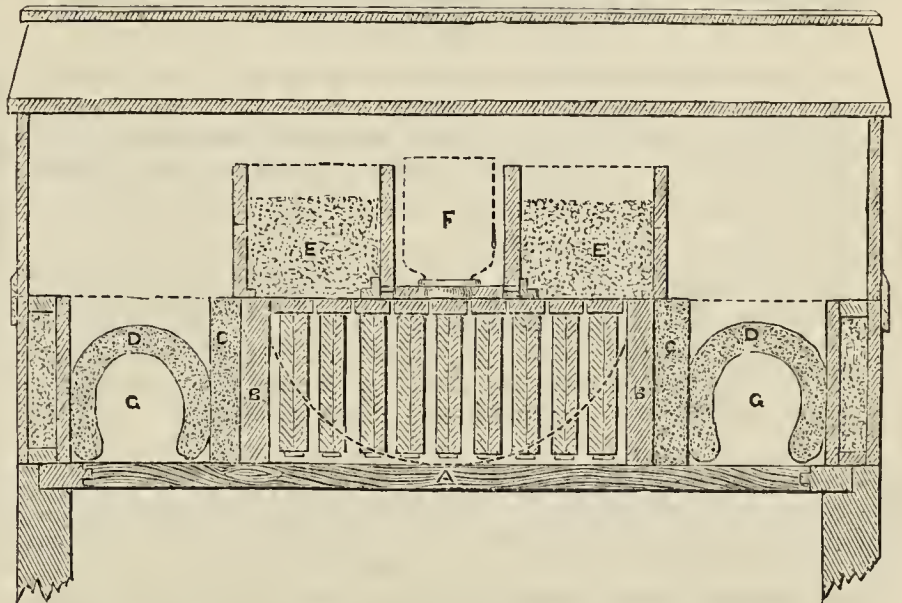


Fig. 103.

Sectional view across the front of hive, showing winter arrangement.

A, floorboard; B B, dividers; C C, hair quilts; D D, hair quilts not in use; E E, section crate with cork dust; F, feeding stage; G G, unoccupied portion of hive.

The dotted lines indicate the form a cluster of bees assumes when wintered on shallow frames.

fine day to open the hive and note the condition of the stock. If the bees are fairly numerous remove one of the frames, uncap the whole of the food in it, and replace it in the hive near the centre, but take care not to insert it between combs containing brood, as February is too early for this. The bees will be thoroughly aroused by the unsealed food, and if the weather is favourable stimulative feeding may be continued by giving either syrup or candy food till the beginning of March, when a second examination is necessary, and if food is found on three or four combs another frame containing sealed food should have the latter uncapped and be placed between the sealed brood. As the stock becomes more populous this spreading of the brood may be repeated twice a week; when April sets in we prefer to use comb foundation instead of the reserve combs. Our reason for this preference is, that the use of foundation at this time induces the "comb-building impulse" which gives such an impetus to the working of a stock of bees in spring, while the shallow frame minimises the danger of its use, except in the most careless hands.

It must be observed that our hive is particularly adapted for continuous feeding in spring, because the body of the hive is never intended to contain much surplus food (except when put into winter quarters), and when the bees are wintered on nine small frames it will be seen that a few weeks of active breeding will see these mostly occupied with hatching bees in all stages, while the additional frames given in spreading brood contain only empty comb or comb foundation, so that if the food is given regularly and judiciously the bees

will work with all energy of a newly hived swarm, and the prosperity of the stock is insured.

Manipulating Frames.—The danger arising from careless handling of frames of comb or bees is scarcely realised by bee-keepers. Queens are oftener lost than is generally supposed by being accidentally dislodged from the comb, &c., and of course if such a mischance occurs when a successor can be raised, the loss is perhaps never noticed except in the diminished activity of the stock. For this reason we strongly object to "frame-holders" and such like contrivances.

On opening the hive uncover a few frames by rolling back the "wood quilt" and draw the divider towards the operator (who stands at one end). As each comb is examined return it to the hive, setting it close to the divider, and when the examination is complete all the combs with the dividers are pushed into their original position with one movement.

TRADE CATALOGUES RECEIVED.

John Downie, Edinburgh.—*Catalogue of Roses and Fruit Trees.*
Ant. Roozen & Son, Overveen, Haarlem, Holland.—*Catalogue of New Gladioli, Dahlias, &c.*



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

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

Books (J. E., Hackney).—There are no "small gardening books" so cheap nor with such an extensive sale as our Manuals, those on "Flower Gardening," "Fruit Gardening," "Kitchen Gardening," "Florists' Flowers," and "Manures" being each sent post free for 4½d., while the "Greenhouse Manual" and "Window Gardening" can be had for 10d. each.

Back Numbers of the Journal (Stirling).—We have had no inquiries for the numbers you have for disposal, but for some odd volumes between the years 1865 and 1874, as you will see by an advertisement. It is only by advertising that back numbers can be disposed of and obtained, and that method is not always successful, as so few persons need the precise volumes that others desire to part with in the form of broken sets; and this circumstance, too, naturally depreciates their value.

Horseshoe Boilers (G. P., Hants).—These boilers are made in different sizes according to the extent of piping they are required to heat. If you send the size of your house, or the length of piping, to the vendors of the boilers, they will supply you with every particular you need. After our many declarations of not recommending dealers, we are a little surprised that your other question was submitted, and which, for obvious reasons, cannot be answered.

Ventilating Greenhouse (Amateur).—As you are absent from 9 A.M. to 7 P.M., your best plan will be to give instructions that the top lights be opened to the extent of 3 or 4 inches in the morning of a sunny day for an hour or two, closing them about 2 P.M. at this period of the year. On dull days the house may remain closed, as sufficient air will find admittance through the laps of the glass. One drop of ordinary gum is all that is necessary for sealing the petals of flowers, or you may purchase dextrine from a chemist's for the same purpose.

Soil for Chrysanthemums (H. B. B.).—You will not err by mixing the manure with the soil now, and turning the heap over at least once before the soil is used. The quantity of manure to add, also the kinds, depends on the nature of the soil. For very heavy soils horse manure is very suitable, otherwise that from cow stables is preferable, but should not be used in a fresh state. Partially dried cow dung is excellent for Chrysanthemums either for mixing with such soil as needs it or for using in the form of top-dressings.

Lilium Harrisii (C. U., Brixton).—This Lily requires similar culture to that afforded L. longiflorum—namely, a soil of good loam, with a moderate admixture of sand and a little well-decayed manure. It can be grown out of doors, but is much better in a greenhouse or frame, and in pots is very useful for decorative purposes. It can be purchased of any large dealer in bulbs and similar plants.

Bouvardias and Camellias (Idem).—A night temperature of 45° in

winter will be suitable for Bouvardias, increasing 5° in the day without sun. A minimum of 40° will be quite safe for Camellias. Both will succeed in the same greenhouse, assigning the Bouvardias the warmest and lightest position, the Camellias being placed at the cooler end. The fragment of Conifer you have sent is insufficient for satisfactory identification. It is perhaps the Red Cedar, *Juniperus virginiana*, but no one could name such a scrap with certainty in the absence of information relative to the habit of the plant.

Potatoes for Forcing (Cambrian).—There is no better variety for this purpose than the Early Ashleaf Kidney. Many dealers offer special selections of it, and all that we have grown are good. If you prefer a round or pebble-shaped variety they are afforded in the Early Handsworth and Early Coldstream respectively, both of which are very early and suitable for culture in frames. Kidney Potatoes usually have the boldest eye, and produce the strongest growth quite at the apex of the tuber, the eyes in other portions being smaller and producing weaker growths, hence, as a general rule, kidney Potatoes are not cut. Some large tubers are cut, and the divided sets answer very well, but not for forcing in frames.

Lilacs for Forcing (A. B. C.).—We readily answer letters, as you know by previous experience, and the replies are published as soon as possible. We have no letter of yours unanswered, so conclude the package to which you allude did not reach us. We often receive addresses that have slipped off packages in transit through the post, the packages in such cases not coming to hand. If you turn to page 475, our issue of a fortnight ago (November 29th), you will find the information you need—namely, that Charles X. is the best Lilac for forcing; and for producing white flowers the plants must be forced in a dark warm pit or frame.

Small Fruits for Market (J. L.).—It is not possible to answer your question categorically in the absence of any particular relative to the nature of the soil. We can only say that as a rule both Gooseberries and Black Currants are more profitable than Red Currants. If the soil is rather light and the subsoil dry, then Gooseberries would give the best return; if strong and the subsoil more or less wet, then Black Currants would be better adapted for it, and would be the most remunerative. Read the Rev. W. Lea's work on "Fruit-Growing on Small Farms," which can be had post free from this office for 1s. 1d. in postage stamps.

Sea Water (W. J.).—Without saying that sea water would be dangerous for the purpose you name, we should still not advise you to use it, or if you do use it to do so cautiously and experimentally. It contains manurial ingredients of benefit to salt-loving plants, its constituents being chloride of sodium, 2.50; chloride of magnesium, 0.35; sulphate of magnesia, 0.58; chloride of lime and carbonate of magnesia together, 0.2; sulphate of lime, 0.1; and water, 96.54. To plants containing the same constituents in the same relative proportions the water would be beneficial, but not otherwise, and they are not thus present in fruit trees and Vines. If any of our readers have tried the effects of sea water on plants and crops they might usefully state the results.

Mowing Lawns (Norton).—Though it is not uncommon to see lawns cut too closely very late in the season, November for instance, yet, undoubtedly, your lawn ought to have been mown after September at least once, but probably twice, as the autumn has been so mild. The precise time for cutting, however, can only be determined by the condition of the grass. Ours was cut twice in October and once early in November, but not shaved down to the roots, and now is quite smooth and green, as it will remain throughout the winter. Your lawn has been obviously neglected, and requires attention. First of all it should be rolled, but only when the grass is quite dry and the wormcasts also partially dry, so that they will not cling to the roller; then, two or three days afterwards, when the grass has risen, it should be "run over" with a very sharp scythe and cut to about half its length, the cut grass raked or swept off when quite dry and the ground then rolled again. It is important that all this be done in mild and dry weather, and as long as frost and wet prevail the grass must remain in its present unsightly state as a reproach to the contractor who undertook to keep it in good order.

The Stanwick and Stanwick Elruge Nectarines (G. P. and E. D.).—"G. P." is right and "E. D." wrong on the point submitted. They are different varieties raised by different persons, in fact the former is one of the parents of the latter. The old Stanwick was raised at Stanwick Park, one of the seats of the Duke of Northumberland, from stones given to Lord Prudhoe by Mr. Barker, Her Majesty's Vice-Consul at Aleppo, and who afterwards resided at Suædia in Syria. The seed was sown in March, 1843, and the buds were inserted the following autumn on a Bellegarde Peach, and the first fruit was produced in 1846. Lord Prudhoe, who had become Duke of Northumberland, placed the Stanwick Nectarine in the hands of Mr. Rivers of Sawbridgeworth for propagation, and on the 15th of May, 1850, the stock, consisting of twenty-four plants, was sold by auction, and realised £164 17s., which His Grace presented to the funds of the Gardeners' Benevolent Institution, such an amount never having been realised before for the same number of small Nectarine trees in pots. The Stanwick Elruge was raised from Elruge crossed with Stanwick, and is one of the seedlings of Mr. Rivers. It is a delicious Nectarine, the tree bearing small flowers, while that of the parent Stanwick has large flowers.

Planting Roses under Glass (X., Loughgall).—The house of which you send a diagram appears admirably adapted for Roses, but you have neither stated its length nor width. If it exceeds 25 long and 12 wide you may train a Maréchal Niel or other climbers like Vines at 8-foot intervals, and then there would be light enough for dwarf Roses below, and for the plants that you may train to the back wall; but if the house be very small the roof had better be kept clear, 6 inches of stones for drainage, the stones protected with turf, and a good outfall provided for the escape of water will suffice, and a depth of 2 feet of soil should be afforded. Whether or what additions your loam needs depends on its character; but you can scarcely err by adding wood ashes and gritty matter pretty liberally to insure porosity, and a seventh part of decayed manure would also probably be advantageous. See what Mr. Luckhurst says on preparing soil for Roses, and enriching it on page 501. His remarks on that subject apply in your case.

Mushrooms in the Open Air (L. L. B.).—January is a very good time for collecting manure for Mushroom beds, but for the north of England and cold districts generally the end of the month would be preferable, as then by the time the material was prepared, made into beds, and spawn inserted, milder weather might be expected, and it would be easier to maintain the requisite temperature for the growth of the crop. According to the price you quote, the manure must be considerably more decayed than that collected from the London stables, and some of it may indeed be fully too short and wet for the purpose in question. The price would appear to indicate that the manure was about in the right condition for digging into the land. Assuming, however, that it is only partially decomposed and suitable for the work, about half a ton would probably suffice for a yard of bed, this being as nearly as can be estimated what Mr. Barter uses after his material is prepared. It is quite possible with suitable manure and good management to grow Mushrooms profitably under the conditions you quote, but labour must be well applied, not wasted. In our report of the Liverpool Show, a fortnight ago, on page 473, it is stated, "Mr. Smith, Maiden Lane, Clubmore, Liverpool, had baskets of Mushrooms grown on the principle recommended in 'Mushrooms for the Million.' They were very fine and excited much attention." Perhaps Mr. Smith if applied to might grant you permission to see his beds, and if so you would obtain practical local information on the subject that might be of service.

Temperature of Mushroom Beds (Amateur).—It is rarely indeed safe to insert spawn in a Mushroom bed as soon as the bed is made. The heat of the bed often rises afterwards to a degree that is fatal to the spawn, which should never be inserted until the temperature is "decreasing." See page 44 of "Mushrooms for the Million." Still, if you can keep the temperature of the bed under the covering at 65°, by reducing or increasing the straw or hay, all will be well. This is before the soil is applied. The temperature on the soil should not exceed 60° for a month, and then when the Mushrooms are appearing 55° will be ample. Read the chapter on "Temperature" on page 49 of the work mentioned. The covering of the beds should not be packed firmly, and its thickness must be solely determined by the heat of the beds. By attention to this point it will not be necessary to add fresh manure to increase the heat. You have gone quite contrary to instructions in spawning and casing your bed with soil so soon, and if you fail the fault will rest entirely with yourself. A work on the culture of Watercress by Mr. Shirley Hibberd is published by Messrs. E. W. Allen, Ave Maria Lane, Paternoster Row, but we do not know whether it gives the particulars you require.

Digging Frozen Soil (Blacksmith).—Of all the mistakes that are made in gardening operations this certainly ranks as one of the greatest. We have seen such unsatisfactory results follow the trenching and burying of frozen soil that we would not have it done on any account, not even free of cost, if such an unlikely offer were made by generous workmen. We have seen considerable outlay incurred in trenching, and the ground when done worse than before, both by turning in frozen soil and bringing to the surface a large quantity of sour inert subsoil. Even when the soil has been in the most fertile state we have seen crops struggling for existence that ought to have been luxuriating, solely because frozen lumps of soil had been buried in the winter; and in demonstrating the cause of the failure of the crops we have dug out those lumps hard and icy as ever after mid-summer. Trenching need not be stopped by a slight frost which forms a surface crust of an inch or so deep, and which can be readily broken; but this crust must never be cast into the bottom of the trench, but taken off and thrown on the top of the land; and if a little subsoil be brought up it will be greatly improved by being mixed with the original surface soil by forking the land over when it is dry and friable in the spring. When frozen ice is buried the sun cannot raise the temperature of the soil until the ice has been melted and the excess of water evaporated; consequently, instead of the temperature of the earth a foot below the surface at mid-summer being about 58°, it might not, under the circumstances indicated, exceed 40°, and therefore nothing could grow freely. It was undoubtedly wise to stop the work when the ground was made hard by frost.

Forcing Potatoes (Alex).—A bed of fermenting materials formed principally of leaves about 3½ feet high will be sufficient for affording gentle warmth. This should be covered with 8 inches of soil made tolerably firm. The soil should be rich loam, light rather than heavy, and when it is a little warmed you may plant the Potatoes in rows 15 inches apart, and the sets a foot apart in the rows, placing them 4 inches deep. Radishes may be sown over the surface, and the seed be either raked in or covered with half an inch of soil. All the treatment required is to expose fully when the weather is mild, and protect from frost by mats and straw coverings in frosty weather, not removing them in continued severe weather until a general thaw. If you can command an abundance of protecting material commence at once, but if not we should defer planting until early in February, in the meantime having the sets in a suitable place to sprout. When they have pushed shoots from one-half to three-quarters of an inch long you may plant.

Names of Fruits (N. W.).—Formosa Pippin. (J. C.).—1, a poor specimen of Bess Pool; 2, unknown; 3, Flanders Pippin; 4, Beauty of Kent. (W. Nield).—1, Golden Noble; 2, Collini; 3, Greenup's Pippin; 4, Flanders Pippin. (J. A. W.).—Sorry we are unable to identify the Apple. (D. B.).—We have received your letter, but no Apples beyond those above attended to.

Name of Plants (G. S.).—Raphiolepis japonica integerrima, a greenhouse shrub. (Beta).—We cannot recognise the Chrysanthemum blooms, and do not undertake to name such varieties. (H. W.).—The flower sent resembles Trichopilia albida as far as we can tell from the small and withered sample received.

* Several letters which arrived on Wednesday morning cannot be answered this week.

COVENT GARDEN MARKET.—DECEMBER 12TH.

TRADE remains the same. No alteration of moment.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 4 0	Melons	each	0 0 to 0 0
"	per barrel	0 0 0 0	Nectarines	dozen	0 0 0 0
Apricots	box	0 0 0 0	Oranges	100	6 0 10 0
Chestnuts	bushel	10 0 0 0	Peaches	dozen	0 0 0 0
Figs	dozen	0 9 1 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts	lb.	0 0 0 0	"	dozen	1 0 5 0
Cobs	per lb.	1 6 0 0	Pine Apples English ..	lb.	2 0 3 0
Grapes	lb.	1 0 3 0	Plums and Damsons ..		0 0 0 0
Lemon	case	15 0 21 0	Strawberries	lb.	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	100	1 0 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 3
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts ..	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capiscums	100	1 6 2 0	"	Kidney .. cwt.	4 0 5 0
Carrots	bunch	0 4 0 0	Rhubarb	bundle	0 4 0 0
Cauliflowers	dozen	2 0 3 0	Salsafy	bundle	1 0 0 0
Celery	bundle	1 6 2 0	Scorzoneria	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	basket	2 3 2 9
Cucumbers	each	0 4 0 0	Shallots	lb.	0 3 0 0
Endive	dozen	1 0 2 0	Spinach	bushel	2 6 3 8
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 3 0 4
Leeks	bunch	0 3 0 4	Turnips	bunch	0 0 0 0
Lettuce	score	1 0 1 6			



THE BREEDING AND TRAINING OF MULES FOR FARM WORK.

VERY few farmers have given their attention to breeding and training mules for agricultural purposes; in fact, in this country generally, except in parts of Ireland amongst the smaller class of farmers, mules or donkeys have been looked upon with contempt or ignored entirely as animals adapted for farming purposes. It may also be imagined by some of our readers that there is little to learn respecting the agricultural value of these animals. But when we consider that their use is adapted for various purposes in almost every country and climate, it is only a reasonable question to ask how it is that so little attention has been bestowed upon them in the United Kingdom, except in portions of Ireland. Still, although mule-breeding has not yet obtained the notice it really deserves, we are informed by the best authority upon the subject that it certainly is on the increase in Ireland, and particularly in the counties of Cork and Kerry, for a great number of jennets are raised annually, preference being given to the latter hybrid, because the high prices of Irish horses render mares too valuable to be used for the production of mules. Even this reason, we believe, would not exist if the same knowledge of the subject prevailed in Ireland which influences the most intelligent and practical breeders on the Continent.

The social history of the donkey is somewhat singular, for while in some countries he is the favourite steed of the higher classes and valued accordingly, yet in others he is the beast of burden and the drudge of the very lowest. Yet in order to judge of his capabilities we must first see him in his native home, and to do this we cannot do better than quote from an excellent essay by Mr. J. Chesney, the subject being "The Donkey as he is, and as he ought to be." "The wild ass (*Asinus onager*) is met with in large herds under their respective leaders in the plains of Mesopotamia, in Persia, Cutch, on the Indus, and in the Punjab, migrating from north to south, and vice versa, according as the seasons change. In Abyssinia, too, there were wild asses, probably the ancestors of the present Egyptian, and some contend of our European breeds. However this may be, these animals are extremely difficult of capture, as they are excessively shy; and Layard tells us that their fleetness is so great that only the most celebrated Arabian mares have ever been able to match them. The koulan or onagra is finer than the domesticated animal; the head is more erect, the ear shorter and more mobile, the limbs longer and more slender, and the coat and tail handsomer. It is quite possible that the European donkey may be descended from that of Abyssinia, as M. Sanson, in his 'Traité de Zootechnie,' asserts very positively, and probably on good authority, that it came to us from the adjoining country of Upper Egypt. There were donkeys in England in the time of Ethelred, but they do not seem to have become common here before the reign of Elizabeth."

These statements will give people an idea of their power of endurance and great strength according to size. Again, it is very clear that whatever were the capacities of these animals in their native countries in the wild state, it gives good grounds for our

endeavours to breed them, and mate them so as to produce not only animals of a certain type and style, but also to obtain the size we require for agricultural purposes. These objects have not only been attempted, but attained on the European Continent and in America. The power and breeding of these animals arises not only by selection as to size and various points, but by pedigree; and, like the breeders of various animals in the present day, such as cattle and horses, the Arabs and Persians know the pedigrees of their asses, of which they have several distinct races. In fact, among all the south-western districts of Asia as much attention is paid to this animal as we give to the horse; for in Arabia it is stated that the ass is used much more for riding than for carrying heavy burdens, wealthy people prize them on account of their easy pace. The animals of the finest breed, which is reared in certain eastern countries, stand about thirteen hands high, and are pure white, having a pace very nearly equal to that of an average horse. It is known that these animals are often sent to Egypt and Constantinople, and sold at from £40 to £80.

We have now to look to what can be done in England, taking for illustration the Poitou mule. Of the industry displayed by breeders in the province of Poitou an account was given from Mr. C. L. Sutherland's review of the farming in France, in the *Live Stock Journal* of July 29th, 1881. We will, however, make a few remarks relating to the effect of food and climate, not only on the well-doing and capability of the animals, but also as to its effect on growth and the ultimate size and power of the animals. The fact is, however, established that want of care in raising the young and poor food has more to do with diminution in their size than the results of climate; for in the north of India, where the donkey is used by the lowest castes, and consequently is much neglected, it does not sometimes attain a height much greater than that of a large Newfoundland dog. In Kentucky, where great attention has been paid to it for the purpose of mule-rearing, some breeders have been able to bring their animals to an average height of from fifteen to sixteen hands. These seem to be extreme views of the case, and some parties may consider them more or less exaggerated; but as this is taken from one of the best authorities upon the subject, it should act as an incentive in our endeavours to rear and train the best style and type of mules for agricultural purposes. There can be no question but that the farmers of the present as well as of the future may be able to produce animals capable of undertaking, in pairs, all the tillage required on the light and friable soils of the different parts of the kingdom. They may be made to supersede the horses now in use in part at any rate upon many small farms, and may also at the same time be made a profitable stock for breeding and rearing on certain farms both for use and for sale. We hope to make this opinion more plain to our readers when further on we take up this part of our subject, giving our plans of proceeding and compare them with those of the most successful breeders on the Continent, and more particularly of the American breeders. For of the latter we find that they have succeeded in rearing exceptionally large mules with an acceleration of speed and power for draught as well as pace in proportion to their size; and as we shall require not only strength, speed, and good shape to recommend them, but also increased height, we must do as the Americans have done, for our climate is as good for breeding this race of animals as theirs is. We must not only obtain animals having all the qualifications necessary, but also use great attention afterwards in selecting such of their descendants as we intend to breed from.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—During the last week of November and the first few days of December the seeding for Wheat has been continued, with the land in favourable condition, and various strong soils on which it was feared that the land could not be sown until the next spring some progress has been made by sowing the Wheat in fair condition, and certainly in better condition than large areas were put in last year. On dry friable land, however, after roots fed off by sheep, and also where the roots were ploughed under, the land has been daily ploughed and sown simultaneously, and certainly with a fair promise of obtaining a full plant should an average winter occur as regards weather. In most cases where the Wheat-sowing has been finished the horses will be employed in the delivery of corn sold, also in those cases where hay and straw have been sold the delivery of these articles has been going on. On many farms that are occupied under existing leases the tenants are not allowed to sell either hay or straw unless the value of what has been sold has been laid out in the purchase of town dung or oilcake for feeding stock, or otherwise in artificial manures. Much land has, however, been recently let giving the tenants full liberty of sale of any produce adapted to the soil, the only conditions being to keep the land clean and free from couch and other obnoxious weeds. Many of the landed proprietors have submitted to conditions enforced upon them by the tenants, or resort to the only alternative of occupying the land themselves, and to this there are many objections; but under fashionable farming so much capital is required for the purchase of stock and the difficulty of finding men (except at a high wage) to conduct the business of the home farm; and although there are numerous parties who have

failed in farming during the recent adverse seasons, such men if they undertake the system of home-farm management frequently do not succeed from causes too numerous to mention. Many, too, of the most enterprising of this class have emigrated, and thus reducing the number of eligible men to whom can be entrusted the entire management of a home farm, especially those of large acreages. One word to the landlord may, however, not be amiss, for the writer would say, Do not let the land if a good man can be found to manage an untenanted farm, for we have noticed that it is often very difficult between two evils to choose the least; but a bad and designing tenant, and we speak from some experience on the point, is certainly more injurious to a landed estate than a bad or untrustworthy farm manager, who may be changed at short notice if engaged under such conditions as give security.

Hand Labour.—Some men will be employed by filling carts with earth adapted for the flooring of cattle pens of every kind, as well as stables for horses, the earth to be removed when laid in pens where animals are tethered; but in all cases where box accommodation is afforded either for cattle or horses the earth may remain as an absorbent of urine, and prove valuable as a manure on the farm. The earth adapted for this work may be found on many roadsides or boundaries of fields, and may be stored by placing it in an elongated heap like store heaps for roots, and kept dry in the same way, being thatched with the roughest of straw or border trimmings, so that it may be dry when required for use, and it will then be absorbent enough to answer every purpose to which we have referred. Meadows should now be trenched, and no cattle allowed in them until the land is firm for feeding or laid up for a hay crop. Draining may now be done; but in the enclosed districts we advocate the grubbing-up and removing of fences and draining the ditches. This will prevent the endless labour required to keep them decent fences, and maintain clear outfalls for heavy rains.

Live Stock.—The Down flocks will now be ready to commence lambing, at least the Dorset Downs, and some Hampshires where they had been mated with the ram early and fed with liberality; and it will now be advisable to look out a sheltered spot to serve and be used for a lambing fold. In some cases, however, the shepherd lives near to a shed and foldyard, and it is a good thing when it happens to be available, because the shepherd, if he understands and attends to his business is, in the midst of the lambing season, obliged to look to his ewes day and night; and in the management of flocks of considerable size there should be an under shepherd to assist both day and night, and take his turn on the watch for those animals requiring the shepherd's assistance. It is well also that as shepherds are valuable men and require tuition for their duties, that there should be younger men in training, for the work is not only long hours and actual work required of them, but a knowledge which can only be gained by actual practice under the guidance of a superior and experienced shepherd. The home farmer, too, has also a duty to perform, not only to take care that the shepherds understand their business, but insist upon its being done under his directions during the lambing season. Now, the foldyard and lambing pens should be situated on a dry spot, if possible in a sloping position facing the south, and the floor of the yard should be covered about 9 inches thick with dry loamy earth. This will afford good lying, and require also less littering with straw; and the manure arising will be more valuable for removing after the lambing is over.

THE SMITHFIELD CLUB SHOW.—We are informed that Messrs. James Carter & Co. of High Holborn, Sutton & Sons, Reading, and Webb and Sons, Stourbridge, have splendid stands of roots and cereals at the Show. We have not the slightest doubt of their excellence. The root and seed stands exhibited by such firms as these are, we believe, unequalled in any country; but as the Secretary has again omitted to send us tickets, we are unable to give any exhibits such notice as they are entitled to. We learn that the Prince of Wales visited Messrs. Suttons' and Carters' stands for the purpose of examining the ensilage from the silo of Lord Walsingham, and the fine roots grown on Her Majesty's farms at Windsor and elsewhere.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.	Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
December.											
Sunday	2	30.333	43.1	41.2	W.	43.1	45.3	36.0	48.5	22.8	0.015
Monday	3	29.959	43.3	41.8	W.	42.7	53.0	37.3	52.9	22.5	0.032
Tuesday	4	29.712	35.4	34.6	N.W.	43.3	42.3	36.4	61.8	30.9	—
Wednesday ..	5	30.142	35.3	33.7	N.	41.2	40.8	33.2	61.5	28.3	—
Thursday	6	30.071	33.3	32.1	N.	39.5	37.8	30.6	70.1	26.6	0.012
Friday	7	30.562	34.7	33.9	N.E.	38.8	36.4	23.3	61.3	23.8	—
Saturday	8	30.516	33.7	33.0	W.	38.2	36.3	31.3	40.1	23.7	—
		30.183	37.4	35.5		41.0	41.8	33.3	56.6	28.4	0.057

REMARKS.

2nd.—Fine at first, afterwards overcast with slight rain.
 3rd.—Dull, damp, and windy. [sunset.
 4th.—Much wind during the night; bright cold day with high wind; fine sunrise and
 5th.—Calm, bright, and clear; beautiful sunset.
 6th.—Snow from 8 A.M. till 9 P.M.; bright cold day, sharp wind.
 7th.—Snow still on ground; fine and cold.
 8th.—Overcast and thick.
 A fine week, rather cold with slight snow. Very fine sunrises and sunsets.—G. J. SYMONS.



20	TH	Royal Society at 4.30 P.M.; Linnean Society at 8 P.M.
21	F	
22	S	
23	SUN	4TH SUNDAY IN ADVENT.
24	M	
25	TU	Christmas Day.
26	W	Bank Holiday.

PRUNING AND DRESSING GRAPE VINES.



THE time is at hand when innumerable growers will commence pruning and dressing their Grape Vines, and I propose to offer a few remarks upon both operations. It may be thought by some that enough has been written upon the subject, and if I were in the habit of constantly staying at home I, too, might be of the same opinion. As it is I hold that gardeners should be encouraged by their employers to visit one another in reason, as they are thus less likely to become self-conceited, and are more disposed to strive to excel in horticulture generally, and Grape culture particularly. If, however, in our rounds we discover that there are others who can excel us in certain branches, we also take a particular pleasure in noting where they apparently perpetrate mistakes. Many gardeners still need a lesson in pruning Vines and yet more amateurs, several of whom know next to nothing about it. The greatest mistake is to treat all Vines alike. Everything should depend upon circumstances. If there were no other sorts but Black Hamburgh and Sweetwaters I should still say the same. Those in the best possible condition will produce plenty of bunches, prune them how you will, but to closely prune old weakly Vines in order that no spur should be formed would result in the formation of few bunches, especially, as I have tested, if the lateral growth be badly ripened. In such a case I would not prune at all, as among other reasons I should feel certain of losing what little sap the Vines had in store. I have proved, to my own satisfaction at any rate, that it is better to disbud Vines badly ripened, and therefore badly rooted, either as the buds move in the spring, or, better still, with the point of a knife, before the leaf falls in the autumn. Here, for instance, our Vines of Muscat of Alexandria would not ripen their growths properly. Close pruning resulted in the production of but few bunches, but by disbudding we obtained more than were required. Some of the old unripened growths were still green in the autumn, and were cut and forwarded to the office of this Journal, as well as a bunch of Grapes cut from laterals produced from the back buds of these same growths. In fact, the majority of the old closely disbudded growths were quite green at the tips when cut off in the summer, and I am inclined to think that by preserving them, in addition to preventing loss from bleeding, they also served as miniature sap-reservoirs, and assisted the bunches at a time when assistance was most needed.

The spur system of pruning is that most generally popular, and even this is variously practised. Some cut to the best bud nearest to the main stem, under the impression that a good plump bud means the ultimate production of the largest bunch, when in reality it more often results in the formation of two fruitful shoots, and in this case no gain is evident. Others, in fact a much greater number, cut to the second bud from the rod, and this has been my practice for some time, as I thought that the small leaf invariably formed at the base of laterals could not possibly

perfect so valuable a fruiting bud as the first larger leaf beyond. No long unsightly spur resulted from this practice, as two shoots were generally laid in, one springing from the basal bud forming the foundation of the next season's bearing wood, while that which fruited beyond with the short piece of old wood attached was cut clean away. Many cut to the first or basal bud, and when the Vines are moderate growers and in good condition, always secure abundance of good bunches. There are others, and these, I believe, are fewer in number, who invariably cut the growth close at the junction with the main rods, and in one instance that has come under my notice good bunches have for several years been secured from buds which were certainly not produced at the axils of any leaves. This I shall term the painfully neat system, being practised by those who object to "ugly spurs." I, too, object to such cankered spurs, and for more reasons than one; but rather than run the risk of securing comparatively small bunches or perhaps only a partial crop, I would leave a long spur, and if this became an eyesore I would annually in the autumn saw a few off, so as to gradually restore the whole length of rods to a better condition. If from want of vigour they failed to break afresh, I would lay in new rods and cut the old ones out. In fact I believe there are numbers of old Vine rods that ought to be so treated and their places occupied with healthy straight rods, and we should then hear fewer complaints of indifferent crops.

Now in pruning are we to consider that a bud must be perfected by the assistance of its own particular parent leaf? It would appear not, or how is it my friends can continue for several years to obtain good fruiting shoots when they always cut every visible bud away? It must be understood I am of the opinion they would have secured much better bunches if they had left one leaf-developed bud, and this I am confident they will perceive next season. All buds are of course formed by the assistance of the leaves, but whether the shoots resulting shall carry a bunch, and whether that bunch shall be large or small, is, I firmly believe, entirely determined by the amount of stored-up food, more especially above ground, and consequently, as a rule, very little is gained by selecting and pruning to large buds. Let those who doubt this try the following experiment: At pruning time reserve a few ripened laterals their full length, shortening others to three or four buds, and others again to the first bud. Unless I am much mistaken those left at their full length will push out three or more shoots according to the vigour of the Vines, the end one bearing one or more strong bunches, the next fewer and smaller bunches, and the remaining shoots perhaps without any bunches. Similar results follow where three or four buds were left, while the single bud will produce as large a bunch as that at the end of the full-length lateral; always supposing that no old knotty spurs are selected for the experiment.

There are, however, exceptions to this rule. For instance, if the Vines are extremely vigorous growers, or such as Golden Champion, Duke of Buccleuch, and Canon H Muscat, we may err greatly by close pruning. It is in this way, if we cut a young vigorous rod hard back, the excess of sap concentrated in a single bud results in the formation of a strong bunchless shoot, whereas if we had left a considerable length, several shoots carrying as many bunches would in all probability follow. This inclines me to the opinion that the circumstances are somewhat the same with gross "shy bearing" sorts, and in pruning the above long spurs should be left, say with four or more buds, and also that close pruning is also the cause of "shy bearing" in the case of other sorts when comparatively young and vigorous. In pruning, then, I would cut Black Hamburgh, Sweetwaters, Frontignans, Madresfield Court, Muscat of Alexandria, and Muscat Hamburgh to the first discernible bud. Stronger growers, such as Black Alicante, Golden Queen, Mrs. Pearson, Gros Colman, Gros Maroc, Raisin de Calabria, White Tokay, Syrian, Mrs. Pince, and West's St. Peter's

should have two, or, if extra strong, three buds left; while Barbarossa (Gros Guillaume), Duke of Buccleuch, Golden Champion, and Canon Hall Muscat should have four or more buds left, according to the vigour of the Vines. By rubbing out all the shoots but those at the end and base of the spurs the latter may be converted into a bearing spurt next season, the other with old wood attached being cut away with the bunches. No long unsightly spurs thus result. In all cases, more especially where two shoots are laid in, the spurs should be wide apart, say not less than 18 inches on each side, and alternating, as this allows of the back shoot being properly developed.

In shortening young rods in any case where strong, say $1\frac{1}{2}$ inch in circumference, I would leave a length of 8 feet—that is, if there is so much space to furnish, while the very weak ones, say half an inch in circumference, should be cut back almost to the starting point, and others in proportion. The harder we cut strong shoots the grosser they become, and we do not want pithy rods; but as we are equally averse to weakly rods, we prune weakly shoots hard in order to induce the formation of a much stronger rod. I may be taken to task for recommending the preservation of so great a length of young rod, but I could point to a grand range of vineries where the occupants were treated in the orthodox manner—that is to say, were cut hard back after making the first strong growth, and were subsequently taken up the roof by short stages, yet in spite of everything have never satisfied the grower, and never will till the over-fatted rods are replaced by younger and more woody canes. One of our most successful Grape-growers, before he could satisfy himself and employer, had to gradually supplant similarly pithy old rods with younger ones, and with these two examples before me it is not surprising that I hold the above opinions.

Bad pruning has never to my knowledge ruined any Vines, but careless winter dressings have done so in a surprising number of cases. We are naturally anxious to clear the rods of any insect pests that may have established themselves on them, and in our anxiety we sometimes err on the wrong side. Fortunately the old barbarous practice of closely scraping the rods, and then dressing with a mixture of various obnoxious and destructive materials, is now fast becoming obsolete. At the same time I consider that those who recommend the more simple remedies should bear in mind that all are not acquainted with the dangerous properties of some of them. To be effective they must be strong, and a careless and too zealous operation may easily work irremediable harm. Poisons in the hands of those experienced in their application are of great medicinal service, but no novices are allowed to buy them without being cautioned, the bottles or packets being also labelled “poison.” Now paraffin or petroleum is the gardener’s greatest friend in the way of insecticides, but this in some people’s hands may prove a most destructive agent. Consequently, if not exactly labelled “poison,” it should have its dangerous properties well pointed out by those who advocate its employment. Mr. D. Thomson, who was the first to recommend its use, never neglected to suggest that it should be used with the greatest care, and he once strongly advised me not to use it on Vines, owing to the porous and absorbent nature of their bark. Others recommend it as a winter dressing for Vines, and not a few have suffered by partially following their advice. A rod barked and closely scraped, and when this is done even some of the newest bark is almost unavoidably cut away, may easily be damaged by paraffin and other penetrating insecticides, but where the bark has never been removed the former may, perhaps, if used at the rate of 2 ozs. to the gallon of soapy water and kept well stirred, be a safe remedy; but, all the same, I would not use it. I have never experimented with it, but have seen quite enough of other people’s experiments to warrant me in condemning paraffin for Vines.

Prior to dressing the rods with an insecticide it may be advisable to lightly trim off some of the very roughest of the

bark, but as a rule the less this is touched the better. Once we thoroughly “skin” a Vine rod it seldom if ever renews the bark in a satisfactory manner, but remains in a smooth state, and in all probability the rod will cease to swell properly; in fact, this stripping off the bark is altogether an unnatural proceeding. If the Vines this past season have been infested with red spider, and also in the case of mildew, a dressing may be formed with sulphur and soft soap. Take two large handfuls of flowers of sulphur, place in a piece of muslin, and squeeze and work it through in a gallon of warm water in which a lump of soft soap rather larger than a hen’s egg, has been previously dissolved. To this may be added two gallons of warm soft water, and to which, if there have been any thrips on the Vines, should be added at least one pint of tobacco water, the whole being kept well stirred and applied with a syringe, in this manner being more thoroughly and quickly used than with a brush. When dry a second washing may be given, and in the end this will be found a safe and effective remedy.

For mealy bug, gas or coal tar is the grand remedy. For appearance sake it is advisable to mix it with clay, the latter being worked up with the hands in a little warm water and all the gritty portion thrown out. The tar must be added in equal proportion to the dissolved clay, and if then too thick to be easily and thoroughly applied with a brush more water should be added. The tar should not be heated as in this case; it might be penetrating and dangerous. It should be kept well stirred, and the rods and spurs thoroughly coated with it, taking care not to cover the buds, or if the Vines are weak the buds may not burst through the cases formed. No injury, to my knowledge, has ever accrued to the Vines from this tar dressing, and this is the experience of several well-known gardeners who have used it much longer than I have. All other presumably infallible remedies failed with our badly infested Vines, but the tar destroyed all but a few insects, and these were easily disposed of before they had increased. By way of a preventive the following winter a second dressing was given, and now the vineries are completely free from mealy bug. Every vinery should be thoroughly washed down and the walls whitewashed, thus destroying many eggs and insects, besides preserving a clean appearance. All the ironwork and much of the woodwork of the houses infested with mealy bug should be painted with raw paraffin, this destroying all insects and eggs with which it comes in contact.—W. IGGULDEN.

DELPHINIUMS.

THESE are among the most valuable of all hardy flowers for the mixed border. Of course I refer to the hybrid varieties, albeit I entertain a high regard for all the so-called species, which are all more or less showy, but are by no means so effective as the majority of the now very numerous forms which have been raised from seed obtained by cross-breeding, a matter most easily accomplished. No flowers are more easily cross-fertilised by insects, as they hold forth the duplex attractions of nectar and colour, and in addition the stamens shed the pollen before the stigma of the same flower is matured, so it is almost, if not quite, impossible for such a flower to be self-fertilised. And this easy method of cross-breeding readily accounts for the numerous varieties which are now obtainable from florists who make hardy plants a speciality.

Most of them are robust and very free-flowering, a few are weakly, and should be planted in such positions that they may have a fair share of attention. In order to have them in the greatest luxuriance rich soil is necessary, with a good depth of it. I have never seen Delphiniums in finer condition than at Mr. Joseph Stevens’ at Byfleet, Surrey, in what he was pleased to call his variegated garden, because the majority of the plants therein grown were more or less variegated. In a long border was a magnificent row of excellent varieties growing most luxuriantly, and a very noble and effective appearance they presented. But the success was due to a deep rich soil, well worked before they were planted, and nothing more is required for some years, indeed not till the plants require dividing. Therefore where they are planted the preparation should be accomplished as for a permanent purpose, deep digging or

trenching, with a liberal supply of decayed manure well incorporated with the soil. It is needful to prepare the position assigned them after a similar fashion, in order to insure the best results, for no plants will better repay for liberal culture than these, and perhaps none will present a more miserable appearance when ill-fed and treated. Had I only one variety to plant I would prepare for that most carefully.

Their worst enemies are slugs, the small black leathery kind being the greatest depredator. Working under cover of night they eat the young buds during the winter and early spring, and you wonder why they do not shoot, but upon examination the shoots are entirely consumed. This has been a great source of vexation to me, especially when planting on fresh ground. The best remedy I have found is a mixture of lime and soot laid closely about the plants, renewing it every week or fortnight. Such a dressing assists the plants and checks the enemy. I need hardly say any more respecting the value of Delphiniums for effect either in masses or as isolated specimens; but a word as to the period of flowering. Unless it is desirable to save seed the main stem should be cut away as soon as the flowers are past, and a chance will be given for the numerous laterals to grow and thrive, for a second crop of flowers will be quickly produced, and as soon as these are past cut the whole away, and there will be ample time for a second lot of stems to be developed and flower before the end of the season, and thus a considerable display may be had by judicious management. For lines or masses in the mixed border, or intermixing with shrubs in association with tall Spiræas, Hollyhocks, &c., no plants are more highly effective. One of the prettiest pieces of garden decoration I saw last summer was some broad masses of Spiræa Aruncus with their large plumose panicles of white flowers, and intermingling therewith pyramidal groups of light blue Delphiniums, the whole backed with some Copper Beech—a picture which is not often seen and not easily forgotten. Below is a selection of good varieties both double and single, and I have not included any of the species, although, of course, some of them, such as the old *D. formosum*, *D. grandiflorum*, &c., are very attractive and vigorous.

Single Varieties.—Agamemnon, very large; Amabilis, Barlowi, versicolor, deep and bronzy; C. Glyn, Enchantress, light azure blue, similar to the charming old *D. Belladonna*, but much larger flower and more robust constitution; Madame Chute, Mammoth, Nobilissimum, the latter one of Mr. Parker's seedlings, producing an immense pyramidal spike; Pantheon, Phoenix, Roi Leopold, Voltaire, and Wheeleri, the last a dwarf and very showy variety.

Double Varieties.—Amadée Hans, Arc en Ciel, an extremely pretty form; Figaro, Globe, very double; grandiflorum plenum, one of the rarest and handsomest; Hebe, very floriferous and full; Hermann Stenger, dwarf, free, and showy; Louis Figuier, Lord Mayor, a vigorous grower and effective; Madame Henri Jacotot, Madame William Schwab, M. Rouillard, extremely pretty, pale lilac edged with sky blue; Nahamah, dwarf and showy; Palmerston, one of the noblest; Pompon Brilliant, very dwarf; President Simon, rich cobalt blue, grand spike; Suffrage, Triomphe de Poissy, bright azure blue, pink shaded, one of the best; Victor Lemoine, double, pale blue, with a distinct white centre; this is also one of the best.—T.

FIRING AND VENTILATING.

I WAS pleased to notice Mr. McIndoe's experiment in growing early Melons without ventilation, and although the results achieved were, it must be admitted, highly satisfactory, I am not by any means clear about the non-ventilating system. First, it is obvious that under ordinary circumstances very little ventilation would be needed between the 27th of December and April 14th. The first three months of 1883 were not remarkable for sun, though it was mild and open in February, with a fair amount of sunshine, yet the need of ventilating houses in which a high temperature was maintained was not appreciable; and in March and April it was, I fancy, so cold and sharp that no one would care to admit air direct to the tender foliage of plants being forced. So far, indeed, from Mr. McIndoe's experience proving that ventilation is not necessary for Melons, it only goes to show the propriety of not admitting external air when it is likely to injure the plants.

Experiments, indeed, made at a season when every cultivator is careful to keep his plants and the tender foliage of early-forced fruit trees as much as possible from the baneful influence of an external atmosphere is clearly not the point, for ventilation cannot be given without great risk, and the necessity for it is not apparent any more than the opportunities are frequent between December and April generally.

It would be more to the point if Mr. McIndoe were to give us his experience in growing Melons and Cucumbers from April to June and from July to September inclusive. Usually there is plenty of opportunity

to admit air from March to October, but what need is there to give any when the sun's power is so feeble as not to raise the temperature in a Melon house above an ordinary outdoor summer maximum? Truc, "the thermometer on bright sunny days indicated a temperature of from 100° to 110°," but these are extremes, and could only occur on rare occasions, unless the climate where Mr. McIndoe practises is different from my part of Britain between December and April; but as we are promised some notes on the early forcing of Peaches and Nectarines with a minimum of ventilation, I hope to have some of this uncertainty removed.—G. ABBEY.

SHRUB PLANTING.

THE planting season comes round with unfailing regularity. On estates with large shrubberies valuable specimens will in course of time either overgrow the space allowed them or be crowded by their neighbours. Cutting the shrubs is the easiest way to mend matters in such cases, but this does not commend itself to everybody. Removal is then the only means of saving them. Another common reason for transplanting shrubs is found in the fact that severe winters kill or render unsightly prominent specimens on lawns or in clumps. Alterations in the grounds occasionally also cause much extra labour in shrub-planting.

Though there is perhaps in the majority of cases no better time for undertaking this work than in late autumn and early winter, it nevertheless most often happens that gardeners have to take it in hand when they are able to do so, without taking into consideration whether one period is better than another. At the same time if the work is carefully managed the planter is quite independent of seasons. There is a very great allowance to be made as to the nature of the soil in which the shrubs are growing, but in no case do we find extra labour or care in transplanting misapplied; indeed it might be laid down as an axiom that the greater the care taken in the removal of shrubs the less trouble will there be afterwards as regards watering in dry weather.

First as to the planting and management of nursery-bought plants. In purchasing shrubs there are some points worth attention, and one of the most essential is to see they are of the size and quality wanted. Anyone who has not had experience in buying these could not imagine the differences to be found in nurseries. The lists of names, sizes, and prices may be very much alike, but on examination the sizes and quality of the shrubs will be found to vary considerably. Taking for examples such as Box, Yew, and Laurels, it is no uncommon occurrence to find them described as being, say, 3 feet in height, yet one-third of their length is represented by a single growing shoot, and the under portion cramped into narrow proportions by the other occupants of the beds. On the other hand, I have found shrubs catalogued in the same way represented by specimens almost as much in diameter as they measured in height, with abundance of healthy roots. Though there is a difference in the price in the two qualities, that does not amount to much, and in the one case effect is obtained at once with almost an absolute certainty that no losses will follow, while in the other at least a couple of years would be required to grow the shrubs into a proper form and size, besides the risk of loss in the transplanting at the time of purchase.

With Conifers even more caution is necessary. The size of the plants does not vary so much with these, but the roots do considerably. The trees which have been often transplanted and not crowded in rows are the best. Another point is to select shrubs which are not too large. Large plants are very much more expensive in the first instance, and no matter how well they are treated they do not make the progress that smaller plants do.

In the preparation of the ground, as much must be left to judgment as to local circumstances. Draining is a first necessity in soil that is wet, as shrubs grown on dry soil are more hardy than those in damp positions. Then if beds of shrubs are to be made in highly kept pleasure grounds, and choicer kinds employed in the furnishing, it must be considered which is the best way to prepare these beds. Trenching is generally considered of primary importance, but I have an opinion that trenching very often does more harm than good. Providing the subsoil is a kindly one, trenching as commonly practised may be beneficial, but I prefer to merely loosen the under spit with a fork or a pick, and keep the upper spit on the surface. When making alterations it is sometimes possible to remove portions of bad subsoil, filling the beds with good soil in the place of that removed. The practice of banking beds up with soil is one I do not follow and do not recommend, though it is one way of getting a good body of soil together in which to give the shrubs a start. When the turf is merely dug over on the surface the shrubs have a store of food, which is better than trying to enrich the soil with animal manures, but these are of great value placed on the surface after planting has been finished.

Much after-labour in watering is saved when the planting has

been carefully done, so that the extra expense of doing the work well at the time is really a saving in the end. Shrubs sent from nurseries by rail are sure to have much of the soil shaken from the roots in course of transit. I have seen planting so mismanaged that these roots were huddled round the ball and the soil roughly firmed round them. The best way is to dig a hole large enough to allow all the roots to be extended at full length, then place some light material over these and all round the ball as well. Leaf soil is one of the best materials for this purpose. I prefer in most cases not to mix the natural soil with any leaf soil that may be thus employed. Its main use is in causing the plants to form young roots quickly, and this is best attained by a good dressing placed next to the older roots. The soil when filled in must be firmly trodden down, always taking care not to press on the ball. A stick, or if necessary two or three sticks, should be used in supporting each shrub as planting is finished.

When the shrubs are merely for screens or divisions there is no necessity for either digging or trenching the ground. A setting of green grass is much to be preferred to bare soil. If the grass cannot be kept cut as often as is wished, it does not look so untidy at the worst as badly kept shrubbery beds. The way we proceed in planting shrubberies on grass is to first take the turf off each place in which a shrub is to be planted, then the soil is taken out to about a foot in depth, and that below is loosened; the roots are spread out in the same way, and the planting otherwise managed as noted above for planting in dry beds, only the hole in this case is made larger than the roots extend, an average of 9 inches all round being allowed. The turf is laid back into its place as planting proceeds. As giving an idea of the quantity of soil introduced, I may instance that one with a ball, say 18 inches across, and roots extending $2\frac{1}{2}$ feet in all, would require from one to two barrowloads. In watering it is much better to give more than is required early in the year, when it may be wanted to start root-action, than to wait till the condition of the shrubs shows that water is needed in order to keep them alive. Some notes on transplanting large shrubs must be left till another opportunity.—B.

RENTON'S MONARCH LEEK.

HAVING seen the above-named Leek grown at Lees this year, and admired it very much, I venture to think a short description of it might be of some interest to Leek-growers in general. I understand that this is the fourth year since it was raised by Mr. Renton, the present gardener at Lees. It is a cross between the Rouen and Carentan Leeks, both very good in their way. Its leading features are quick growth, length of white, and splendid flavour. It also stands the winter well, and is unsurpassed in this district as an exhibition variety, and has to my knowledge taken twenty-nine prizes on the borders this year. It has gained the attention of many of the best Leek-growers in the country, who are unanimous in their opinion that it is a capital exhibition as well as culinary Leek. Besides being grown on the borders, it has been tested in Fife, the Lothians, and elsewhere, with the same good results. I have this year seen it grown with Henry's Prize, Ayton Castle Giant, and Lyon Leeks, all having the same advantages, and Renton's Monarch far outgrew all the others, and was also better in flavour.—A BERWICKSHIRE LEEK-GROWER.

OUR ORCHARDS AND PARAFFIN.

DESTROYING SCALE AND AMERICAN BLIGHT.

SEEING your correspondent's article on page 483 entitled "Our Orchards and Paraffin," I wish to draw your attention to a bad case of American blight, moss, brown and mussel scale that I had to deal with. While serving as foreman in a large fruit establishment I was instructed to have all the trees that were subject to blight dressed with palm oil, which was done in March before the buds started. A few had been done the previous year to try the experiment, and it had turned out satisfactory, as in this case neither blight nor moss appeared while I was there. Turning this to account when filling a similar position where blight, moss, and scale flourished in an orchard house 300 feet long and 20 feet in width, and where it was the rule to have five or six men employed for weeks in scrubbing and painting the trees and waging war against these intruders, I mentioned what had come under my notice, and received full liberty to act as I thought best.

Procuring a half cask of colza oil from the butler, mixing with this a fourth of paraffin, adding a little soot and sulphur, and with a good staff of hands soon had them finished. With all other compositions it is necessary to move the scale from their position, and in that case hundreds of young ones are set at liberty and can be seen running about. It is not necessary in this case to remove them—paint over all. The oil will penetrate the hard scale and destroy all life, and if removed in a few days all will be seen to be dried and hard. There are two things greatly in the favour of oil. First, it will be seen quite wet for a week or two, it is neither inclined to evaporate nor to dry in the wood, and it will remain damp for months. No scale nor larvæ can exist under such circumstances. Secondly, it is not injurious to fruit or wood buds. If any of your readers would like to try the experiment I would advise them to "taste and try before they buy," and not endanger their crop

and trees rather than wait one year longer. I might say the worst cases occurred on Pear, Plum, and Cherry trees.—A FOREMAN.

NOTES FROM THE NORTH.

Cypripediums.—*C. punctatum violaceum* and *C. Maulei* are two very distinct forms of *C. insigne*, and probably the most effective and useful Ladies' Slippers known for all decorative purposes. At all events, out of about thirty sorts cultivated here I would select them if restricted to two, or perhaps *C. Spicerianum* and *C. p. violaceum*, for it is the best of the two first named, it being altogether a more robust plant. The flowers are decidedly larger than those of *C. Maulei*, the foliage broader and stiffer, the upper sepal considerably broader, more heavily and distinctly spotted, the margin of white wider, and the sepal does not reflex so much at its base as it does in *C. Maulei*. There are over twenty plants of these two varieties in bloom here just now, and for effect I do not think any other Ladies' Slippers could surpass them. *C. Haynaldianum* is in the style of *C. Lowii* and looks like a variety of it. It has more colour in its petals than *C. Lowii*, bears three to four blooms on a stem, and lasts quite as long in bloom as does *C. Lowii*. It does best in the East Indian house, and is well worthy of a place in all selections. *C. insigne Chantinii* and *C. punctatum violaceum* are synonymous. Another pretty and distinct variety is *C. alba marginata*, having a band of white all round the upper petal, but no spotting on the upper part of the white as *C. Maulei* and *C. punctatum violaceum* have.

Impatiens Sultani.—All who possess a hothouse that is kept at from 55° to 60° at this season of the year should grow a few plants of this lovely Balsam. It is one of the most easily propagated and cultivated of plants, and certainly one of the most brilliant and continuous bloomers. Seedlings seem to make the best plants, and self-sown ones can be had wherever a plant is flowered. It does not promise to be a useful plant either for room-decoration or cutting, as the blooms soon drop, and it does not thrive in a dry dusty room; but for hothouse show it is most effective, and will grow to 3 feet in diameter in an 8-inch pot.

Chrysanthemum Sœur Melanie.—This is one of the most useful Chrysanthemums for general decoration and for cut flowers. Your correspondent, Mr. Bardney, sent me some cuttings of it in spring, and I find it of very dwarf sturdy habit, can be grown into a shapely dwarf bush without any twisting and torturing, retains its foliage well, produces a great profusion of small and pure white flowers that are most useful for cutting. It cannot be too strongly recommended for all ordinary decorative purposes.

Wintering Tuberous Begonias.—I have observed that some have recommended that these be wintered in a rather dry condition. My experience in wintering them by the thousand is that they come into growth far more vigorously in spring if kept quite moist the whole winter, and the method adopted is to pack them in barrels in moist soil. Not one in a hundred goes wrong.—D. THOMSON, *Drumlanrig*.

ECONOMY IN STOKING.

EITHER Mr. Young did not read my letter carefully or he has failed to understand the plan. He says "Dugald" would have a boiler that would not require an ashpit door; but if the flues are sharp and there is no ashpit door, it is difficult to regulate the fire with the damper alone." If he had read the remainder of the sentence in my first letter he would see that the want of ashpit doors is rather more than provided for. I mean the "large outside doors over the front of the fireplace," to cover ashpit openings and all. To start the fire, or during hard firing, I would leave one of these open, at other times I would keep them closed. If Mr. Young can see how cold air could rush through closed iron doors and force out the smoke directly against the current of air drawn in to feed the fire, he can see what I cannot. "If boilers are properly set and stoked one furnace door is sufficient." Certainly there is no gainsaying that, but then there may be improvements even yet. Flint locks were "sufficient" once, and plenty of good shooting has been done with muzzle-loaders, but both are now almost superseded.

If a flue is constructed as it ought to be, and well built with brickwork, there is no danger in its use. Good plants and fruit were grown with flues before pipes were employed. A flue taken from the top of a boiler is quite different from a flue having a fire in the end of it, and the flames full length along the inside. A flue from a boiler is just one with the dangerous end left out.

A great part of a gentleman's garden is only an expensive luxury, and anything to reduce that expense must be not only for the good of our employers, but for the good of horticulture as well. The coal bill is a formidable item which could often be considerably reduced, and I think progress in that direction can only be made by first properly consuming

the coal, smoke and all, as I have tried to provide for by my new furnace; and secondly by utilising all the heat some way or other after raising it. If any good be done by discussing the subject, it is surely not by reiterating a set of truisms about clean flues, removing clinkers, &c., which probably formed part of the instructions every young gardener received the first day he commenced stoking, and which there is little chance of his forgetting.—DUGALD.

I QUITE agree with Mr. A. Young on page 482 in regard to his method of stoking. He says there might be three or more boilers in one place, and yet all require a little different attention to get them to work properly. A great mistake is often made in not having sufficient piping, as in that case the fire requires all the draught to maintain the requisite temperature; whereas, if there was more piping, the fire would not need to be driven so fast, the water would not need be near so hot as when there is a deficiency of piping, and it would not take so much fuel either to keep up the heat. I do not agree with "Dugald's" theory of having a furnace door at each end of the boiler; it would, in my opinion, require too large a stokehole. I have never found any difficulty in keeping the furnace clean with one fire-door. "Dugald" also says, "Why not have the chimney in the shape of a flue through the stove?" I should certainly object to such an arrangement, as flues are dangerous in case of accidents; the sulphur fumes from them also are also very destructive to plants.—G. T. G.

As the subject of economy in stoking is being discussed, perhaps my experience in heating boilers and flues may not be unacceptable. Where chalk can be obtained at a short distance, store it in a covered stokehole to dry, but if obtained in dry weather it may be used at once. In starting the fire put as much coal on as is required to heat the pipes or flue, then break the chalk in pieces the size of hens' eggs. Spread the coal evenly over the bars, then put on the chalk. The coal must not be disturbed from the furnace bars, but keep adding chalk as it burns. I am quite convinced there is a more regular heat from chalk than from either coal or coke. Fires can be conveniently made up at 10 P.M., but the fireman should always be up early in the morning. In bad weather 5 A.M. is a very good time. In renewing the fire I draw the chalk off the coal, put a little more coal on, and start the fire to the heat required, and then pour some water on the chalk drawn out of the furnace. When cooled, it is sifted, and the lime is very useful in the garden on heavy land. What is not sufficiently burnt will do to bank up with. There is one thing to observe—be very careful not to choke the back of the fire, which should burn to the front as much as possible. Five barrowfuls of chalk to one of coal may be used. This I call economising, and I have had a fire like a gas retort by regulating the damper and furnace doors.

Respecting flues, I should have no fear of taking them through a house. A first-rate grower of tricolor Pelargoniums and Poinsettias has a flue in his propagating house for bottom heat, and the heat is regulated by the damper of the furnace chimney. But the flue is well constructed, and has a brick rise in every 10 feet. Slates are laid on the top, resting two bricks from the flue, and covered with cocoa-nut fibre, in which the pots are plunged. Many years ago when I was with Mr. Cuthill of Camberwell, he grew many Cucumbers for market. Three ranges of pits were heated by hot water. The heat from the furnace was so great it induced him to have another pit built, and the draught from the furnace afforded sufficient to heat the extra pit through glazed pipes. It was in this pit where he grew his famed Lisianthus. I will state at some future time how this good, old, and rare plant can be grown with 500 flowers.—G. W. YOUNG.

LATE BLACK GRAPES.

I WAS particularly pleased to see Mr. D. Thomson give the Gros Colman such a high place in his estimation, more especially as regards its flavour. I send you a bunch that was grown in a medium temperature not quite so high as that for Muscats, but much higher than Alicante and Gros Maroc. The flavour of Gros Colman is very peculiar but good, piquant, and this improves by keeping. When well grown it cannot but be recognised as a Grape of the first quality. I am very strongly impressed with the need of a high temperature for this, though I cannot say it improves the colour. This is, however, a wonderful variety for colouring in the dark days, say, of November. Just lately I have marked several bunches with a few half-coloured berries, and therefore I am quite satisfied that even now they are colouring.

Gros Maroc as you see shows no signs of shrivelling, but to say this and Cooper's Late Black are the same will upset the calculations of many growers. I made the acquaintance of the latter at the last Caledonian Show at Edinburgh for the first time, but did not have the chance of tasting it. Exhibited as it was there it appeared distinct both from Alicante and Gros Maroc. One exhibitor staged both Cooper's and Alicante good, grown in the same house. Gros Maroc sometimes is longer in berry than mine, but this is, I believe, a sign of its having more heat than I gave mine. I also send a small piece of Alnwick Seedling grown with Alicante and Gros Maroc; with me it fails to set, yet shall try again. Do you think grafting Cooper's Late Black has altered its character? Gros Guillaume grown with Gros Colman does well here, though the berries are only medium Hamburg size. This, however, with me is caused perhaps by overcropping, as I have cut four bunches weighing 22 lbs., leaving still four other smaller bunches hanging.—STEPHEN CASTLE, West Lynn.

[Gros Colman is excellent in size, finish, and quality. Gros Maroc,

good berries and smooth, but not of high quality; footstalks shrivelled. Alnwick Seedling, well coloured, berries irregular; quality brisk and good. Alicante of average size and quality. The examples sent to us by Mr. McIndoe as Gros Maroc and Cooper's Late Black were undoubtedly identical. What is the origin of Cooper's Black?]

EDWARDSIA GRANDIFLORA.

AMONGST the many beautiful plants which English gardeners owe to Sir Joseph Banks must be included the above, with several other members of the same family, all shrubs of more or less elegance. Though usually grown in pots, they have also been successfully grown out of doors, and in positions against a wall where they are not too exposed they usually escape damage even during the most severe



Fig. 104.—*Edwardsia grandiflora*.

winters. When grown in pots a compost of turfy loam, peat, and sand—the former in the largest proportion—is required, and in the greenhouse and conservatory the plants will grow and flower freely.

Edwardsia grandiflora was originally known as *Sophora tetraptera*, under which name it was figured in the "Botanical Magazine" in 1791. In the remarks accompanying that a tree is mentioned which was planted against a wall in the Apothecaries' Garden, Chelsea, by Mr. Forsyth in 1774. This, it is said, grew strongly and flowered most abundantly, but the plant was protected with mats in severe winters. The leaves are very neatly pinnate, having eight or nine pairs of small pinules, which are whitish on the under surface and green above. The flowers are of a peculiar yellow hue, the calyx being darker and somewhat brownish.

Edwardsia chrysophylla from the Sandwich Islands has flowers of a similar shade of yellow and somewhat similar in form, but the leaves have a greater number of pinnæ and are of a silvery colour on the under surface.

DESTROYING CRICKETS.—I observed in the Journal an inquiry as to how crickets can be destroyed, and in reply I may state that when I took charge of the gardens here about five years ago the stove was infested with them. I obtained some common jam jars, in which was placed a mixture of treacle and beer, and the jars were sunk level with the surface

of the beds. The house was soon cleared, and we had no more until last spring, when they appeared in the Cucumber and Melon house, attacking the small Cucumbers and Melons. I used to catch a great many in the paths at night, but they at last increased to hundreds, but when the fires were discontinued in the summer they soon disappeared.—A. STEVENS, *Holynell Park.*

ALTERING THE NAMES OF CHRYSANTHEMUMS.

Now that the Chrysanthemum exhibitions are over and the cultivators of that beautiful autumn flower are looking over their catalogues for the purpose of selecting their new stock for the ensuing year, I think that a few hints may be useful to those who, like myself, are desirous of having their plants all true to name.

There are doubtless some of your readers who have purchased plants of well-known nurserymen, grown them all the year, spent time, money, and attention upon their culture, and then when the blooming season arrived have had the mortification of finding that what they bought as Peter the Great turned out to be The Sultan, and that Bismarck was really The Cossack.

Now, in my opinion, no words can sufficiently express the keen disappointment that a grower feels at being treated in that way, especially when a nurseryman of considerable reputation has served him in the same manner on more than one occasion; and he can only come to the very natural conclusion that such a proceeding is an intentional disregard of those principles of honour and integrity which every man in commerce is in duty bound to observe.

But there is another and still more serious practice going on in the trade which is less likely to be detected than that mentioned in the preceding paragraph, and which I am determined shall not be allowed to exist if any protest on my part can affect it. It is a well-known fact among Chrysanthemum growers that the majority of the new Japanese flowers sent out every year are raised by the French firm of Delaux et Fils. It is from them that the English firms obtain either directly or indirectly many of their new varieties, and they usually appear, as they should do, in the English catalogues with the names given to them by the French raisers.

But as most rules have an exception it is unfortunately so with regard to new Chrysanthemums, and one English house of business of no little importance has this year wrongly named, incorrectly spelled, mutilated, and curtailed the names of not less than thirteen varieties sent out last season by that French firm to which I have just alluded.

When I first noticed this unaccountable change nearly three weeks ago I immediately wrote pointing out the extraordinary variation, being then under the impression that it has happened for the first time, and that it was probably ignorance on the part of an employé that occasioned the errors. Since that time, however, after a careful investigation, it has come to my knowledge that precisely the same thing was done last year in at least six or seven instances.

As my letter to the firm still remains unanswered I can only assume that this respectable English house intends to let the question remain as it is, notwithstanding the distinct assertion that plants on sale there are true to name, and I fully anticipate finding when next autumn comes round the whole of the new Chrysanthemums sent out by Messrs. Delaux et Fils (and probably the other French growers) re-christened, and that they will thus be despoiled of the honour to which they are entitled for the care and unflagging zeal they have shown in the cultivation of a flower that excites the admiration of everyone who beholds it.

It is unnecessary for me to point out the terrible state of confusion that will exist if a check is not put upon this practice at once, and the useless expense which will be incurred by growers who make it a point, as some of my friends do, of purchasing all the new varieties; in addition to which they will have the vexation of finding out when too late that they have the same variety under two different names.—C. HARMAN PAYNE, *8, Kennington Park Gardens, Kennington Park.*

[No one is justified in changing the name that was attached to a plant by its raiser without his permission. Can any of our correspondents adduce examples of the practice that is very properly condemned?]

STORED-UP SAP IN VINES.

YOUR correspondent, "Credo," will find the quotation from Lindley that he failed to discover where I said he would—viz., at page 52, chap. iv., second edition, published fifteen years later than his copy. He will also find it correctly copied and applied by me, and that the first plant named by Lindley as an example is the Vine. As to the other quotation, I fail to see the object of "Credo" in reproducing it in an extended form in your pages, as it adds nothing to the point at issue. The gist of "Credo's" article is at the end where, in a few words, he utterly destroys Mr. Taylor's case and corroborates all I have said. I have not denied that Vines stored up sap, only said that they did not store it "in the sense" Mr. Taylor describes—that is like an Onion. I admitted, in my first note, that a Vine wholly deprived of its roots would burst its buds, but said it would "do barely more" unless the fresh or crude sap from the roots came to its aid. This is exactly what "Credo" says, only in other words, as follows:—"When the buds commence expanding in the spring they unquestionably obtain their full supplies from the 'stored-up sap' in contiguous cells, but immediately a green surface is exposed to the air elaboration commences, and the crude sap is then speedily utilised. It is in this respect that I cannot think Mr. Taylor quite correct in

assuming that the leaves are entirely dependent on the stored-up sap until they are 5 inches broad, as the smallest green foliage surface exposed to light suffices to produce the requisite change in the fluid absorbed from the Vine."

This is all I contend for practically. Green foliage and tissue are "exposed" the moment the buds burst through their scales, and before the roots are more than a few days old or more than half an inch or an inch long, and they avail themselves of the crude sap at once, and with which the Vines are being constantly filled from the roots. A very different story this from Mr. Taylor's. It is after this period his Vines "depend" on stored-up sap, and the Vines he spoke of were dependent on it, he said, up till the 10th of February!

What does "Credo" mean by "contiguous cells?" I admit that buds, like seeds, store sufficient nutriment within themselves to sustain their vitality and perhaps to burst their scales, but that is about all. With Mr. Taylor it is stored in some unexplained way in the stems. I do not think either of your correspondents are very clear on the subject of "elaborated" sap. I have always understood that the sap ascended by one channel, was elaborated in the leaves, and descended by another channel to the trunk and branches, where it formed new wood; but never returned to the leaves again, which are the elaborating organs, and not the final repositories of elaborated sap. But according to "Credo" and Mr. Taylor the sap or part of it elaborated in 1883 returns to the leaves again in 1884. Is this so, and is the order of the circulation of the sap reversed? Does the sap travel back and upwards by the descending channel, or how? There is something involved here. When Lindley speaks, as in the quotation I gave, and which is amplified by "Credo," it is *crude* sap which is said to be "stored up till it is required by the young shoots of the succeeding year."—NON-BELIEVER.

HAVING at last convinced "Non-Believer" of one of the great truths sought to be established in the minds of my readers—namely, that Vines do store up food during one season for use in the following season, there is a hope that the sequel to this—namely, that the Vines subsist on the food so stored up till they have reached a certain stage, may also ultimately form a part of his creed, and then he will be a "Non-Believer" no longer. Passing over his personal remarks as regards my unreliability and total untrustworthiness with the thought that he has not yet proved his capacity for judging of this matter, and that better men than myself have been abused by their pupils, I will examine the question as it now stands.

It is admitted, then, that food is stored up in Vines, and that when "Non-Believer" said "only bulbs and tuberous roots store food, for reasons apparent to anyone," he was labouring under a fundamental error. This is important, because on the existence of this truth depends all my treatment of Vines in autumn and spring. "Non-Believer" also almost accepts the statement that the root hairs are the agents by which food is taken up and carried to all parts of the plant, and he has known and acknowledged all along that root-growth commences subsequent to leaf-growth. The only question remaining at issue, then, is, Do root hairs exist before root-growth commences? I say they do not, and that they are only produced on the young growths and are only of annual duration. Your correspondent invites the authorities "at Kew or elsewhere" to settle the point for him. Now I will tell him of a very simple plan whereby he or anyone else may arrive at a conclusion without troubling the authorities at Kew, who would probably be a little more modest than your correspondent about repudiating facts noted by an observant gardener on a subject which he had made a life study, although they might fairly question his theories and deductions.

The plan I recommend is: Procure a couple of small Vines in 7-inch pots from a nursery, such as are too frequently sold for planting, and may be purchased for half-a-crown each. Cut them down immediately to a good eye near the bottom and place them in a sitting-room window where they can have ordinary attention as regards watering. When top growth commences turn them out daily and examine the coils of roots round the ball with a good microscope, and note exactly when root-growth commences and when root hairs are formed. After turning out the plants two or three times they will scarcely fit so well round the sides of the pots, and it will be necessary to place saucers under them when water is required, so as to guard against the possibility of their becoming too dry.

It may be necessary to tell some of my readers that the root hairs—the real feeders—are almost too small to be seen without a glass, and that when examined with such an instrument they are seen to be arranged around the elongating root in bottle-brush fashion a short distance from the spear-like point, which is not supposed by modern physiologists to feed at all. The way the root hairs feed shall be told by Dr. Masters in language that all can understand. "The passage of the insoluble matters in the soil into the root is effected by an acid liquid produced by the root hair or cell in consequence of its contact with the particle of soil, aided by the water in the soil. This acid fluid saturates the cell walls, corrodes, and effects the solution of the surface of the particle of the soil in contact with the fibril or root-hair. No passage of acid fluid out of the cell takes place, root-excretions having no existence, but the corrosive, and as it were digestive action above mentioned, is due solely to the absolute contact of the cell of the root with the particle of soil. The soil, therefore, is not to be looked on as containing so much liquid food ready for instant use. This may be so as regards water, but for other substances the digestive action of the roots is necessary."—(*Plant Life*, p. 20.)

It will be seen, then, by the youngest of readers that when "Non-Believer" writes of plants "absorbing sap from the ground from the

moment they are started," he is writing of something unknown to physiologists. "Non-Believer is very anxious for me to answer his question "Why does a Vine bleed, and why does it stop when deprived of its roots?" Now, although the first part of this question does not come within the range of my observation of facts, and is a purely theoretical one which has been discussed by learned physiologists for ages, I have no hesitation in giving what information I possess on the matter, but it must be accepted only as theory. The latter part of the question may be answered by another question equally profound—namely, Why does a fountain cease to play when turned off at the main? In the chapter on root-pressure in Prantl's "Text Book of Botany," second English edition, p. 85, he says "It is an old observation that Vines when pruned bleed as it is called in the spring—that is, that water escapes from the cut surfaces. Closer investigation has shown that this water exudes from the opening of the large vessels. . . . This water is absorbed from the soil and forced up into the plant by the roots, often with a force capable of supporting a column of mercury of considerable height. . . . This movement of water, effected by the root-pressure, is particularly conspicuous in the spring, and generally at the period of the most vigorous growth." The author then goes on to "show that there are three distinct modes in which water moves in the living plant. Of these two are effected by a sort of suction proceeding from the spot where the water is being used—namely, (a) the slow movement of the water in the processes of growth, and (b) the passage of water through the wood to compensate for the loss by transpiration. The third motion (c) is caused by pressure from the roots upwards independently of any consumption." The last-mentioned motion is the one with which we are just now concerned, and Prantl's theory of it agrees with what has been guessed at by several practical gardeners, and recorded within the last few years in this Journal—namely, that little or no harm happens from the bleeding of a healthy Vine, as there is little or nothing besides water exuded, and there is, or ought to be, always an ample supply at the command of the plant to replace that which is so lost.

The passage quoted by your correspondent from "Elements of Agricultural Chemistry," to the effect that "the sap, except when frozen, is supposed to be rarely quite stationary," in no way affects my argument, for there is a continual absorption of water going on by one or more of processes enumerated, and a movement of water through the plant's system means a movement of something else as well; for, as Dr. Masters says ("Plant Life," page 6), "The water from the outside has to pass through the membrane to reach the protoplasm on the other side. Speaking broadly, there are no holes in the membrane through which the water can pass. Ingress is secured by that process of diffusion [osmosis] to which reference has just been made, and by virtue of which the molecules of the membrane and the molecules of the water shift and change places; the space that was occupied by a molecule of membrane is now occupied by a molecule of water, and *vice versa*."

The word "sap" is not much used by modern authors, and has scarcely now any definite meaning. The changes continually going on in the interior of the plant are better expressed by the author last quoted at page 11—"Cell membrane, the protoplasm, the entire mass of liquid and solid constituents of which the plants consist, are, as we have seen, made up of molecules, each, as it were, with a life of its own undergoing continual changes according to different circumstances, acting and reacting one upon another so long as any active life remains. Active life, indeed, is ceaseless change, dormant life is a condition of equilibrium more often talked about than realised; in fact, it is merely relative, it implies merely a lessened degree of activity."—WM. TAYLOR.

A CONTROVERSY upon any matter connected with the Grape Vine never fails to attract much attention, and that now being spiritedly conducted by Mr. Taylor and his non-believing critic is especially interesting. These discussions elicit many instructive facts, and the principal actors may rest assured that they are neither wasting valuable space nor wearying their readers. There are but few qualified to take an active part in this discussion; but unless I am much mistaken, the majority argue out the matter among themselves whenever the opportunity presents itself. I have had several arguments on the subject, and at the risk of "getting out of my depth" shall also attempt to interpose a few remarks.

From the first I maintained that Mr. Taylor's theory with regard to the root-action and its effects upon the young shoots was not the right one, and this "Credo," in his praiseworthy endeavour to clear the ground, very plainly demonstrates. We often read that, apparently to the surprise of the writer, it is nothing better than water that comes from Vines that are bleeding most profusely, but what more can be expected? It is quite certain that such great quantities as a Vine will discharge cannot have been stored in the stems and roots of the Vines; and it is equally evident they cannot with their root hairs, or by whatever means they imbibe moisture, take up anything but nearly clear water. At any rate, I should not expect the moisture that filters through such minute openings to be either discoloured, thick, or strongly impregnated, or even perceptibly affected in its taste, by the various soluble constituents of the border. It was my argument that the young shoots, leaves, and bunches are first formed and started by the stored-up sap, (this being soon exhausted), and that the leaves begin to change colour as soon as they are able to elaborate the crude sap, thereby preparing food for themselves, the changed character of the sap in the "return pipes" being also the cause of root-action. This idea may be at variance with the teachings of our great authorities, but it is my belief "big guns" as well as "small fry" are apt to accept only such evidence as

supports their pet theories, treating other equally forcible facts tending to an opposite direction as irrelevant matter.—W. IGGULDEN.

[SAMPLES of the Vines mentioned on page 512 of last issue have been submitted to a competent microscopist, and he sends us the following letter in reference to the matter:—

"I have examined the Vine stem as desired, and find the whole of the parenchymatous tissue of the stem, excepting only the pith, to be densely packed with starch grains and other reserve food material. The swollen tumid portion at the node around the bud proper consists almost solely of somewhat thick soft-walled cells full of oval starch grains, forming altogether as evident a reservoir of food material intended for future use by the plant as the tuber of a Potato. This starch has of course been elaborated during the summer by the activity of the chlorophyll; briefly, by the process known as assimilation, the transference and re-constitution of the starch granules where we now find them having been brought about by metastasis."]



WE are informed that the VEITCH MEMORIAL PRIZES for 1884 will consist of three bronze medals and £5 in money, to be offered at Dundee, and similar medals and money prizes at one of the Royal Botanic Society's shows. Three others of the same value will be also offered at shows held by some of the florists' societies.

— AS would be seen from the advertisement in last week's Journal, the following are the dates of the meetings of the Scientific, Fruit, and Floral Committees of the ROYAL HORTICULTURAL SOCIETY for 1884. *Scientific Committee*.—January 8th; February 12th; March 11th and 25th; April 8th and 22nd; May 13th and 27th; June 10th and 24th; July 8th and 22nd; November 11th, and December 9th. *Fruit and Floral Committees*.—January 8th; February 12th; March 11th and 25th; April 8th and 22nd; May 13th and 27th; June 10th and 24th; July 8th and 22nd; August 12th and 26th; September 9th; October 14th; November 11th, and December 9th.

— THREE pretty Orchids were certificated at Kensington last week—namely, *CYPRIPEDIUM SCHRODERÆ*, *C. CARDINALE*, and *C. CALURUM*, all hybrids, in which *C. Sedeni*, itself a hybrid between *C. Schlimii* and *C. longifolium*, had been one of the parents. The most distinct of the group was *C. Schroderæ* (*C. Sedeni* and *C. caudatum*), as the characters of the latter species predominate, but in the others the globular lip and rich rosy colour derived from *C. Sedeni* indicate at once the family relationship. Both *C. cardinale* and *C. calurum* are beautiful Orchids, but the first is simply charming, the neatness of the flowers in form, together with the striking contrast of a deep rose lip and white sepals and petals, render it unique. In this case *C. Sedeni* was crossed with *C. Schlimii album*, a curious example of intercrossing; indeed, the readiness with which the forms of this section of the genus *Cypridium* hybridise is gradually giving rise to a distinct and handsome group, notable alike for floriferousness and vigour of habit.

— A PLANT was shown by Mr. King at the same meeting that well deserved notice, but which the Floral Committee passed unrecognised. This was the ZONAL PELARGONUM ROUSHAM MODEL, a variety of great merit with exceedingly symmetrical flowers, broad rounded petals of an intensely bright scarlet colour. They are borne in bold trusses, and the general habit of the plant is compact and strong, and altogether the variety is one of the finest of the type that we have seen.

— "CYMRO" writes thus respecting *CALANTHE VEITCHII*:—"Allusion has recently been made to the superiority of the straight pseudo-bulb form of the above over the compressed form. But are the straight forms always best? I am inclined to answer in the negative, for we have here at present several plants of both forms, grown under similar conditions, bearing spikes of flowers of average quality without the slightest distinction in colour. I have previously seen, as Mr. Thomson describes, the straight form much the best; but I am doubtful whether it can be relied on as a guide to purchasers, to whom the matter may be important."

— A DOUBLE SCARLET BOUVARDIA named THOMAS MEEHAN

is announced as one of the novelties of an American firm who have previously sent out the now well-known Bouvardias Alfred Neuner and President Garfield. It is said to be the result of a cross between B. A. Neuner and Ciantha; the latter, we suppose, being that known in England as leiantha. The flowers are described as very double and of a brilliant red colour. If this prove as good as the white variety it will be a great acquisition.

— "G. T. G." writes:—"I regard CHOU DE BURGHLEY as a very useful vegetable at this time of the year, as most other kinds are rather scarce. With us, as yet, it is only like an ordinary Cabbage, but much superior in flavour. Mr. Gilbert, however, says we must wait till March to see it in its true character, when I hope it will turn out what it is represented to be. If it does, it will be one of the most serviceable vegetables we have."

— THE pretty and useful ROSE, WILLIAM FRANCIS BENNETT, is attracting much attention in the United States. It may be remembered that Mr. Bennett of Shepperton sold this Rose to Mr. Evans of Philadelphia for something like £780, on the understanding that no plants or cuttings were to be sold for four years. There now seems to be some little difficulty about cutting buds with long stems, as it is feared the lower eyes may be propagated. Several methods of preventing this have been recommended; one being touching the leaf buds with acids and another cutting them out, but neither are quite satisfactory, and it is likely that the variety will soon appear in other establishments.

— As a sample of late WHITE CHRYSANTHEMUMS, Mr. Cannell has sent us beautiful blooms and a profusion of buds in various stages of development of Mrs. Charles Carey and Virginale. The former, as several of our readers are aware, is a Japanese variety, very pure, with flat incurving florets, the bloom resembling a white form of Peter the Great. The large dark foliage contrasts effectively with the flowers, and the variety would appear to be very useful, and is certainly highly effective for decorative purposes at this period of the year onwards. Virginale is a medium-sized Anemone flower, with long clear white guard florets, and a creamy white full symmetrical centre. The blooms before us are fresh and charming, and it is not a matter of surprise that this variety has already become popular in the Christmas flower market.

— A CORRESPONDENT writes respecting STRAWBERRIES AND GRAPES at LONGFORD CASTLE as follows:—"In passing through the forcing houses at the above establishment the other day we noticed a very fine batch of early Strawberry plants which looked very promising, some in flower and many with the fruit set and swelling; these will probably be ripe next month. The plants, which are growing in 6-inch pots, are from this year's runners, and are about six months old. Grapes in the new range of houses are now at their best. The crop is certainly a marvellous one, the heaviest we have ever seen on young Vines, and which are not yet three years old; this being the second season of their fruiting. In the end or west house, which is 32 feet long and 17 feet wide, are fifteen Vines bearing collectively eighty-six bunches. Many of them we estimate will weigh from 4 lbs. to 5 lbs., and two or three of the largest will probably turn the scales at 8 or 10 lbs. Although the latter are a little wanting in colour, the crop, taking it altogether, does very great credit to their grower, Mr. Ward."

— ON Monday, the 14th, at the George IV. hotel, a dinner was held in connection with the CROYDON HORTICULTURAL SOCIETY. The Committee invited some of the exhibitors at their recent shows to dine with them. Mr. Alderman Coldwells and Mr. Reed, two esteemed supporters of the Society, and Mr. Orchard, one of the Judges at the late Chrysanthemum Show, were also present. In the course of the evening Mr. Coldwells pointed out the fact that when the Society a few years ago was conducted by gentlemen and tradesmen in the neighbourhood, it was almost a failure, but when it came into the hands of practical men the results were far more satisfactory. Mr. A. C. Roffey, the indefatigable Secretary, read the balance-sheet for the last two seasons, which showed that in 1882 the total income was £336 6s. 11d.; paid in prizes, £155 1s. 3d.; balance at bank, £45. In 1883 the total income was £412; paid in prizes, £156 17s. 9d.; balance at bank, £100 17s. 10d. The health of the Mayor, J. S. Balfour, Esq., M.P., was received with much enthusiasm. This gentleman not only lent the ground for the last summer show, but also generously provided a grand display of fireworks, and allowed the Society to take the proceeds of gate money, which is

estimated at £70, from visitors to the fireworks alone. It is considered by some members that if the Society were to provide fireworks to the amount of £25 at future shows the result would be £50 at least in return for admission to see them.

— "A. O. W." writes—"For autumn and winter flowering I find HELIOTROPE WHITE LADY invaluable. Cuttings are struck in spring and grown in a cold frame during the early part of the summer, and potted as occasion requires in 32 or 24-sized pots. The shoots are well pinched to make bushy well-balanced heads. After the plants are established in the large pots they are placed out of doors until the autumn. The plants so treated are now covered with pure white and highly fragrant flowers, which are much sought after for bouquets and buttonholes. An intermediate house and a position near the glass seems to suit them well. I observe that this variety when grown out of doors in borders, also in a cold house in the autumn, has its flowers much less fragrant than those grown in a little heat."

— GARDENING APPOINTMENTS.—Mr. George Piller, late foreman at Old Warden Park, Biggleswade, succeeds Mr. Hunt as gardener to General Benson, Fairy Hill, Swansea, South Wales.

— "W. O." desires to know if WASHING PEACH TREES with Gishurst compound, prepared at the rate of six ounces to a gallon of water, would cause the buds to fall. Perhaps some of our correspondents who have tried the mixture at the strength indicated will answer the question, and state also what they consider the safest and best wash or dressing for Peach trees.

— "A CONSTANT READER" sends the following:—"Thinking that it might interest the readers of the Journal to know that the love for the cultivation of the Chrysanthemum is spreading and has now secured a firm footing in Scotland, it affords me great pleasure to inform them that the second annual Exhibition of the DUNFERMLINE CHRYSANTHEMUM SOCIETY was held in St. Margaret's Hall, St. Margaret's Street, on Saturday, the 15th inst., when there was a large display of both plants and cut blooms, the majority of which were of excellent quality; Mr. J. Graham, gardener to Messrs. McLaren, Comely Park, winning the prem prize with six well-flowered plants; Mr. E. Johnstone, gardener, Balmule, and Mr. J. Mackay, Pittencrieff Gardens, being first and second respectively for eighteen blooms; Mr. A. Buchanan, Woodhead Street securing the special prize for the best bloom in the Show with a grand specimen of Empress of India."

— NUMBER 3 MUSEUM AT KEW has been closed during a considerable time for repairs and re-arrangement, but is now re-opened. The interior has been entirely renovated, and instead of the polished woods being piled as hitherto, they are classed and placed singly against the back and front walls. Along the back two small platforms or gangways running the whole length of the building have been placed one above the other at suitable intervals from the floor, leading to which are circular iron staircases at each end for the use of specialists or those wishing to examine the woods more closely than the general public usually do. An iron fence has also been placed round the building 2 or 3 feet from the walls, for the better protection of the woods; the centre being taken up with stands of all the more recent views of foreign botanic gardens, together with portraits of the more noted botanists. Great taste has been displayed throughout in the re-arrangement, special attention having been given to make the museum as light as possible.

— Mr. A. R. Cox, Wavertree, sends the following note—"It may not be generally known that one of the most useful and interesting objects of the LIVERPOOL HORTICULTURAL ASSOCIATION is the holding of meetings during the winter months to hear essays read and lectures delivered, after which their contents are discussed by the members. The second meeting of the fifth annual session was held on the 15th inst. in the Free Library, Liverpool, when papers were read by Mr. Ranger on 'The Cultivation of the Croton,' and Mr. Powell on 'Vegetable Curiosities.' Mr. Ranger is the much-respected manager to Messrs. R. P. Ker & Sons, Aigburth, and whose success as a grower of Crotons and other choice plants is well known by those who visit the Manchester Whitsuntide shows. He treated the subject in a very able manner, and received a hearty vote of thanks from the meeting. If Mr. Ranger would consent to his paper being published in the Journal I am sure your valuable space would not be wasted. Mr. Powell's paper was also very interesting, treating chiefly on Orchids, Nepenthes, and Sarracenias. The usual vote of thanks was accorded. The meeting was well attended, and good discussions followed."

— AT a meeting of the Society of Arts last Thursday, Dr. J. Forbes Watson read a paper upon the CULTIVATION OF "RHEA," OR CHINA NETTLE, commonly called China Grass. Major-General Henry Hyde presided. Upon the platform and side tables were a number of specimens of the fibre of this plant, both in the primary form of long black twigs divested of leaves and flowers, and in various stages of manufacture, from rough white shreds to dyed yarn, reels of coloured cotton, coils of rope, sail-cloth, and the completely finished article in the form of shawls and hosiery. Dr. Watson described in detail the process of manufacture, and gave a history of the plant. The East India Company had for many years brought over a certain quantity yearly, but a demand having sprung up for it, it went up to about £85 per ton, at which price the manufacture was killed. The price now was about £50 per ton. He thought it would be possible to introduce the fibre into the market at about £35 per ton, but he was satisfied that those who thought they were going to grow the plant at a very cheap rate were mistaken, as it required great care in the cultivation. The demand for it was likely to grow, as it seemed probable that the dull-surfaced wools would give way to lustre wools, for the production of which China Grass was peculiarly adapted. It could be prepared to look very much like silk or satin, and undoubtedly it was a much superior article to mix with silk than jute.

LATE PEAS.

IN reference to Mr. Stevens' remarks in last week's Journal on the superior merits of Frederick Roach as a good late Pea, allow me to say that my experience of this variety last season fully confirms his statements as to its being a good cropper and of delicious flavour when grown in succession to Main Crop, but not as a very late Pea. Like your correspondent I grew several varieties, and I found the best variety for late purposes to be that good old Pea Ne Plus Ultra. We are able to gather abundance of Peas until the end of the second week in October. I grew Suttons' Latest of All along with this, but it failed to yield as satisfactorily as the former. My employer is a connoisseur of Peas, and his verdict as well as my own is certainly in favour of Ne Plus Ultra as the best of late Peas. It possesses so many good qualities, among which may be mentioned its capability of resisting mildew, vigorous constitution, and prolificness. What have other readers of the Journal to say on the merits or demerits of this variety?—T. W. SANDERS.

ROSES IN SCOTLAND.

THOSE who imagine from Scott's description of his own land—

"Caledonia stern and wild,
Meet nurse for a poetic child,"

that it is a cold and dreary country, where nothing but Scotch Firs and Gorse will flourish, at any rate on the northern parts of the land, would have been very much surprised had they assisted at the opening of a box which came to me the other day by parcels post from far-off Morayshire. We know indeed that in the south-west of Scotland, in Wigtonshire and Kirkcudbrightshire, frosts and snows are rarities, and that many things we fail to grow in our more southern latitudes flourish there; but Morayshire lies so far north—it faces the North Sea—and is rather more suggestive of snow berries than Roses, yet these flowers sent me by a kind correspondent, Mrs. Dunbar-Duubar of Sea Park, Forres, were all cut from the open. They had had no protection, and yet the foliage was as fresh and vigorous as in summer, the Hybrid Perpetual blooms bright and clean, and the Teas sweet-scented and delicate. A Scotch friend has gone to the Azores to see whether he can raise and grow Tea Roses there, but I could not help thinking he might perhaps have found some work nearer home. Of course climate has much to do with it, but even with this such results could not have been obtained without good cultivation, and it was a real treat when the ground in Kent was covered with 3 inches of snow to open a box from the far north so suggestive of summer.—D., Deal.

A MODEL FORCING HOUSE.

IN relation to the structure referred to by me on page 490, allow me to say the walls of the beds inside are 2 feet 6 inches high, and the outer walls are 8 inches higher, thus making the brickwork 3 feet 2 inches instead of 4 feet as previously stated. I wish to thank Mr. Warhurst for drawing my attention to this matter. I must again repeat that this house reflects the greatest credit upon the two gentlemen I mentioned. I should in this instance at least be in a better position than Mr. Warhurst to know who deserves the greatest praise. If your correspondent knew the origin of the house he would himself have placed the fortunate owner not in the last but in the foremost position. In this instance the owner is a man not only capable of designing the structure but of building it himself if he had felt so disposed.

Whether the house in question is an "extraordinary building" or not, one fact is certain, it is a change from the majority of structures that are used for forcing operations—it is a step in the direction of progress. I do not hesitate saying it is the nearest approach to what I consider a forcing house should be that I have ever seen exhibited or erected. It is a span-

roofed structure pure and simple, and I fail to discover that it is any "modification of the so-called curvilinear roofs with straight lines."

Mr. Warhurst indicates that this model structure is weak at the junction of the roof and sloping side glass, but I think differently. He appears to have overlooked the fact that a rod of three-quarter-inch iron (round), runs the whole length of the roof on both sides, passing through all the main rafters, while all the lighter are secured to it by means of thin iron hooped and a screw on each side of the rod. These iron rods are just 14 inches from the eaves of the house. This is one way of supporting the roof and keeping the lighter bars between the main rafters in their place, and will prove more durable, while it strengthens the portion near the eaves much better than a light "connecting plate or rail." All the rafters and bars connected with the front glass are let into the wall plate, and then those of the roof are fitted neatly to them and nailed.

I do not think in the house in question they have obtained light and sacrificed the strength of the roof; it is light, yet abundantly strong, and will not be twisted about by any storms that may break over it. If the glass used were light and poor I should agree with Mr. Warhurst that small squares would have been better, but that employed is 26-oz., and which will bear a storm of wind of unusual violence before the laps open to let in much cold air.—WM. BARDNEY.

CHOU DE BURGHLEY.

IT is the first time I have seen it stated that autumn Cabbage and Coleworts are strong in flavour. What can be more delicious than a dish of Ellam's Early, Little Pixie, or Coleworts at this season of the year? and they take only about twenty minutes to boil them thoroughly. These can be produced in grand condition after an early crop has been cleared from the ground, which is not the case with Mr. Abbey's pet vegetable. I am afraid your correspondent has been enjoying the former, and mistaken them for Chou de Burghley. It must have taken some boiling before it was as "tender as a chicken." Mr. Abbey failed to say how long he boiled them. Mr. Gilbert allows one hour and twenty minutes. It is true there is no accounting for tastes, and after boiling the Chou de Burghley the length of time Mr. Gilbert thinks necessary, there is no difficulty in detecting the "smack" of the flavour of Broccoli leaves. How does Mr. Abbey get that "delicate" flavour he detects, and which is evidently beyond description? I must examine Mr. Abbey's statement further. He says it is as "hard as nails." Can he write this from experience if he obtained seed only in March last? Has there been any severe weather since then to warrant such an assertion?

I consider Chou de Burghley a coarse vegetable. It is longer on the ground than Cabbage, takes up much more room, and requires four times the amount of coal to boil it; in fact, Cabbage and Coleworts can be boiled for four dinners in the same time, and with the same fuel as is required to produce Chou de Burghley in eatable condition for one day. Chou de Burghley may do for Mr. Abbey, who, I dare say, has no coal to buy and abundance of ground on which to grow vegetables. I have only a small garden, and I want the most from it that can be obtained. First I must have a crop of Potatoes, then tender Cabbages for winter that do not want too much boiling, for I know too well the cost of the twentieth part of a ton of coal before it is conveyed six or seven miles from the station.—A WORKING MAN.

WILD GARDENING.

A TASTE for natural or "wild" gardening is being much more cultivated by the general public, and it behoves every gardener to be on the outlook for the appearance of, and be in readiness to adopt anything that is likely to add a charm to the surroundings. Many really beautiful and interesting gardens may be made by utilising the narrow belts of trees and shrubberies which are so common, introducing some of our hardy shade-loving plants, Ferns, and Orchids. The latter might be introduced in quantity, and would be found to do very much better than they are generally seen in prepared beds or borders, a good carpeting of grass or some other low creeping plant being really essential to their well-being, and it is not always practicable to have tufts of grass in beds.

G. F. Wilson, Esq., of Weybridge, has within the last few years made a great advance in this direction. In the woods surrounding his residence at Heatherbank one unexpectedly finds a large clump of Lilies, some of *L. auratum* being from 5 to 6 feet high, with large well-coloured flowers, and growing, too, entirely under the shade of large trees. Old roots are used with good effect. A few thrown carelessly together are covered with the beautiful *Tropæolum speciosum*, which, by the way, does as well here as in the north, and surrounding them with the common male and female Ferns, making truly a "charming picture." At Wisley, too, this wild gardening has been practised on a much larger scale than at the former place. Large patches of *Epigæa repens* are seen quite at home trailing through the long grass, together with the pretty *Linnæa borealis*, *Sibthorpia europæa*, and a great variety of our shade-loving plants, forming a picture that contrasts strikingly with the stiff symmetrical gardening so common in the parks and gardens about London. In this way a great many of our native alpines, such as *Lycopodiums*, *Empetrum*s, *Vaccinium*s, *Pyrolas*, &c., might be grown very effectively.

At Kew a small colony of these interesting plants has been established under the shade of some Scotch Pines, and in many cases are as vigorous as I have seen them in the Highlands. Very little attention is required in their cultivation. Care, however, is necessary in the choice of a suitable position, which in no case should be over-sheltered. A bed of peat and stiff loam may be prepared, into which angular stones should be deeply

embedded, and planting as near them as possible. They will require plenty of water until they are fully established. The following is a short list of those most suitable:—*Lycopodium alpinum*, *L. clavatum*, *L. complanatum*, *L. Selago*, and *L. annotinum*; *Erica Watsoni*, *Andromeda polifolia*, *Gaultheria procumbens*, *Empetrum album*, *E. nigrum*, *Vaccinium vitis-idaea*, *V. uliginosum*, *Arctostaphylos alpina*, *Betula nana*, and *Cornus suecica*.—D. D.

MURRAY'S VINE COMPOSITION.

IN reply to "M. A.'s" inquiry (page 461), respecting Murray's Vine composition, I have much pleasure in endorsing all that he has said in its favour. Three years since I had a number of Vines very much infested with mealy bug, and being recommended to try this remedy I did so with the most satisfactory results, and now I am thankful to say they are perfectly clean. Since then I have used it extensively on my indoor Peach trees, and find it quite harmless in its application to the buds, and I have also found it invaluable for dressing hardwooded stove and greenhouse plants infested with either brown or white scale; and I feel assured that were this excellent composition better known it would prove a great boon to the gardening community at large.—BENJ. G. STONE, *Elkington Hall Gardens, Louth*.

[Why is it not made "better known" by the vendors? We have received other letters to the same effect as the above, but sufficient has been published at present on this subject.]

AURICULAS AND THE WOOLLY APHIS.

ON page 488 "D., Deal," while speaking of woolly aphides, says, "Every grower speaks of it now as existing in their collection, and its mysterious dispersion is one of those insect problems about which, with all the vaunted discoveries of science, we know next to nothing." Yet I wrote to the Journal two or three years ago to inform "D., Deal," how I had successfully stamped it out of our collection. The roots were so covered with it that they had the appearance of lines drawn with a piece of chalk when the plants were first turned out of the pots. We had it introduced into our collection by some fresh plants from a large grower in August. The following spring, when they were being top-dressed, I first discovered it. It was very bad on the new plants, but it had spread more or less on those that stood nearest to them. I made a rather strong mixture of soft soap and tobacco water (I forget the quantities that I gave them at the time). Two or three of the worst plants were shaken out of their pots, and the roots and collars well washed. Holding the foliage in my hand to prevent any of the mixture touching them, I placed them on the potting-bench for about ten minutes, and then washed them in clean water, wrapped the roots in damp moss, and left them for two or three days. They were then examined very minutely with a glass to see if there were any woolly aphides alive, and whether the roots were injured. They were perfectly clean, and I could not see that any injury had been done, so they were at once repotted. The plants, instead of being top-dressed, were shaken out, washed, laid down for about ten minutes, then washed in clean water and repotted. All the old soil was carefully collected and burnt, the frame scrubbed with hot water and soft soap, and I have never seen any woolly aphides since. But when we have had any fresh plants they have had to go through the washing process before being placed with the main stock.—J. L. B.

THE PARSLEY-LEAVED BRAMBLE.

ON page 5 of our issue of July 5th of the present volume Mr. Muir narrated, no doubt with strict accuracy, his experience of the Kittatinny Blackberry, which variety had proved with him very unsatisfactory. Our correspondent's remarks seemed also to have a wider bearing, for he suggested that probably "some persons may grow American Blackberries against a wall, and even then it would be good space badly used." We advised our correspondent at the time to try the Parsley-leaved Bramble, and perhaps he will do so despite his observation that "nothing which could be said or shown in their favour would induce him to have anything more to do with them," as this decision was founded presumably on such varieties as he had endeavoured to cultivate. Much was "said" in reply to the letter in question, and now we "show" (fig. 105), a good example of the fruit under notice as grown by Mr. W. K. Woodcock at Oakbrook, Sheffield. In October, 1882, this cultivator referred to the productiveness of this Bramble as follows:—

"A single row here 22 yards long, and trained to tall stakes after the manner of Raspberries, has been producing a constant supply of large and well-ripened fruits for six weeks now past, and looks as though it will continue to do so for another month should the weather continue mild. Up to the present time since the first gathering commenced an aggregate of more than two bushels of good fruit have been obtained, and employed by our cook in a variety of ways for pastry, also for making jam, jellies, cheese, syrup, &c., till she tells me she appears to have an inexhaustible supply. It appears to be especially adapted for training over light wire arches or trellises spanning the kitchen garden walks, where it would be both useful and ornamental. Many of the fruiting rods with us are 10 feet long, and furnished with long racemes of fruit from the base to the summit. I do not know any other fruit-bearing plant or shrub which will produce an equally large quantity and long succession of fruit for the space occupied. Its cultural requirements are very simple. The main

point being attention to training and tying out the young growths occasionally during the summer, and pruning after fruiting in the autumn, when a few of the oldest fruiting rods are cut away to make room for young growths, and those left have their laterals cut back to one or two eyes from the base, after which they are again trained to their supports and a liberal mulching of manure given to their roots."

In July of the present year Mr. Woodcock wrote:—"My notes in October last as to the quantity of fruit we had then gathered were not in any way exaggerated, and we continued to gather fine fruit for several weeks afterwards. At the present time our stock is growing very vigorously, and promises even better results than last season. The clusters of fruit produced on our canes are certainly much finer and the fruit larger than the engraving of Kittatinny shown on page 519 of last volume. I have been measuring the fruiting spurs or racemes, which are now just expanding their first blooms, and find they average 2 feet in length from their junction with the cane. There is also an average of fifty bloom buds to each spur, and forty spurs to each cane, which are about 12 feet in length. As we grow an average of four canes to each root or stool, we have a total average of 8000 bloom buds from each root, and nearly every bloom may be relied upon to produce a fruit fully as large as the largest and best Raspberries; and coming in as they do after Raspberries and all other bush fruits are over, they are highly esteemed. The roots are planted 5 feet apart in the row, and the canes are trained more or less horizontally over a row of wood stakes, which are 9 feet high and 2 feet 6 inches apart. They require an open sunny position to ripen the fruit properly, coming in as it does in the comparatively dark damp days of October. Our system of cultivating them is very simple, and consists in cutting clear away at pruning time most of the old canes which have borne fruit, to make room for the young canes made during the previous summer. If sufficient young canes have not been made to fill the space, some of the best of the old ones are left and have their fruiting laterals pruned off close to the cane. They are then again all trained to the stakes, and have a liberal dressing of decayed manure given to their roots.

"In October, 1879, Prince Leopold was staying at Oakbrook for a day or two on the occasion of his visiting Sheffield for the purpose of opening Firth College. The Bramble was then (October 22nd) in fine condition, and received very high praise from His Royal Highness both for its qualities as a choice dessert fruit upon the table and for its free-fruiting character. Messrs. Fisher, Son & Sibray tell me they afterwards had the honour of supplying his gardener with a stock of plants."

Mr. Ward of Longford Castle has grown these Brambles to his satisfaction, and he is one of the last persons to be satisfied with what is not creditable to him and meritorious. Mr. Luckhurst, whose standard of excellence in fruit culture is a high one, has stated in reference to the Parsley-leaved Bramble that "under good cultivation it has proved to be so excellent both in the size and abundance of its berries as to have a prominent position assigned it among our most useful fruits. The common Bramble grows so luxuriantly and in such abundance here that when I received some plants of the Parsley-leaved American Bramble from Brocklesby Park in Lincolnshire, where I am told it is so flourishing as to attract the notice and admiration of visitors, they were planted in ordinary soil under the erroneous supposition that no special care was necessary to induce them to grow freely and bear fine fruit. The puny growth of the first season proved that I was mistaken, and in the following autumn a trench 18 inches deep and 3 feet wide was excavated and refilled with two-thirds of spent hotbed manure mixed with a third of garden soil, and the Brambles transplanted into it. Nothing could be more satisfactory than the result, for the growth that followed was so rampant that it was obvious an ordinary trellis would be useless, and a neat one 6 feet high of diamond pattern was made of stout poles thrust into the ground and crossing each other diagonally. This was soon covered, and for some three or four years we have had an ample supply of fruit far surpassing anything ever seen on an English Bramble. No account has been kept of the actual quantity of fruit picked in a single season, but I know that from 6 to 8 gallons has been picked at one time, and this may be done repeatedly for several weeks from a row 60 feet long and 7 feet high. This season the crop promises to be even more abundant, for the row is just now one mass of blossom from bottom to top, borne in huge clusters upon stout lateral growths about 2 feet long, so that the row is in reality a thick hedge quite 4 feet through, and is probably at its best. Nor is there any fear of a cessation of vigour, for new main shoots have come freely from the bottom of the old ones, and are already from 6 to 8 feet long, and nearly an inch in diameter. The fruit is used chiefly for making jelly, which is so highly prized by connoisseurs that it must command a profitable and ready sale. Surely fruit-growers for market would do well to bestow some attention upon a fruit that is so hardy, so prolific, and so easily cultivated, and which, so far as my experience goes, is unaffected by blight or disease of any kind."

Mr. John Carter of Keighley has also written favourably of this fruit and as his letter is short we reproduce it. "I have grown these for years, and they are very beautiful so far as foliage is concerned, but what is much more satisfactory, loaded with rich luscious fruit every season. My soil is tolerably strong, and the requisite number of the previous year's shoots are pegged-in to an unsightly wall during the spring. They often make 4 or 5 yards' growth of very strong wood. In September, 1881, I sent bunches of fruit to the Journal, which were favourably noticed. Being a late fruit it is essential that the plants should be grown in a sunny aspect. I daresay every soil would not grow them satisfactorily, but with me the difficulty would be to get quit of them. Keighley station is a mile and a half from my Willow Bank nurseries, and I shall be pleased to show these beautiful plants to anyone who may think it worth while to

call and see them. I have tried Lawton and several other Blackberries, but I do not find any equal to the Parsley-leaved."

We have seen the plants referred to, which masked attractively, also profitably, the "unsightly wall." We have also tasted jelly made from the fruit by Mrs. Carter, and must pronounce it clear, very rich in colour, and excellent. We have further seen the plants grown by Mr. Woodcock, which merit all he has said of them, and have examined rows of this Bramble in the nurseries of Messrs. Fisher, Son & Sibray, that were bearing prodigiously, the variety there grown being said to have originated as a chance seedling, presumably from *Rubus laciniatus*.

From the evidence adduced it would appear that the Parsley-leaved

tions on this point as are given in the catalogues of Vilmorin and Mr. Campbell of Gourock.—A NORTHERN AMATEUR.

CHRYSANTHEMUM EXHIBITIONS.

NOVEMBER, usually noted for its fogs, has this year been almost exempt from them. With the exception of a few sharp frosts about the middle of the month the weather has been bright and open. The past month has indeed been a most busy one for all connected with the Chrysanthemum, for not only gardeners but the horticultural press have to share in the work connected with exhibitions. Something like



FIG. 105.—THE PARSLEY-LEAVED BRAMBLE.

Bramble is worthy of trial, but it does not in all places establish itself quickly, and two or three years are sometimes needed for it to develop its qualities, and Mr. Luckhurst's observations on this point may be perused with advantage by intending cultivators.

EARLY AND LATE-FLOWERING GLADIOLI.—"They possess no such characteristic" writes "W. J. M." in a recent issue of the Journal. His experience adds another fold to the mantle of mystery in which the capricious beauty enwraps herself. With me scarcely anything is certain about them but that, and I have this season additional proofs, which I mean afterwards to submit to your readers, of their very strict adherence to the same. I would caution beginners in their culture in these northern latitudes of the grievous error they will commit in ignoring such intima-

six pages in each of the issues of the Journal for three weeks have been devoted to the detailed reports of exhibitions, of which upwards of fifty have been held. Amongst the principal exhibitions devoted chiefly to Chrysanthemums I may notice the following:—Southampton, Stoke Newington, Royal Aquarium, Kingsten, Birmingham, Liverpool, Northampton, Manchester, Oxford, Bristol, Plymouth, Worcester, Shrewsbury, Lincoln, Winchester, Brighton, Bath, Gravesend, Headington, Loughborough, Devizes, Reading, Ealing, Southgate, Tunbridge Wells, Aylesbury, Brixton, Croydon, Bromley, Eastbourne, Weybridge, Ipswich, Dorchester, Twickenham, Teddington, Linfield, Staines, Lewes, Putney, Hawkhurst, Wimbledon, Chelmsford, Tooting, Dartford, and even from Durham down to Land's End. For the reason of such wide popularity we have not far to seek. With the introduction and development of the Japanese varieties we obtained such a diversity of colours that at once

supplies a want needed during the dull season. It is impossible for any one person to have seen the whole of the exhibitions above enumerated, as so many fell on the same day, but a few of the principal I have been fortunate to visit, and these I shall remark upon.

Beginning with Southampton, which was indeed a grand exhibition, a great number of classes being devoted to the flower in question, in every class the competition was most keen, as well as the quality of the flowers superb. I have never before seen classes in which collections were so nearly equal. The leading class was for eight Japanese and sixteen incurved or reflexed. A class of this description has much to recommend it, as the back row is made up of Japanese, and the other sixteen principally incurved. For my own part I would prefer to see the reflexed struck out, as they do not harmonise with incurved flowers, so that if framers of schedules were to ask for twenty-four cut blooms of Chrysanthemums, to consist of eight Japanese placed in the back row and sixteen incurved in the other two rows, they would find plenty able to compete that could not find twenty-four good incurved varieties. It is the last straw that breaks the camel's back, so it is the last one or two flowers in a collection of twenty-four incurved varieties that weakens many a stand. This is a class that will not only work well if adopted, but is most effective. The back row being Japanese brightens the stand considerably. I think the above class at Southampton, for which the first, second, third, and fourth prizes amounted to about £7, brought seven competitors, which means 168 blooms, and all good. All other classes throughout were almost without an exception as well filled, so that I have no hesitation in placing Southampton this year in the front rank of exhibitions.

Kingston was the next Exhibition I saw. Taken collectively it was not as large as last year, for we had only three competitors for the challenge cup, and here Mr. Molyneux, who has proved himself to be one of the best cut-bloom growers, was a long way ahead of the other two collections; but these three collections represented 144 blooms, and I am told there were upwards of 1600 blooms in the Exhibition. For freshness and quality of bloom, together with the numbers exhibited, Kingston may well be said to have held its own amongst the best.

The Borough of Hackney Show at the Aquarium I could not see, which I much regretted. The Society is now designated the National, but why I do not know. To be a real National Society it should hold exhibitions in the provinces. Possibly this may be the intention of the executive; if not, I fail to see how a Society always holding its exhibitions at the Aquarium can be truly termed "The National." My best wishes, however, are with them for the success they have already attained in popularising this flower.

Northampton held a splendid exhibition, enlisting two noted London growers in their cut-bloom classes; but the greatest object of interest to all growers was the class at Birmingham Exhibition, where the magnificent sums of £10, £7, £5, and £2 were offered for forty-eight cut blooms, twenty-four Japanese and twenty-four incurved—a very heavy class, in which no one can expect more than four or five exhibitors to enter. At Birmingham there were four good collections, but the number of cut blooms in the other classes must have been as disappointing to the executive as to myself, and less than 100 feet of tabling contained all the cut blooms exhibited. The plants here were a grand feature, excelling everything I have met with this season.

Passing onwards from exhibitions to Chrysanthemum sports, I confess that I am much puzzled at the change of colour as well as form of petal that sports sometimes show. It has frequently been proved beyond dispute that the change is not only in the colour, but also an improvement in petal and other characteristics—for instance, Mr. Bunn is a great improvement on Beverley, Mabel Ward appears to have a broader petal than its parent Eve; but probably the variety most given to sporting is Mrs. G. Rundle, for it is not an uncommon circumstance to see perhaps half a flower white and the other part yellow. There can be no doubt that many plants show the two characters on the same specimen, and have to be perpetuated in the manner described on page 484. There are others, however, which perpetuate themselves, or in other words the cuttings are taken from the base in the ordinary manner, and at the blooming season the lucky possessor discovers something unfolding its petals very different from the variety the cutting was taken from. Why such changes should take place I cannot answer, but it is enough for my present purpose to show that sports do originate in this manner, as well as from the transformation being noticeable at the same time on the same plant. Allusion has been made by Mr. Bardney to the keeping properties of Lord Wolseley. I thoroughly endorse them. It is a far better keeper than Prince Alfred, and a variety I hold in the highest estimation. The petal to me appears broader than Prince Alfred, and in every case that I have seen it has come true, which I think reflects great credit on Mr. Cannell, to whom the stock was transferred. It is singular that this variety originated from a root cutting. Mr. Orchard became the fortunate possessor of it, and was quick in perceiving its good and distinctive qualities, otherwise probably Lord Wolseley as an exhibition Chrysanthemum would have been unknown. I am told that White Venus originated with Mr. Shrimpton, a noted old grower at Roehampton exactly in the same way. The original plant when unfolding its white petals was labelled Venus. Will other readers throw any light on the origin of sports?—J. W. MOORMAN.

Now all the Chrysanthemum shows are over I think it would be advisable to give a few words of advice with regard to making lists of prizes for next year, and what I would suggest is that prizes should be given for cut blooms shown with foliage as grown on stems 6 inches

above the boards; say the back row of blooms Japanese, middle row incurved, and front row large Anemones, which would have a splendid effect when arranged on the exhibition table. This would give all good Chrysanthemum growers the same chance of winning; but as the prizes are given now, the one that can dress his blooms the best has much the best chance of winning, and it would look much more natural to see the flowers shown with foliage without cups or collars.—GEORGE STEVENS, F.R.H.S., *St. John's Nursery, Putney.*

MR. McINDOE'S GRAPES—DUKE OF BUCCLEUCH IN DECEMBER.

I READ with pleasure Mr. McIndoe's article on Grapes on page 488, and was especially pleased to see that that "much-abused Grape, the Duke of Buccleuch, was one of the number sent to you for inspection. That the Duke *will* keep in good condition till the end of December or beginning of January has been proved by the writer, and therefore he is glad to see that others have been able to do the same, as other writers have questioned if such could really be done. Nothing can excel the rich sugary flavour of the Duke when the Grapes hang till December; and even when hung longer and become shrivelled it has still a splendid flavour, and even richer sweetness. When plump and fresh, however, the Duke is more fitted for the table, as it has all its fine appearance to add to the fine flavour. That it can be had in such a condition at this time of year is beyond a doubt, and Mr. McIndoe is to be congratulated on being one of the few, as yet, who have so kept the Duke. Side by side with Gros Colman a bunch of Duke of Buccleuch forms a grand dish, being quite equal in size to the black giant, and easily surpassing it for quality and flavour. Though not recommended as a late Grape, the Duke can and has been kept late in good condition, and the cultivator who manages to do this is amply rewarded for his trouble.

It is to be hoped many more samples of the Duke may be met with in the future about this time of year. There is no reason why it should not be so.—N.

SALVIAS.

THESE are very useful plants, and where they succeed form a good contrast to our bedding plants. I have used the scarlet *S. splendens* for several years in a border some 300 feet long, and have planted them alternately with *Gladiolus*, and they fill up well and keep a good succession of bloom as long as the frost will allow, which this year was till the end of November. For flowering plants in pots and conservatory work I must mention four sent out by Mr. Cannell—*S. splendens* Bruanti, *S. Betheli*, *S. rutilans*, and *S. Pitcheri*. *S. Bruanti* is a large-flowered variety with splendid scarlet trusses; *S. Betheli* a strong grower, and the colour is rose with shaded white tips. *S. rutilans* is a charming plant; specimens with from sixty to eighty spikes of lovely magenta-coloured blooms are grand. A dozen plants well grown would be most valuable to anyone requiring flowering plants in autumn. But I must not forget the next, which is *S. Pitcheri*, with its compact growth and beautiful azure-blue flowers. This shade is much needed, and the plant is well worthy of being extensively grown.—S. JENKS, *Brambletye.*

POTATO DISEASE.

[A paper read before the Scientific Committee of the Royal Horticultural Society, December 18th.]

EXPERIMENTS PERFORMED AT KING'S LYNN IN CONNECTION WITH THE JENSENIAN SYSTEM OF POTATO CULTURE, 1883.—I. *Direct Infection of the Tubers by the Conidia and Zoospores of Peronospora infestans.*—It having been asserted that it was impossible thus to cause the disease in tubers because of the thickness and impenetrable structure of their epidermal tissues, the following experiments were performed, in which recently dug tubers had applied to their surface the conidia, by simply dashing them with a diseased branch; they were then placed in the earth, and examined eight days afterwards; an equal number of tubers taken from the same root at the same time were also buried as control tubers:—

Variety of Potato.	No. of tubers infected.	Date.	No. of control tubers.	Diseased on the eighth day.	
				Infected.	Control.
1. Porter's Excelsior ..	4	Aug. 1	4	4	1
2. Beauty of Hebron ..	3	Aug. 1	3	3	
3. Porter's Excelsior ..	6	Aug. 1	6	6	0

Experiments Nos. 1 and 2 were made in conjunction with Mr. John Thompson at West Lynn. Experiment No. 3 was made in my garden at King's Lynn. Porter's Excelsior is a Potato which takes the disease very readily; so that the control tuber which became diseased was doubtless affected before it was buried. Care was taken that the tubers

were free from any abrasion of the cuticle, or injury by which the disease could have entered the substance of the tubers without penetrating the skin. The control tubers were kept for several weeks, but evinced no signs of disease. These experiments would not have been mentioned had it not been recently re-asserted that the disease could not be communicated in this way.

II. *High-Moulding Experiments.*—Experiment No. 1.—Mr. John Kidd had two rows of Myatt's Prolific with thirty-eight plants in each, one of which he high-moulded on July 15th at my suggestion. On August 17th both rows were lifted; 5 per cent. of the row with the ordinary moulding were diseased, but in the high-moulded row no diseased tuber was found.

Experiment No. 2.—Four plants of Porter's Excelsior were high-moulded in Mr. J. Thompson's garden on July 14th. The next four plants in the row were left moulded in the ordinary way. On August 1st disease was general in this garden; August 18th Potatoes lifted by Mr. Thompson and myself with the following result:—

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
46	5	41	0

Experiment No. 3.—Eight plants of Elephant in the same garden, high-moulded at the same time, lifted on the same day as in the previous experiment.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
49	10	39	0

Experiment No. 4.—Four plants of Beauty of Hebron, No disease in either high or ordinary moulding.

Experiment No. 5.—Eight plants of Ashleaf, four in one row, four in another row.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
54	13	85	0

Experiment No. 6.—Twelve plants of American Rose, four plants in three rows, high-moulded, as compared with the four adjoining plants grown with the ordinary moulding.

Ordinary Moulding.		High-Moulding.	
Sound.	Diseased.	Sound.	Diseased.
76	13	84	1

Experiment No. 7.—In the foregoing experiments high-moulding compared very favourably with ordinary moulding, but if high-moulding be the true cause of this freedom from disease it should compare more favourably still with plants that have not been moulded at all. There is another point upon which I wished to satisfy myself, which was this—If the Potatoes had been left longer in the ground would the disease have travelled down the stem to them? Four plants of the Beauty of Hebron were high-moulded on July 14th to the extent of full 5 inches, the four plants next to them had never been moulded at all. In due course Peronospora appeared upon these Potatoes, but it was not until not only was the foliage destroyed, but long after this, when most of the stalks had vanished, that the Potatoes were lifted on (September 19th). This experiment was made in the Vineyard, West Lynn, by Mr. S. Castle and myself.

Not Moulded at all.		High-Moulded.	
Sound.	Diseased.	Sound.	Diseased.
54	65	107	0

These figures speak for themselves as to the effect of high-moulding as a preventive against the Potato disease.

Tabular Statement of the Results of High-Moulding, Showing the Number of Sound and Diseased Tubers respectively:—

Kind of Potato.	High Moulding.		Ordinary Moulding.		Per-centage of Diseased Tubers.	
	Sound.	Diseased.	Sound.	Diseased.	High Moulding.	Ordinary Moulding.
Porter's Excelsior	41	..	46	5	..	10
Elephant	21	..	30	8	..	20
Elephant	18	..	19	2	..	
Beauty of Hebron .. ..	..	..	..	..	..	..
Ashleaf	26	..	34	..	..	24
Ashleaf	59	..	20	13	..	
American Rose	26	..	26	6	..	17
American Rose	29	1	21	4	1	
American Rose	29	..	29	3	..	

—CHARLES B. PLOWRIGHT, King's Lynn, December 10th.

STRAWBERRY FORCING.

STRAWBERRY forcers will now be thinking of starting their first batch of plants into growth. At this early season the slower the start the better the finish; in fact, all through the forcing season it is best to start slowly. Different growers have different systems in the position of the pots. Some stand the pots on the bare shelves, others on turves, and some place the pots in saucers to save watering, which is time gained at the expense of the flavour of the fruit. The turves have certainly something in the system to recommend it, but I think the bare shelves are the best, where the plants are well looked after as regards watering. Strawberry plants should not on any account ever be allowed to become dry, or deformed fruit, red spider, and mildew in abundance will result.

If good fruit is desired the crowns should be well ripened. A temperature of 45° is quite sufficient at first, to be raised to 50° to 55° by the time the plants are in bloom. At the early season they should be carefully supplied with water at a temperature a few degrees warmer than the house. Keep the house well ventilated on all favourable occasions, but do not let the plants be exposed to a cold draught, or mildew will soon appear. As the flowers expand do not have the atmosphere too moist, or the result will be that the flowers will set badly. The aim of the cultivator should be to keep the pollen dry. At midday give the flowers a gentle shake, it will help to disperse the pollen. Some gardeners dust the flowers with a camel-hair brush or bunch of feathers. But a gentle shake I have found sufficient to insure a good set. Of course later batches do not require this, only abundance of air, as probably when the earliest plants are in bloom the outside temperature is not in a condition to allow ventilation, which is the reason we have to resort to artificial means to assist fertilisation.

After the blossoms have set well thin them to about eight, which are quite sufficient if good fruit is expected. Keep the plants then in a night temperature of 60° to 65°, with a corresponding rise by day. At this stage give them liquid manure about every alternate watering, until the fruit commences colouring freely, when it should be discontinued, or the flavour of the fruit will be impaired. For later batches, as the season advances, and after the fruit is set and thinned, a good syringing when the house is closed on fine days will be beneficial. Keep them well aired, and by no means ever let them become dry. Through the months of March, April, and May they will need water in abundance, using more liquid manure than for the earliest batches. The fruit should be propped up after it has set to keep it clean, and for insuring a better colour. Strawberries will not stand hurrying before the fruit is set on any account; but after it is set hasten them as fast as is needed to get them in by a certain time. If green fly should appear, as it sometimes will do just about the blooming stage, fumigate, but before the plants are in bloom.—A. YOUNG.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

THE CARROT.

If we examine those bunches of Carrots which are commonly displayed in the markets and shops it is observable how frequently the roots bear traces of what is called "rust," although they must have been grown under very different circumstances, pointing to the wide prevalence of the insect known as the Carrot fly, indicating also, it might be said, that the injury done by the maggot is sometimes only of a partial character. Undoubtedly this species heads the list of the foes of the Carrot, for to that plant it is specially attached. The Latin name, however (Psila Rosæ), reminds us that it has been taken infesting the Rose, a plant of dissimilar habit and order. The peculiar reddish brown colour, which shows itself upon the places bitten, has led to the word "rust" being transferred from

the root to the offending insect, which, small as it is, yet shows itself very pertinacious in its attacks. The fly hardly measures half an inch across the wings when they are expanded; it is almost black or blackish green (hence occasionally called the Negro), with transparent wings, head and legs reddish yellow. Of this there appear to be two or three broods during the summer season, the first deposition of eggs taking place about the end of May or in June, these flies being produced from larvæ or pupæ that have lived through the winter. Like others of the group the larva or maggot is legless, having a sharp head and a blunt tail, which has just above it two raised plates that aid the movements of the insect as it forms its burrows or galleries; the surface is smooth, shiny, and pale yellow. The different forms of the insect are represented in the annexed engraving.

Young specimens of this pest are numerous during June, and from that date until the last Carrots are pulled in the autumn maggots are to be found where preventive measures have not been taken; and even after the Carrots have been removed some will still subsist upon the fibrous roots left in the soil, hence the advisableness of clearing the ground thoroughly about November, well digging and dressing with gas lime where the fly has occurred. Dressing with sand that has been moistened by the addition of spirits of tar or creosote has been strongly recommended by several gardeners (a gallon is said to saturate sufficient sand for 2½ rods); this may either be forked-in during the autumn or laid-in at the time of sowing. If somewhat expensive, its results may give it the advantage over cheaper remedies.

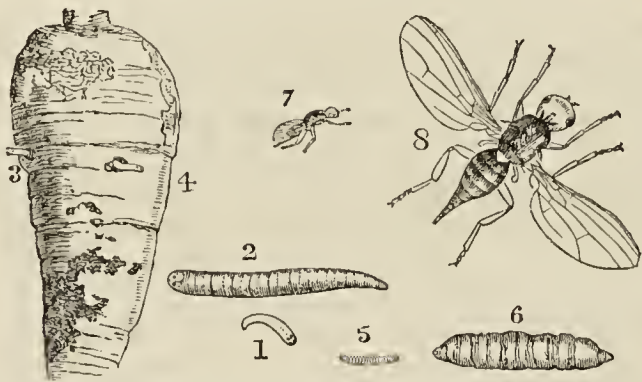


FIG. 106.—CARROT FLY AND LARVÆ.

1, 2, and 3, Larvæ, natural size and magnified; 4, infested Carrot; 5 and 6 pupæ; 7 and 8, Carrot Fly, natural size and magnified.

We all know that young Carrots must be thinned; this thinning operation is in this way detrimental, that it enables the first brood of flies to lay their eggs more readily, hence some have advised early thinning before the flies are out, and also after thinning a filling-up of the opened soil by a mixture of soot and wood ashes, which proves besides of value as a manure. Before thinning is requisite, if the insect has been troublesome the previous year it is of benefit to dust the young plants with these, and lime in addition. By a number of Miss Ormerod's correspondents the application of diluted paraffin, a wineglassful to a gallon of water, has been tried and found of utility; a few have tried combining paraffin with an absorbent, such as wood ashes. No doubt regular watering at the season when the flies are noticed helps to keep them off the plants, for it is in dry weather they make their attacks most readily, and the Carrots are also less able to resist the injuries caused by the maggots, their rootlets obtaining little nourishment.

Amongst the small moths we have three species, which in varying numbers derive their food whilst they are caterpillars from the leaves or bloom of the Carrot; but they are of minor importance. They all belong to the genus *Depressaria*, exhibiting the characteristics, as moths, of a flattened body, over which the narrow upper wings are crossed when the insect is not in motion. Of the three the Carrot-blossom moth, *D. Danella*, is most commonly noticed, because the caterpillars cover the umbels with a silken web, forming thereby a chamber in which they live and consume the flowers or seeds. They are about half an inch long, grey or yellowish, with brown heads; along the sides of the body are numerous black points. When alarmed they run rapidly backwards, then generally drop themselves by a thread to reach the earth. M. Bouche advises planting amongst the Carrots a few Parsnips, about one in every 8 feet; from its preference for the Parsnip the insect will single these out, and the Carrots will almost escape, while the caterpillars swarm upon the Parsnip tops, which can be collected and burnt; or the moths may be caught, at least some of them, by a hand-net in their season, usually June. Although the wings only expand three-quarters of an inch they are rather noticeable, owing to the white markings upon the reddish brown of the fore wings. The hind wings are light grey, head and body reddish black. Some have advised the application of powdered hellebore to the flower heads after rain, or when they are moistened with the morning dew.

A less frequent species has been styled the Purple Carrot-seed moth (*D. depressella*); the moth is duller in colour, with pale brown patches on a darker ground; it is also smaller than the preceding. In habit it is similar, the caterpillar spinning webs over the flower heads, sometimes changing to a chrysalis in this web, at others piercing a hole in the stalk, to dwell there sheltered until it is aroused by the warmth of spring. This caterpillar has white, not black, warts upon the body, the sides of which swell out slightly; it must be dealt with if observed similarly to the preceding species.

The third species, as simply a feeder upon the leaves of the Carrot and also of the Parsnip, occasions a smaller amount of loss than the former species, which destroy the seed effectually if unmolested. This is *D. eicutella*, its habit being to roll up the Carrot leaves into a cylinder secured by threads, sliding out at one end if alarmed. It is a pretty caterpillar, grass-green in colour, with three lines of dusky green and rings of black tiny spots, the head being brown. In appearance the moth is more glossy than the other species, the fore wings brownish freckled with a deeper brown and black; a few white dots are observable about the middle of the wing, the hind wings are of a uniform grey. The chrysalis is hidden in a folded leaf, or the caterpillar will now and then make a cocoon just below the earth. There is a brood of caterpillars on the young Carrot plants in early summer, from these come moths depositing eggs that produce an autumn brood. The moths appear again about November, and then conceal themselves for the winter, emerging to deposit eggs the next season. These little caterpillars are, it is said, specially hunted by the solitary wasps, which make chambers in sand banks or decayed wood during the summer, placing within these a supply of such larvæ that their grubs may have food close at hand.

Rows of Carrots are also sometimes noticed to decline rapidly in June or July, and the cause is a much larger caterpillar of varied tastes. The species has taken its name from one plant it greatly infests. This is the Turnip moth, *Agrotis Segetum*. The caterpillar lurking unseen will pierce the young Carrot through between the root and stem, and pass from plant to plant, working its way through the soil during the day, but usually feeding at night. Its full history belongs to the above named plant, for which we reserve it; but we may note that the free application of soot has been advised, also that of diluted paraffin or gas lime. Lastly, to the list of the enemies of the Carrot must be added the larvæ of the genus *Tipula* (crane-flies), particularly *T. oleracea*, which occurs at the roots some seasons, though seldom very destructive.—ENTOMOLOGIST.

SNOWBALL CHRYSANTHEMUM.

I NOTE at page 507 of the Journal the questions asked by "Novice" regarding Snowball and Empress of India Chrysanthemums being admissible in the same stand. I do not think they would be admissible in the same stand. I have seen fine blooms of the variety called Snowball, but consider them only well-grown examples of Empress of India. They had large broad petals, more rounded than those often seen on Empress of India. High culture will produce better petals than moderate culture will, hence the confusion of varieties. I have a variety called Snowball, which is a white reflexed flower, the florets recurving quite to the stem, the bloom being thus exactly of a snowball shape. This I consider the true Snowball. It is quite distinct from any other variety that I know or have seen. The incurved blooms are only half balls. I have never seen that White Queen of England was anything else than Empress of India.—E. MOLYNEUX.

TRAINING RASPBERRIES.

MANY will no doubt feel grateful to Mr. Wright for his able and lucid explanation of the different methods of training Raspberries. I have had an opportunity of observing the whole of the methods mentioned at various times and in various counties, and I certainly agree that the system as shown in fig. 95, and described on page 481, is by far the most preferable. It is also the least expensive of the systems of training, since no elaborate trellis or endless number of stakes are required, less than half the number of the latter being necessary. It is almost impossible to obtain thoroughly ripened canes where the fruiting canes are trained to a stake thrust through the centre of the stool, and the young growths allowed to grow up around to the manifest injury of the crop of fruit and the thorough ripening of the young canes.

We had ample experience of this system this last season. We have made fresh plantations this autumn, planting the stools of six canes each 5 and 6 feet apart each way according to the requirements of the different varieties. As was pointed out, this system is by no means a modern one. It is figured and described as long ago as 1834, in an excellent little work entitled "Hayward on Horticulture," in which also are to be found many other equally useful hints on fruit culture.—T. W. SANDERS.

MR. WRIGHT has asked for descriptions of other modes of training the Raspberry. I forward a plan of my own which I consider as one of the best, if not the best, for this fruit. I think that for small and moderate-

size gardens it is best to support the canes in some way, as, owing to the growth being more drawn than where growing in fields, the canes sway about more, and the fruit gets bruised, &c. My fences consist of two end standards of wrought iron 4 feet out of the ground, and double lines of wire 15 inches apart, the Raspberry canes being planted in a line right down the centre. I use three lines of wire, one 12 inches from the ground, and the other 18 and 36 inches higher. The fruiting canes are tied to each side about 1 foot apart all along the row. The new growth rising straight up does not shade the fruit. When pruning time comes round the old canes are cut out and the young growths tied in their place. It is a very cheap trainer, gives double fruiting space, yet allows for the young growths without crowding, and it is durable.—T. WILKINSON, *Newton-le-Willows*.

VINES FAILING—STORED-UP SAP.

HAVING read with considerable interest the discussion on stored-up sap in the Vine, I shall make no apology for troubling you with the history and description of the Vines in reference to the subject, as I believe it will do something to elucidate matters. In the first place I must take exception to the term, "stored-up sap," which cannot of and by itself produce a shoot either of a Vine or any other plant, therefore I should consider "latent energy" as the more appropriate term.

When I took charge of the gardens here (June 2nd, 1881), there were two small vineries of ten Vines each, which had been planted by my predecessor in the winter of 1880 and 1881, with Vines furnished by Messrs. F. & A. Dickson of Chester, and were, as far as I was able to judge of them when I entered on the place, well-ripened canes of good medium strength, in fact such as are usually sold as first-class one-year-old fruiting Vines. The vineries are of a peculiar construction, and not well adapted for the purpose to which they are applied. First, they are built in two spans with a glazed partition running down the centre, to divide the block into two houses. The roofs are glazed with Hartley's rolled plate, which is very heavy. There is one ventilator in each gable and sliding sashes at the bottom, but no ventilation in the roof, so the two houses run side by side. There are two rows of Vines in each house, and only an inside border without any partition, so that the roots in the early and late house are all in the same border.

Now for the state in which I took them in hand on the 2nd of June, 1881. They had been planted in the winter or early spring. The canes had been left about 6 feet long, and were tied down to sticks in a horizontal position about 1 foot above the surface of the border, and had thrown out some four or five small yellowish leaves, from some six or seven eyes in each Vine, all much alike in this respect, and the appearance of the shoots was that of half-ripened, half-starved growing wood, with a leading bud in some of them very soft, sealy, and white in appearance. I could not at first give the Vines the examination which I had intended to do at the earliest opportunity, so I decided to keep the houses at a good and steady temperature, with plenty of atmospheric moisture, and relieved the Vines from the horizontal position in which they had been kept apparently ever since they had been planted, giving them an upright position. This treatment was continued for ten days, during which time a few showed signs of improvement. In the meantime my employer informed me that he had only recently purchased the place, that during winter and spring he had spent much money in the garden, and amongst the items was £25 for soil for the new Vine borders. This soil had a very good appearance. Nearly the whole of it was formed of loamy sods about 4 inches thick, very tough, full of fibre—in short, was the top spit of an old meadow from the neighbourhood of Liverpool, and of a dark brown colour. The only addition which was made to it was one cartload of cow's dung to ten of the turf. As to drainage, we are on the blown sand, and it is quite unnecessary to think of it except to bring water to the place. There was a quantity of brick and mortar rubbish put at the bottom of the border, but the action of these are rather as retainers than carriers of water, therefore nothing could be wrong in this direction.

This was therefore a curious dilemma. It was approaching the middle of June and not one of the Vines had a shoot over 9 inches long. I at last resolved to face the difficulty in another direction, so with a trowel I carefully removed the soil from the roots of the poorest Vine in the earliest house. The result was that I found a ball of earth nearly, if not quite, entire, and on disentangling the roots observed some spots and patches of white mould, which was clinging to the dead strong roots at the places where fibres had been growing in the previous summer. There was not a live root in the ball. Following up my search through the first house, there were six Vines in this condition, and four showed signs of life in some of the strong roots with a good circle of collar roots. These four I replanted, well burying the collars in the good soil of the new border with the addition of a little leaf soil and old mortar broken up to encourage root-extension as quick as possible. I subsequently learned that the Vines while in their pots had been frozen very hard.

This being the history of the condition of the early house it is useless to say anything on the late house, except that we had six Vines showing a little life and only four quite dead. Two of the dead Vines after being divested of all roots, and, having broken only two eyes near the top of the canes, I tried a little experiment with. I dug a small trench about 4 feet long and about 8 or 10 inches deep, in which I laid the canes, turned their ends up and secured them to a stake, one at each end of the early vinery. Some fresh Vines were obtained to fill the places of those which had been pronounced dead. But this brings us into July, a

curious time for planting, and how these progressed shall form the subject of another paper.—R. LIVSEY.

POTENTILLA FRUTICOSA.

In the *Journal of Horticulture* of December 6th a description is given of this plant, with an engraving, which conveys a good general idea of its habit. I have for some years grown it here on my rock border, and quite agree with "Herba" as to its being a very desirable addition there. Although its flowers are fugacious, they are very bright and well shaped. It may be interesting to some of the readers of the *Journal* to know that it grows in abundance on the banks of the Tees, above High Force, in Teesdale, Yorkshire, associated with *Primula farinosa*, and not far from the home of by far the loveliest of British alpines, *Gentiana verna*. In Scotland we sometimes see *Potentilla fruticosa* grown as a bush among shrubs, where it is entirely out of character, a grey rusty-looking object. On the rock garden it retains its natural dwarf habit, and when in flower is very distinct and attractive.—CHARLES STUART, M.D., *Hillside, Chirnside, N.B.*

HEATING SMALL GREENHOUSES.—May I state for the information of your inquiring correspondents that I have just had fitted up for heating a greenhouse 17½ feet long by 8 feet wide, a small boiler heated by gas outside the house, with a 3-inch iron pipe running along the wall under the front stage, and as I have tried it, so far it answers to keep out the frost and to dry the house? I do not like to take up your space by writing more, but shall be happy to give any information.—GAMMA.



KITCHEN GARDEN.

Hotbeds.—These are useful in every forcing garden in the spring months, and provision should always be made for them. As a rule they are not made up until after the new year, but the material for their formation should be collected some time before that. In October and November we use all the manure we get from the stables for mixing with vegetable refuse for digging into the soil in spring; but now hotbed-making is in view, and everything in the way of stable manure, old leaves, and spent or half-decayed vegetables are put into a heap ready for use early in January. In making beds thus early they ought to retain the heat until April at least, and to do this there must be a large body of material.

Forcing Potatoes.—A fortnight or so before these are planted the seed tubers should be prepared. Only the earliest varieties should be dealt with now, and the tubers should be of a fairly good size. Those to be planted first should be selected at once, and they should be put in single layers in shallow boxes with a little Mushroom manure or leaf soil underneath and above them. The boxes must then be placed near to the glass in a cool frame or pit where they can have a temperature of 55°, and there they will soon begin to produce short robust growths and a few roots, and it is when this has been accomplished that they should be transferred to the frames. In growing them in frames a good hotbed is made, frames are placed on the top of this, and soil is added to about the depth of 1 foot; in this the Potatoes are planted 3 inches below the surface, 18 inches between the rows, and 9 inches apart. Where there are permanent frames for forcing they are generally from 4 feet to 6 feet deep, and hotbed manure is put in firmly until it is 2 feet from the top, when 1 foot of soil is placed on and the tubers planted as in the other case. A few dishes of early Potatoes may also be had from pots or boxes, 10-inch or 12-inch pots are the most suitable. They should be well drained, half filled with good soil, three seed Potatoes placed in each, and then more soil, until the surface is 2 inches from the rim of the pot. Boxes of various sizes may be filled in the same way, and they may all be placed in an early vinery, Peach house, or pit to grow. When first they begin growing Potatoes should have very little water, as they are not benefited by much until they have luxuriant stems and are forming tubers. No good produce will ever be forthcoming unless they are grown near the glass and in abundance of light.

Forcing Carrots.—A manure bed and frame are the best of all means for forcing Carrots. The bed is made as if for Potatoes, but the soil for the Carrots should consist of at least one part sand, and it should be quite free from lumps. A little soot or lime mixed with it is also an advantage, as the roots are worth nothing unless they are free from wormholes. French Horn is the best variety for frame culture, and the young roots are amongst the most delicious of spring vegetables. The seed should be sown very thinly broadcast, and only covered to the depth of 1 inch. We generally make the surface of our Carrot beds all sand, as it is not so liable to become green and too firm on the surface as soil does.

Stored Roots.—These should all be examined and decaying roots removed. In warm sheds Carrots and Beet generally commence top growth at this time, but in turning the heaps all this should be rubbed off and be re-stored in as clean and firm a state as when first taken in.

The main secret in keeping stored roots sound and sweet until young ones come again is never to allow damp or decay to progress to any extent. Badly matured Onion bulbs may also be showing signs of growing, but those bulbs which are most likely to do this should be used first. The smallest and firmest should be placed aside for late use.

Kidney Beans.—It is now a critical time for those being forced, and unless where the very best means exist their progress will be very slow now. Nothing less than 65° will do for them, and 5° or 10° more than this will suit them better. Careful watering at the roots is very necessary now, and a dry atmosphere is the only one in which the flowers will develop and the fruit form properly.

Rhubarb, Seakale, and Asparagus.—These force more readily now than they did six weeks ago, and where a constant supply is desired successional batches must be brought into the forcing quarters every three weeks. A steady temperature of 65° is better for all of them than an excessive heat. Spent roots should be removed as soon as all the produce has been taken from them, as profitable forcing can only be carried on where the most rigid attention is given to make the most of everything.

Kitchen Garden Work.—This is not very pushing at present, but manuring and digging should always be kept well forward.

Seed lists for 1884 are coming to hand, and a selection will soon have to be made from them; and although space forbids this here at present, we can only remark that extreme cheapness and high quality are never combined.

FRUIT-FORCING.

PEACHES AND NECTARINES.—Earliest House.—The blossoms are expanding, and appear strong and promising. Syringing the trees must, when this stage is reached, cease, but a good amount of moisture must be maintained by damping available surfaces—*i.e.*, the floors, borders, &c., in the morning, and again in the afternoon. This, with a proper temperature—*viz.*, 50° at night and 55° by day from fire heat, will produce a genial condition of the atmosphere so essential to a healthy and vigorous blossom; yet a close confined atmosphere is fatal, and must be guarded against by admitting a little air constantly—having the top ventilator open about an inch. This will cause a circulation of air under the most adverse circumstances, and prevent a close vitiated atmosphere. In the daytime no opportunity should be lost of admitting air, commencing from 55°, increasing it with the sun heat, so that the ventilation is full by the time the sun raises the temperature to 60° or 65°, at which it may be kept from sun heat, reducing the ventilation as the sun heat declines, withdrawing the ventilation for the day at 55°. In severe weather the temperature may with advantage be kept 5° less both day and night. If there be an abundance of blossoms some of those on the under side of the shoots may be removed by drawing the hand the reverse way of the growth. When the flowers have ripe pollen it should be carefully applied to the stigmas with a camel-hair brush. If there be any deficiency of moisture in the borders a good watering should be given not less in temperature than that of the house.

Second House.—The trees in this house having been pruned and dressed the house should now be closed, but no fire heat need be given, or only to exclude frost, and above 50° ventilate fully. A thorough soaking should be given the inside borders, repeating the watering if necessary, so as to thoroughly moisten the soil in every part, and in the case of weakly trees liquid manure may be given, but it must be weak and tepid. Syringe the trees in the morning and again in the afternoon, but not the latter on a dull day, as it is important that the trees become dry before night. On New Year's day forcing may commence in earnest, the temperature being kept at 40° to 45° at night, 50° by day, above which ventilate freely, and close for the day at the latter temperature.

Succession Houses.—The trees in these should be pruned, dressed, and the houses cleansed, and should be kept as cool as possible by admitting air in all but frosty weather, and even then a few degrees of frost will not do any harm providing the air be dry; and should the lights have been removed they need not be replaced, as frost is not injurious on any but unripened wood and whilst dormant, but after the buds begin to swell, and the sap becomes active, safety from frost is necessary. Yet to retard the flowering, especially in late houses, they might be kept as cool as possible, ventilating fully whenever external conditions admit.

Cherry House.—Everything being in order, a start may be made at once by closing the house, but there must not be any attempt at keeping it close and warm, as this would cause a weak development of the blossoms—hence the nature of the treatment should be such as will not excite growth prematurely, but such as will insure a slow progressive development, a temperature of 40° to 45° at night being sufficient, and 50° in the day by artificial means, at and above which ventilate freely, allowing an advance to 60° or 65° from sun heat, and close at 55°. Maintain a genial condition of the atmosphere by syringing in the morning and afternoon of fine days, but in dull weather damping in the early part of the day will be sufficient; yet it is essential that a growing temperature be secured. Keep a sharp look-out for aphides, and if any appear fumigate on calm evenings.

Cucumbers.—Let every effort be made to retain the sun heat by closing the house early in the afternoon, damping at the same time with tepid water. Pathways and other available surfaces should be damped every morning, and again in the afternoon if the day has been bright. Afford liquid manure in a weak and tepid state to plants that are making growth freely, but those that are stationary should not have this until they again show signs of free growth. A little fresh lumpy loam placed over the roots is a great incentive of root-formation, and when these are plentiful

feeding will soon enable the plants to commence healthy free growth. A little air on mild days will be advantageous in giving the foliage an improved texture, but cold and drying currents must be avoided as much as possible. Remove all superfluous fruit from the plants as they show, and let all shoots be tied to the trellis as they require it, removing bad leaves and superfluous growths, it being essential that the foliage have free access to light and air, and the glass should be kept clean, so as to admit all the light possible. Little stopping will be needed now, although vigorous growths may need their points pinched out, the object being to encourage free growth. If mildew appear dust the affected parts with flowers of sulphur, and for red spider coat the pipes thinly with a wash of sulphur and skim milk; for aphides fumigate moderately on two or three consecutive calm evenings. A few seeds of Cardiff Castle or Telegraph may be sown now to produce plants for early spring fruiting. A bottom and top heat of 70° is as little as they can be brought forward in, and plenty of light is required to make the plants robust.

Preparing Material for Hotbeds.—Where Cucumbers and Melons are grown in pits or frames heated by fermenting materials, these should now be prepared for raising the plants and growing them. Oak or Beech leaves with about a third of stable litter are far preferable to all stable litter, as they afford a milder and more lasting heat. Material of this description should now be thrown into a heap, mixing them as evenly together as practicable, and, if dry, they should be damped as they are thrown together. In the course of a week or so the materials will be warmed through, and should then be turned over, throwing on more water if there be not sufficient moisture in the material to insure fermentation, and that without causing it to be so violent as to heat itself dry, and which should be obviated by turning frequently and throwing on water according to the state of the material. As much of the after-success depends on the preparation of the material, this should be commenced in good time, so as to have thoroughly sweetened material by the time it is deemed advisable to make up the beds.

PLANT HOUSES.

Calanthes.—Few Orchids are more beautiful or useful than *Calanthes* at this season of the year. Those that have their spikes fairly well advanced will need no more water at their roots, but those that have not yet commenced to open their flowers may need occasional applications until the spikes are further advanced. Do not keep them while in flower too warm or where the atmosphere is rather moist. They look handsome arranged amongst *Adiantum cuneatum* grown for cutting, and now in a temperature of 50° to 55° at night according to the weather. *Calanthe vestita nivalis* is later coming into flower than either *C. v. lutea* or *C. v. rubra oculata*, but *C. v. Turneri* is much the latest and flowers when all the others are over. It produces large pure white flowers with a rose-coloured eye, and its spikes are longer than those named above, but its greatest value is its late-flowering habit.

Centropogon Lucianus.—This is a grand winter plant, and the earliest are just now in full beauty. They are at home in the stove or in an intermediate temperature, but in the latter they last very much longer than they do in the former. Our plants are all grown in 5 and 6-inch pots, and are in early autumn supplied with stakes about 1 foot in length and the growth made afterwards allowed to arch naturally, and in which condition they are the most effective when arranged amongst other plants. A number of plants associated with an early batch of *Euphorbia jacquiniæflora*, and rising above *Zonal Pelargoniums*, *Primulas*, *Cyclamen*, *Hyacinths*, *Tulips*, *Chrysanthemums*, and other dwarf flowering plants in the conservatory, have a very charming effect. This plant when well grown is beautiful, and we cannot dispense with it from the stove, and in consequence it is grown in large numbers. Our latest plants are in a temperature of 50°, and are not yet showing the colour of their terminal truss of flowers. We rooted a number of cuttings late, and the growth made does not exceed 4 to 8 inches. They are flowering profusely, and we find them most useful where small plants for decoration are appreciated.

Poinsettias and Plumbagos.—These should now be in grand condition, and the former will last nearly double the length of time after their bracts are fully expanded if not kept in strong moist heat. The former will stand for a long time in a night temperature of 45° to 50° if gradually hardened previously and cold draughts excluded from them. If removed from stove heat to the temperature given without previous preparation their foliage will turn yellow and fall, and half the beauty of the plants is lost. The *Plumbago* will not open its flowers freely if kept in too low a temperature, and should not be subject to one lower at night than 55°. *P. coccinea superba* is very much brighter in colour than the old *P. rosea*, but is taller in growth and not quite so freely branching; both should have a place in every garden. These plants look light and effective when arranged with the yellow *Linum trigynum*; in fact, they are more striking with this than any other plant. The last-mentioned plant, although useless for cutting, is beautiful for decoration, and not grown half so much as it deserves to be.

Begonia semperflorens grandiflora.—This is one of the best and most useful winter varieties. The last batch of plants if treated as directed some time ago will now be flowering profusely in 3-inch pots. We have just taken out the central shoot of half our batch and placed them in 5-inch pots. These will make beautiful plants in a very short time. To grow this *Begonia* well during the winter it should be kept in rather a dry atmosphere, close to the glass, and where the temperature will not fall below 60° at night.

THE BEE-KEEPER.

THE COMING BEE.

THIS is once more announced on page 497. I wish it would come, we shall be glad to see it if it arrives in our day. It has been long talked about, and so far as we can learn it is as far off as ever. Predictions made about the coming and the departing bees have not been realised. The prophecies touching them have not been true. Doubtless more assertions and predictions will be made from time to time about coming bees and improving the race of bees, and hence I venture to take leave to ask the readers of the *Journal of Horticulture* to think for themselves on these and all matters, and take nothing for granted and little on trust.

On the page quoted we had a well-written article by Mr. W. H. Stewart, an American bee-keeper. After asserting that the question of financial success or failure in bee culture must eventually turn on this one point—viz., “the coming bee,” and that the subject cannot be too closely investigated, he asks “What is the coming bee? It cannot,” he says, “be the common brown bee: the importation of the Italian and other races of queens has fixed the fate of the old brown bee. What is left of the pure brown blood must soon be superseded by the various mixed breeds, and soon will only be known in history. We are of the opinion that the coming bee will not be the pure Italian, from the fact that the ‘new broom’ has become somewhat old and fails to ‘sweep clean.’ The fever for bright yellow stripes is fast cooling down, and honey-producing bee-keepers are beginning to learn that a cross between the different races gives better workers and more honey. Some queen-breeders are already awake on this important point, and are putting into the market queens that are bred for paying qualities rather than fancy colours; and there can be no doubt but the coming bee will be much superior to any that we now have, if we manage wisely.”

This writer has fixed the fate of the old brown bee and the Italian. If this gentleman be correct there is nothing for us of much consequence but the coming bee; and he tells us where it must come from and how produced. I should like to quote his letter and mark for the reader's notice the unsound positions he has taken in almost every paragraph, and the self-contradictions. His theory is to have breeding queens with strong wings. “Let us consider,” he says, “for a moment what we are doing with our bees. Some are expending thousands of dollars and years of valuable time in breeding bees that have the greatest number of and most brilliant stripes. Others are striving to produce large-bodied bees, others are striving to get bees with tongues long enough to work on red Clover; others, more practical, are working for the production of bees with honey-gathering qualities. All seem to be hopeful that they will attain these desirable ends. All will agree with me that bees may have bands (or stripes), long tongues, large bodies, and ever so much energy, and yet with feeble wings all these faculties or qualities would be unavailing.” These are Mr. Stewart's opinions. Nothing will do for him but strong wings. He has got some crude notions which he is trying to shape into a theory, by which bee-keepers may raise queens and bees with strong wings. It appears that in America some bee-keepers let their young queens out amongst a class of favourite drones for a few minutes, and then cut their wings off lest they should fly any more and come in contact with drones of another kind. Mr. Stewart strongly objects to this, because he thinks the cut wings will decay for want of exercise. Here follows his theory. “If a faculty or member of an individual becomes weak by disuse then that condition of weakness may be transmitted from parent to the offspring. Disease may be transmitted from parent to offspring; weakness is only another name for disease. I would ask bee-keepers a question: Whether a queen with wings or one without would transmit to her offspring the greatest amount of wing power?” I have tried to condense his theory and make it clear, but his words touching the two queens are these—“The one that is deprived of her wings, and those members all through her life being in a dormant state, or the one that is allowed to retain her wings and compelled to fly as often as circumstances would justify? If I were offering queens for sale as superior stock I would compel the brood mothers to fly often, even if I had to toss them up in the air to give them a start.”

Mr. Stewart should know that queens do not naturally leave their hives for wing-exercise; that they leave their hives when very young once or twice, or thrice it may be, if drones are not plentiful. After fertilisation they never leave their hives but on

swarming occasions. The queens that retain their wings do not exercise them, and their progeny are never weak. If he throws queens up to make them fly or take wing-exercise he will not succeed, for queens thus treated would fly to the first hives they see and very likely be killed at the door. This theory is quite outside practice, and therefore the coming bee will not come from the garden of Mr. Stewart. If it ever does come it will not be found better than those now so common in England, and the profits of it will go into the pockets of those that sell and out of the pockets of those who buy. Unfortunately some people are fond of novelties, and dealers ever bent on commercial success know best how to take advantage of these weaknesses.

The Italian bee came amongst us many years ago amid extravagant and exaggerated praises. It is a very good and beautiful bee, but does not possess one point of superiority over the common bee, and if a cross between the two sorts be an improvement we have it already all over England, and have had it for years. First, second, and third crosses are common everywhere; for years my stock has been mixed with Ligurians. I care nothing for them beyond the common sort, finding that its breeding and working powers are unsurpassed for excellence. I have not been able to discover a fault or failing in the common English bee.—A. PETTIGREW.

TRADE CATALOGUES RECEIVED.

Thomas Laxton, Bedford.—*List of New Vegetables for 1884.*
James Carter & Co., 237 and 238, High Holborn.—*Vade Mecum for 1884 (Illustrated).*



TO CORRESPONDENTS

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

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

Books (A. J. B.).—As an elementary work you should first procure Sir Joseph Hooker's little work on “Botany,” one of the Science Primer series, published by Macmillan & Co. You might also obtain Professor Oliver's “Elementary Botany,” published by the same firm.

Murray's Vine Composition (R. D. North).—We regret we are not able to answer your inquiry, as we have not seen this insecticide advertised.

Rose Shows (E. R. H.).—The National Rose Society has fixed the following as the dates of their Shows for 1884:—Metropolitan Show, South Kensington, July 1st; Salisbury, July 9th; and Manchester later in July. We have no knowledge of an “International Rose Show” to be held in England.

Chrysanthemum Sport (I. J. R.).—Although the flowers in their present form are not of striking merit, the variety may improve with good culture, and is worth preserving for further trial. We do not remember one exactly like it, but have seen an old variety similar in colour, orange tinged with brown.

Rhubarb (Yorkshire).—We are sorry you have failed to obtain the early variety, Buck's Scarlet, by advertising. A sample was sent to us from Lincolnshire some time ago, but perhaps the grower of it has no roots for sale. More prolific than the variety mentioned, larger, yet of medium size, and of good colour and quality, is Johnston's St. Martin's. Linnæus is also of similar character, and is much grown by market gardeners near London. If you obtain those varieties true we think they will give you satisfaction.

Cocoa-nut Fibre Refuse (A Tyro).—To detail the various uses to which cocoa-nut fibre refuse is applied would occupy more space than can be afforded in this column. You will find all the particulars you require on page 365, October 21st, 1880, and page 458, November 18th, of the same year. If you do not possess these numbers they can be had in return for 7d. in postage stamps sent to the publisher, with a request that he post you Nos. 17 and 21, third series of this Journal.

Peas and Slugs (A. D., Isle of Man).—We do not raise our Peas in shallow trenches at this period of the year, as in some soils they are kept too wet. We have often sprinkled sawdust amongst them as you propose for affording them protection, and we should prefer it to manure and leaf soil where slugs abound; but for the purpose in question we find cocoa-nut fibre refuse the best material, and this is so cheap and useful that a supply should be had

in all gardens. A thick layer of ashes on each side of the Pea rows, sprinkled occasionally with petrolcum, is a good barrier against slugs. Answers to your other questions will be published next week.

Pruning Young Vines (R. G. M.).—It is not unlikely that your young Vines that produced "a splendid crop of Grapes on 6 or 7 feet of wood" have been much overcropped. When such is the case bold eyes cannot be expected, as the strength of the Vines is exhausted in maturing the crop; still there may be buds at the base of the laterals that you cannot clearly distinguish. You had better prune the laterals at the lowest eye that is clearly visible; then in the spring, if another should break below it about as strong, and showing an equally good bunch, rub off the shoot the furthest from the rod, as one lateral from a joint will be quite sufficient. We fear, however, you will not have such a splendid crop of Grapes next year as you have had this. It is a great mistake to seriously overcrop young Vines, being, in fact, akin to killing the goose that lays the golden eggs, and nowhere has the practice been more frequently condemned than in this Journal.

Bottling Grapes (A Lady Gardener).—As you are a total stranger to this practice you will better understand the sound instructions on page 510 last week by a glance at the annexed figure (fig. 107). We have only to say that the wood bearing the bunch should be inserted quite in the water, and the bottles may be placed in any cool room having an equable temperature of about 40°, and a not very dry atmosphere. The bottles are simply fixed in

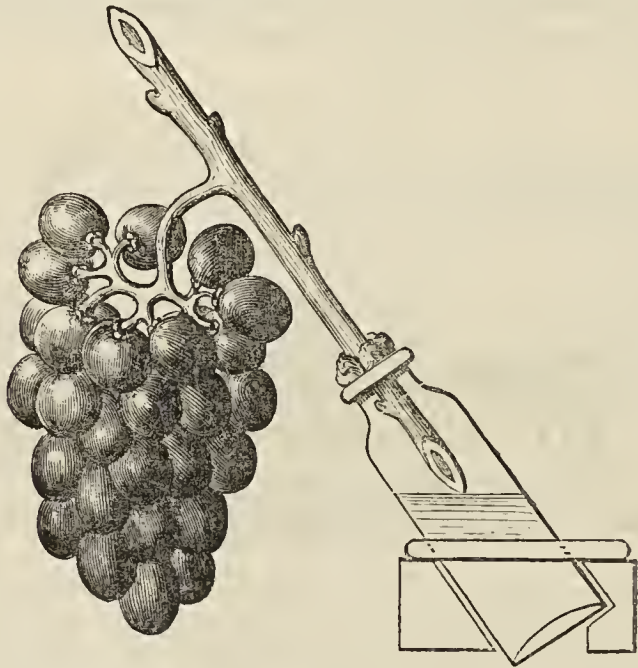


Fig. 107.

a slanting position in order that the Grapes may hang clear. Any ordinary wine bottles will do, and you will easily devise a simple method of fixing them. Some gardeners place a little charcoal in the water to keep it pure, and stop the necks of the bottles with cotton wool. Your Grapes have presumably been kept too warm and dry. If you cut them at once, if you have not already done so, treat as directed by Mr. Barker on the page quoted above. We will in an early issue show a ready method of fixing the bottles to the edge of shelves in a fruit-room.

Small Brussels Sprouts (J. C.).—The Brussels Sprouts that your employer had in Brussels, and which he describes as being "very small, firm, and of delicious flavour, far superior to those grown in this country," are not so produced by climatal influences, but the qualities pertain to the variety that is grown. It is the typical form of this vegetable, and was plentiful in this country many years ago, but has almost been "improved" out of existence—that is to say, seed of the true stock is not easy to procure. Not a few persons esteem this as the best of all Brussels Sprouts, as being more delicate in flavour and having a more agreeable appearance at table than the large, lighter green, newer varieties. The old form alluded to has smaller, much bullated, and rounder leaves than most of the strains now cultivated, hence the plants can be grown closer together. We have seen fine breadths where the plants were only 18 inches apart, the stems upwards of 3 feet high being densely studded with small glaucous green knobs. We saw this variety, or one closely resembling it, last year at Mentmore, and perhaps if you were to send a return post card to Mr. Smith he would inform you where he obtained the seed.

Plants for a Hall (M. C. B.).—All the plants you name—*Latania borbonica*, *Rhaphis flabelliformis*, *Phormium tenax*, and *Aralia Sieboldi*—are well adapted for hall and room decoration, and if they have been gradually inured to a dry temperature before being taken from a plant house will remain fresh for a considerable time. They will, however, decline in health and vigour more or less, according to the positions they occupy, gas being injurious to them, and cold draughty corridors. The soil in the pots must always be kept moist, not saturated, but as soon as the soil slightly crumbles when rubbed with the finger tepid water should be applied, and always in sufficient quantity to moisten the entire bulk. A damp sponge drawn carefully over the foliage twice a week will also conduce to the health of the plants. They will not need potting until spring, but if the present pots are crowded with roots they will need liberal supplies of water.

Unhealthy Vines (H. S.).—It is very difficult to advise you in this matter, since you neither state the age, size, nor character of the Vines; yet as you say they have been planted four times with no improvement following, but rather the reverse, it would appear to us very undesirable to risk further loss and waste further time in attempting to renovate them, as in all probability they are practically beyond recovery. The roots sent, by being packed in cotton wool, arrived in a dry and shrivelled state, yet we

have no hesitation in saying they were very unsatisfactory when severed from the Vines. In our opinion it would be far better to make a new border and plant young Vines than to lift and replant the old ones. Well ripened and rooted, young Vines would, under good management, be certain to flourish; but it is extremely unlikely that the others would ever be made healthy and fruitful. A border 4 feet wide and 2 feet deep would be quite large enough the first year, and could be added to yearly as the roots extend.

Fragrant Roses (W. S., Quebec).—The following rank amongst the most fragrant of the Hybrid Perpetual Roses:—*La France*, Charles Lefebvre, Louis Van Houtte, Alfred Colomb, Marie Baumann, Bessie Johnson, Abel Grand, Senateur Vaisse, Camille Bernardin, Madame Knorr, Pierre Notting, Richard Wallace, Madame Victor Verdier, Mdle. Marie Rady, Jules Margottin, Madame Furtado, Ferdinand de Lesseps, Comtesse Cécile de Chabillant, François Michelin, Général Jacqueminot, Duchess of Edinburgh, Xavier Olibo, Rev. J. B. M. Camm, Duke of Edinburgh, Madame Fillion, Madame C. Joigneaux, Dr. Andry, John Hopper, Antoine Ducher, Baronne Louise Uxkul, Duke of Wellington, Annie Wood, Beauty of Waltham, Centifolia Rosea, Mons. E. Y. Teas, Harrison Weir, Madame Gabriel Luizet, Marchioness of Exeter, Sir Garnet Wolseley, Miss Hassard. If any of our readers can add to the list of highly scented H.P.'s we shall be obliged if they will send us the names of the varieties.

Order not Executed—Sample Post (Idem).—Strictly speaking the florist to whom you refer is right. In the first regulation under the sample post, published in the "Post-office Guide," it is stated that packets containing goods for sale, or in execution of an order, however small the quantity, are not actually samples or patterns, and are treated as letters; and in the sixth regulation we find "samples of saleable value must not be sent to any foreign country or to any of the British possessions that are comprised in the postal union." Nevertheless, we have no doubt it is quite true that you "have received hundreds of plants through the sample post." The date of the letter in which the money was returned is October 8th, and we did not send you post card to the florist in question until a month after that. Everything appears to have been satisfactorily settled now.

Painting a Conservatory (Fifteen-years Subscriber).—Although we believe that the interior of the large temperate house at Kew was painted with anti-corrosion paint, and the occupants of the house, many of which are permanent, received no injury, yet we have found the same kind of paint affect the plants injuriously in a small greenhouse. We have also found this paint so rough after being dried that it cannot be washed clean the same as paints can that produce a smooth surface. We are not able to recommend any paint that can be used with safety in a conservatory in which such plants as *Pelargoniums*, *Camellias*, *Callas*, *Chrysanthemums*, and bulbs are flowering, as at this period of the year the ventilators cannot be left open to any considerable extent night and day as in summer. If any of our readers have found any paint quite safe to use in a house of flowering plants in winter we will readily publish their experience.

Heating a Stove (Rosa).—Owing to the raised banks at the sides of the house it would not answer to have the pipes there, as they would not only be unsightly, but dry the atmosphere to an extent injurious to the plants, besides not making the walls available for the growth of plants, which we presume it is your intention to cover. The pipes would be best placed in the pathway, having an open flue, and covered with an iron grating so as to form part of the floor. You will need six rows of 4-inch pipes up each walk—viz., three flows and returns, and the one over the other, taking two branch pipes from the main flow after it enters the house, one of necessity being taken along the boiler end of the stove. The pipes along the walk of the stove on the side next the greenhouse should be taken to the full extent of the walk, also along the other side as far as can be done for the curve; or you may have the pipes to go all round in the pathway, but it will be necessary to have pipes cast so as to correspond with the curve of the walk, which last arrangement would be the most complete and satisfactory, but a little more expensive. The "banks" at the sides would be much too steep to "hold up themselves," and would be best formed into rockwork, which would look much better than having the sides bricked up, and the rockery would form a good position for Ferns and Mosses. Orchids would not do well in the pockets in the wall, but you could have brackets to stand the pots on, or a shelf at a suitable distance from the glass, whilst those in baskets could be accommodated over the pathway sides, suspended, of course, from the roof. A tank in the centre of the centre bed would be available for the growth of a few choice aquatics, and the pillars covered with climbers would enhance the appearance of the structure.

Propagating Chrysanthemums (A. Tyro).—*Chrysanthemum* cuttings may be inserted at any time when they can be obtained and when conveniences for striking them are afforded. The best are those that spring from the roots and severed within the soil, and if a few white rootlets bristle from near the base of each of the suckers will be the more readily established. These if taken when about 3 inches long, inserted in light gritty soil, kept moist and close in a gently heated frame or propagating case, will soon become small healthy plants. For cuttings or suckers of this kind a temperature of about 55° is ample, and immediately they are established they require air and a graduating reduction of temperature to 45°, with abundance of light. When the tops of young growths are cut off and made into cuttings in spring they require a little more heat to strike freely, but they seldom make such sturdy plants nor produce such fine blooms as the others. The suckers referred to may be successfully established at any convenient time between now and next March, but for the production of large specimen plants the sooner they are established the better.

Mushroom Bed in an Orchard House (E. A.).—Provided the manure is well prepared and sweetened before you take it into the house, and the top and front ventilators are thrown wide open day and night for some time after the bed is made, we do not apprehend that any steam rising from it would do any injury whatever to the trees when they are leafless. After the bed is spawned and cased with soil there will be no appreciable amount of moisture from it, and any little there may be can be dispersed by extra ventilation. Unpurified manure should not be taken into the house. We cannot tell you the smallest length a bed may be, as this depends very

much on the condition of the material that is used and the after-management that is accorded. With the best material and subsequent attention Mushrooms are producible on a bed 6 feet long, but you would have a better chance of success if it were longer. We intended to have published this reply last week, but it was crowded out. It will, however, be soon enough for you to act safely, as it is advisable that the trees be quite at rest before you introduce fermenting materials into the house, and then, as above intimated, you must give abundant ventilation.

Love-in-a-Mist (*Reader of the Journal*).—This name is popularly applied to *Nigella damascena*, a plant included in the *Ranunculus* family, found in several parts of Europe, and has been cultivated in Great Britain for over 300 years. Its flowers are bluish, and it owes its popular name, as well as several other local titles, to the number of finely divided bracts. The generic name *Nigella* is from *niger*, black, in reference to the colour of the seeds, those of some species (especially *N. sativa*) being formerly employed in medicine as a stimulant and carminative, and in some parts of Europe they are yet used as spice and in adulterating pepper. *N. arvensis* is a nearly related species, its seeds having been employed in a similar manner. *N. hispanica* and several others are also grown in gardens. They are hardy annuals which thrive in any ordinary garden soil, the seeds being sown early in spring. The leaves are finely divided, and to this character is due the English name applied to all the species—namely, Fennel Flower.

Apples for Shallow Soil (*J. E. B.*).—Six kitchen Apples: Duchess of Oldenburgh, Keswick Codlin, Stirling Castle, Warner's King, Wormsley Pippin, Dumelow's Seedling. Six dessert: Red Joanetting, Worcester Pearmain, Margil, King of Pippins, Adam's Pearmain, Sturmer Pippin. All these answer well in such a soil as yours, but they will not continue healthy or live long if the soil is not deepened and enriched with manure. Artificial drainage is not required in your subsoil of sand and gravel. Make stations for the trees a little raised above the common level, 2 feet deep and 6 feet square. Procure strong healthy trees of the varieties named, plant carefully, fasten securely so that they cannot become loose in the newly moved soil. Attend closely to the directions in our hardy fruit calendar, where all cultural details are fully given from time to time, and you will obtain fruit in due course and have no further difficulty. You might also endeavour to improve the trees you already possess by replanting the best of them on prepared stations, the mounds to be quite 9 inches above the ground level of the soil.

Vine Roots Cankered (*A. E.*).—We have examined minutely the roots you have sent and find them seriously cankered, the injury, we conclude, being done by some corroding agency in the soil. There are no insects on the roots nor signs of any, and no fungus except that which is usually found on decaying matter, and what little there is, is a result of the canker, and certainly not the cause. What the nature of the fungus may be to which you allude appearing on the blotches on the leaves we have no means of knowing, but it seems evident that it did not cause the injury to the Vines. The state of the roots is quite sufficient to account for the blotching and shrivelling of the foliage and the shanking of the fruit. We should at once lift the Vines, wash the roots, removing all cankered and decayed portions, replanting in a narrow border of fresh loam with an admixture of bones, lime, and wood ashes; and should prepare a compost of the latter with good leaf soil, a little loam, and a liberal admixture of gritty matter for placing in immediate contact with the roots, with the object of accelerating the emission of young fibres. If it be necessary to prune the roots severely, as is probable, then the rods must also be pruned closely, perhaps shortened, and the Vines should not be forced into growth in the spring. If nothing was added to the soil in the border that would cause decay of the roots it would be wise to procure loam from another source for making a new border. It need not be much wider than the extension of the roots after pruning, but the surface should be kept moist during the summer by an ample mulching of manure.

Senecio pulcher (*M. E. H.*).—This is a vigorous-growing perennial, with large fleshy or almost leathery leaves of a deep green colour and shining; the radical or root leaves are variously dentated and lobed, while those on the stem are ragged and irregularly cut. The flower stems are from 2 to 3 feet high, very stout, freely branching at the top, and supporting numerous flowers with the rays of a brilliant purplish crimson colour, and the disk or centre golden yellow, measuring 3 inches or more in diameter, and lasting a considerable time in beauty. It flowers during the late autumn months, when it is of special interest and very welcome; and when well cultivated it is a most attractive plant. It may readily be cultivated in ordinary borders, but especially does it thrive in rich loamy soil in a damp situation, as it enjoys plenty of moisture during the summer months. As regards the pot culture of this plant, there is no difficulty in securing good flowering plants by that treatment in, say, 5 or 6-inch pots, using as soil good yellow loam, leaf soil, and well-decayed cow manure with some wood ashes and sand, or in lieu of the ashes fine nodules of charcoal: the latter is of decided advantage in growing the plant. Perfect drainage is also essential, and an abundance of moisture during the growing season; and it would be advisable to plunge the pots in some material such as spent hops or ashes, which would greatly assist to keep the roots cool and moist. Other particulars in reference to the culture of the plant are given in this Journal on page 131, August 10th, 1882, and an illustration was published on page 312, October 6th, 1881.

Names of Plants (*W. H.*).—The specimen sent was very imperfect, but it bears some resemblance to *Agrostis alba*, which is a Grass with creeping roots frequenting moist situations. Several varieties are known and cultivated in such positions. It could be removed by forking out the roots.

Drones still Living (*J. H.*).—Both Italian and common bees kill their drones at certain periods of their history, generally twice a year—once after swarming and at the close of the season if the hives are healthy and have fertilised queens. A few years ago many of our hives did not kill off their drones till October and November, but this is very unusual. Your Italian swarm that has drones alive now has probably lost its fertilised queen, and has now one unfertilised and worthless, hatched at the end of the season

But on this point no one can speak with certainty. Stimulate the bees to breed early, and the brood will reveal to you the state of your hive.

COVENT GARDEN MARKET.—DECEMBER 19TH.

OUR market is considerably depressed, only first-class samples of Apples meeting with any demand. Foreign importations short. Grapes firmer. Kent Cobs quiet.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 4 0	Nectarines	dozen	0 0 to 0 0
"	per barrel	0 0 0 0	Oranges	100	6 0 10 0
Apricots	box	0 0 0 0	Peaches	dozen	0 0 0 0
Chestnuts	bushel	10 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs	dozen	0 0 0 0	" dessert	dozen	1 0 5 0
Filberts .. ..	.. lb.	0 0 0 0	Pine Apples English ..	lb.	2 0 3 0
Cobs	per lb.	1 4 1 5	Plums and Damsons ..		0 0 0 0
Grapes .. ..	.. lb.	1 6 4 0	Strawberries .. ..	.. lb.	0 0 0 0
Lemon .. ..	.. case	15 0 21 0	St. Michael Pines ..	..each	2 6 8 0
Melons .. ..	..each	0 0 0 0			

VEGETABLES.

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



THE BREEDING AND TRAINING OF MULES FOR FARM WORK.

(Continued from page 522.)

A VERY important point to be considered is the longevity of the mule, as when employed in the tillage of the farm and other work, including the pastures and parkland, some comparison must be made as between it and the cart horse. Horses are sometimes useful at a great age, say over twenty years, but the general capability of the horse for farm labour on the average we only estimate at about nine years—that is to say, that if horses are capable of farm labour at four years old, they do not last more than about nine years, or, in other words, fail to pay for food after the age of thirteen years, except sometimes for breeding purposes. Still, looking at the matter in this way, accidental injury and disease have to be included in deduction for inefficiency. The mule is much more hardy than the horse, and less prone to disease. They will labour for a longer day than horses, and especially if well eared for and fed at the same cost and expense as horses; the amount of active and heavy work they are capable of is quite unknown to farmers in general. The type and size of mule required in this country is that which is used in America for agricultural purposes, the next best is that of Poitou. The best Poitevin sires are reared in the district of Melle in the Deux Sèvres. The most esteemed are black or brown-bay, but the tip of the nose must be of a greyish white (commonly called mealy white) like those of the finest Jersey cattle; a black-nosed mule being condemned as not thoroughbred. We are told by Mr. J. Chesney in his essay previously referred to, that the sale of sires is so profitable that the greater number of farmers in the district of Poitevin keep females, and nothing can exceed the extreme care of which the future mother is the object during the last month of her gestation. She is watched day and night, and very rarely will the Poitevin householder delegate even to his son the performance of this important duty. If a young male arrives in due season great is the joy of the whole family, while one of the opposite sex is received with expressions just the reverse. The young male once born receives the greatest possible attention, although through ignorance and prejudice the care and attention in various points is extremely injudicious, for the French farmers, few of whom can be persuaded to let the young animal have its mother's first milk, a deprivation which naturally causes the death of not a few of these little creatures.

Besides this, the mother is rarely in a condition for making a good nurse, these people being deluded with the idea that the more the

female is emaciated both before and after gestation the less liable will she be to abortion. Now these prejudices which exist amongst the peasant farmers have a deteriorating effect upon the size and value of the mules bred by them. The young animals, both mules and donkeys, are weaned at nine months old. Those which are reared on the farms and intended for sale are fed at first upon mashes of bran and barleymeal, and afterwards on grain; at about eighteen months old they are bought by the stud-masters; at the age of four years they rank as full grown stallions. The best stallions cost from 3000 to 4000 francs, and these prices will give some idea of the importance of the industry. It has indeed been asserted, whether the stud-masters gain or lose, it is very certain that the Poitevin farmers profit largely by rearing both mules and donkeys, and at the autumn fairs the young animals fetch from £20 to £30, and even more for large up-standing mules showing power and size.

In any attempt to breed mules for farm work in this country we must not think merely of external matters, but also of docility and intelligence as well as size and strength, and these can be obtained and increased just as easily as can the others, for if we breed from obstinate and ill-tempered brutes what reason have we to expect that the progeny will be of a different disposition? There is in fact a strong unlikeness in mules, some being vicious and stubborn, others are docile and easily managed. This, like the neglect of the Poitou breed we have alluded to, arises from the want of proper care first of all in breeding from none but docile parents, and those which have been selected for all the points which we require in the mule for farm work. We cannot fix a limit in size except that mules of fifteen or sixteen hands high, if stout in proportion, would, when kept in good condition, be equally powerful and useful if well trained to perform in pairs all the work on the land usually done by a pair of ordinary farm horses. For odd or light work on the farm, including horse-hoeing of roots, corn, &c., we have found these superior, and have known constantly at work in our district mules of about thirteen hands high capable of drawing singly 24 cwt. of corn to the railway station in light spring four-wheeled vehicles. We have already had donkey shows in various places. Let the committees of agricultural shows give prizes for the most powerful mules, and we shall like our American cousins produce all that can be desired to render them capable of farm labour and other useful purposes to the exclusion to some extent of horses, especially for drawing tradesmen's vans in both town and country.

The most essential points in breeding and rearing as well as training animals must now be considered, also with sufficient care and condition to bring them out for show purposes. All these matters must be made by a well-devised system, for animals cannot be allowed to run in the pastures and lead a life like the forest ponies, but must receive protection from bad weather, ill-usage in various ways, and also protection from blemishes and injuries through accidental causes, and also in that case whilst young we may find out their tempers, so that they may be disposed of if not likely to yield to careful training. To obtain all these necessaries our system which we adopt for the careful rearing of farm horses is exactly suitable in our humble opinion and long experience, which is as follows: It is by a plan of shed and yard accommodation. The sheds and yards are made to face the north or north-east, as we find the animals become more hardy, and also suffer less from flies in summer time when kept in yards of that aspect. The sheds are 12 feet wide and 9 feet high up to the eaves, the shed is partitioned off where numbers are required to be kept at 12 feet, thus giving accommodation under cover 12 feet by 12 feet. These are enclosed with open boards and door 5 feet wide. The yards in front are of the same width, 12 feet, surrounded by four rails 18 or 20 inches apart, but extend as may be convenient either 15 or 20 feet, thus giving plenty of room for the young animals to take moderate exercise. The floors both of sheds and yards are covered with earth 9 or 10 inches in depth for absorption and removal, and the manure allowed to accumulate, straw being applied as cleanliness requires; the droppings are spread daily before applying fresh litter, and either fine earth, damp ashes, or yellow sand is strewed over twice a week. This consolidates the dung during accumulation and prevents heating, which it is more liable to do than manure made under bullocks, as horses or mules do not void so much urine.

The mares are allowed to work as usual until about a week or ten days before foaling, they are then put into the sheds and yards and shut up at night, and these are very safe places for them to foal in. A short time after foaling, say a fortnight, the mares go out to work, the foals being kept in the pens until the mares return from work; here the foals learn to eat, and are weaned at the end of four or five months. Here they remain until they are fit for sale or work at two or three years old, in pairs up to a year old, then singly. These sheds have low racks and mangers for hay and fodder. The food, commencing with Trifolium and Clover, with bruised Beans or Maize, and bran, Oats, and chaff, is gone on with until the roots are ready, when a moderate quantity with hay and corn is the food given until

green fodder comes in again. Under this system, with careful attention the colts become not only exceedingly docile, but are positively free from accidents or blemishes, and are easily broken in for work with little risk or trouble. It should not, however, be forgotten that the manure made in this system is an important and valuable item. Having carried out this system for rearing horses with great success, we can recommend it for rearing mules.

WORK ON THE HOME FARM.

Horse Labour.—There is still some Wheat to be sown in certain districts of the kingdom, and in fact more than usual, in consequence of the lateness of the harvest, and the change from fine weather to storms and heavy rains which occurred in the latter part of October and first fortnight in November, and on cold flat-lying land not so much Wheat has been sown as was intended; in fact, even within the past week Wheat-sowing has been continued in certain districts with the land in drier condition than a few weeks previously. It should be remembered that, except in certain districts of the northern counties and Scotland, it may be advantageous to continue sowing Wheat at every opportunity in December and January, where in certain cases and by hindrance not to be avoided, for every day is an object gained if open weather occurs, so that the land will work fairly well, because it always grows more like Wheat sown in autumn, and in consequence will generally yield better than spring-sown crops. There are no doubt some instances in which the land may best be held over until spring, but the intelligence of the home farmer and the soil and climate of the district will generally go far to decide this point. Fallow ploughing will now be going on in the absence of frost or heavy rains, but we advocate rather ploughing or stretching the land to lie the winter; it should, however, be crossed with water-furrows if flat cold land, that water may not lie in puddles in certain parts. We have another idea also relating to the land lying fallow and uncropped during the winter months; for although Sir J. B. Lawes is no doubt correct in saying that certain soils lose fertility through not being cropped in winter, yet we consider that this observation only applies to porous soils, and that strong soils may lose fertility likewise, but they gain more in amelioration and working condition than they lose by fertility being diminished; in fact, it is for the most part and frequently the only opportunity that strong and flat soils can be ameliorated, especially when we get only wet and unfavourable summers. The carting of earth to heap, and when dry enough earthy composts with manure into the grass land and park pastures, should now be done, and whenever this application is given, 3 cwt. of dissolved bones or bone phosphates should be applied also in the months of February and March. When frosty weather occurs after Christmas it is a good time to do the threshing of corn in stack, either of Wheat or Barley, in order that when sold the delivery may employ the horses at the least busy time of the year.

DONCASTER AGRICULTURAL SOCIETY.—We are requested to state that the next Exhibition of this Society has been fixed to take place at Doncaster on Wednesday and Thursday, June 25th and 26th, 1884.

OUR LETTER BOX.

Analysis of Soils (Anxious).—This is not only very costly, but very unsatisfactory as far as the fields are concerned, because the soil varies so much, not only on the surface but also the subsoil. We therefore cannot recommend analysis of land as a prelude to manuring it. We advise you to try the effect of farmyard dung, nitrate of soda, bone superphosphate, Peruvian or British guano, in patches side by side for various crops both of corn and roots. The result and teaching will prove lessons which cannot be learned in any other way with so little cost and trouble, taking care, however, to secure the purchased manures of genuine quality and at fair prices.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32 ^s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883.											
December.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	9	30.330	35.1	32.0	W.	37.8	39.0	32.6	40.2	31.5	—
Monday	10	30.030	44.3	42.5	S.W.	38.2	47.7	33.1	47.8	30.3	0.447
Tuesday	11	29.631	43.3	40.7	W.N.W.	40	49.3	42.2	72.3	36.4	0.076
Wednesday ..	12	29.738	43.9	38.2	N.W.	6	49.3	34.7	58.7	32.7	0.010
Thursday	13	29.930	49.7	48.2	W.	0.2	54.9	38.6	71.5	32.3	—
Friday	14	29.635	52.7	51.0	S.W.	42.8	54.6	48.5	55.3	47.3	0.030
Saturday	15	29.871	38.5	36.7	N.W.	42.7	46.4	36.7	65.6	31.3	0.010
		29.895	43.9	41.3			48.7	38.6	58.8	31.5	0.573

REMARKS.

9th.—Overcast and misty throughout; sprinkle of rain 8.30 p.m.
 10th.—Dull and damp, but milder; fine sunrise; rain in evening.
 11th.—Fine and bright, gorgeous sunset; strong gale at night.
 12th.—Fine and windy.
 13th.—Fine and mild.
 14th.—Showery and windy morning; fine afternoon and evening.
 15th.—Fine bright morning; overcast afternoon; rain and wind in evening.
 Rather warmer than the previous week, but chiefly noticeable for strong wind on 11th.
 —G. J. SYMONS.



COMING EVENTS

27	TH	
28	F	Quekett Club at 8 P.M.
29	S	
30	SUN	1ST SUNDAY AFTER CHRISTMAS.
31	M	
1	TU	
2	W	

TUBEROUS BEGONIAS.

OH, how lovely! I never knew that there were such exquisite varieties of Begonias," said many of my fair visitors who saw my house full of these charming plants last season. And indeed anyone who had only seen the small narrow-petalled single kinds generally grown might well be astonished. There might be seen singles, like great butterflies, 4, 5, and 6 inches across, some pure white, others yellow, pink, flesh, orange, scarlet, and every conceivable shade of red; some wide open and erect, with their four wings spreading at right angles, others gracefully drooping and hanging in clusters from their slender arching stems like cascades of pearls and rubies. And then the doubles. What a charming combination of colours! What diversity of shape and habit! Some like a Cactus Dahlia, some like a very double Hollyhock, others like beautifully imbricated Roses or Camellias, and others, again, forming the very prettiest of rosettes. Then see how beautifully the flowers contrast with the shining stems and quaint tropical-looking foliage—foliage which differs almost as much as the flowers—dark green, light green, veined, marbled, narrow and tapering to a point, broad and heart-shaped, with one of the lobes always smaller than the other, giving it that appearance peculiar to the Begonia tribe.

Truly the tuberous-rooted Begonia is a flower with a future! When it is considered that we have only just begun with it, and that a few years since it was almost unknown, what may we not expect now that enthusiastic hybridisers are diligently at work on this comparatively virgin soil which has already produced such great results? We have almost ceased to hope for anything really new in the way of Pelargoniums or Roses. The poor old Zonal has been nearly done to death, and even the queenly Rose has been repeated again and again almost *ad nauseam*. But the Begonia—well, we shall see. One thing I feel convinced of—that everybody with a greenhouse must grow Begonias if they wish to enjoy a really new sensation in floriculture, and, indeed, everyone who has a garden without a greenhouse; for, startling as it may appear to some, this glorious flower has proved itself to be almost hardy. The very choicest kinds will stand one or two degrees of frost without injury to the foliage, and even should the foliage be cut by a harder frost the tuber will survive, and, with a little protection, will winter in the open ground and throw up again vigorously in the spring. But if the cultivator is not inclined to run this risk, he can take them up and store them like Dahlia tubers in earth or sand in any place safe from frost, and be happy and forget them until spring comes again. Think of that, ye who worry over tall scraggy Pelargoniums all the winter, and after all have the mortification of seeing them damp off.

But it will perhaps be said, "How am I to get these fine varieties of Begonias? I cannot afford to give 2s. 6d., 5s., or 10s. 6d. a piece for them, and I see that nearly all the

best are about this price." True, but I do not advise you, unless "money is no object," to buy these expensive varieties to start with. Try some unnamed seedlings of a good strain. You can buy them as dry tubers in winter and spring at a very trifling cost, and many of them you will find to be almost equal to the named sorts; or, better still, if you have any means of raising the seed, a couple of half crowns will secure you enough plants to fully stock your garden or greenhouse, and among them, from really good seed, you ought to get some as good as any with the very finest of names. For this let me state what is required and how to set to work.

In the first place there must be either a house or frame heated to about 65°. If this cannot be managed, let the seed alone. But I will suppose that my readers are happy enough to have either the one or the other. Buy the seed in January or February, the earlier the better. Buy the best that can be had, it is the cheapest in the end. Do not be disappointed at finding the packet to consist of what appears to be the tiniest pinch of snuff. The seed is very fine indeed; take all the more care of it. Prepare a 6 or 7-inch pot thus: 1½ inch of broken crocks at the bottom, then a thin layer of moss, then nearly fill it with finely sifted leaf soil, with which about a fourth part of silver sand is mixed. Press the soil level, water it thoroughly through a fine rose, allow it to drain for a few minutes, then sprinkle the seed evenly over the surface. The seed need not be covered with soil; a sprinkling of sand may be placed over it, but it is not really necessary. Cover the top of the pot with a square of glass, and then with a piece of brown paper to exclude light. Place it on your hotbed, and watch carefully for the germination of the seed. The moment it appears remove the paper, and when the seedlings are fairly up the glass also. No watering ought to have been required up to this time, but now if getting dry place the pot in tepid water to within an inch of the rim until it has sucked up sufficient moisture. On no account drench overhead, or many of the tiny seedlings will be destroyed. Never allow the soil to become dry, and as the plants gain strength water through a rose in the usual manner. Do not be in too much of a hurry to prick them out, but when they can be handled well place them in the same kind of soil as before, and continue careful treatment, transferring them to single pots as they become large enough. If these directions are successfully attended to by June the grower will be the happy possessor of a fine stock of healthy young plants, many of them by that time showing flowers, and all through the season there will be the intense pleasure of watching the development of the flowers, speculating as to what they will be when fully open—hoping, fearing, triumphing by turns as some new beauty gradually expands.

Seedlings always grow well and are easily managed. But if the named expensive varieties are purchased, many of them require care. They have the unhappy knack at times of decaying just at the collar, and it ought to be seen to that the earth in the pot is slightly raised towards the centre, throwing the surplus water to the sides of the pot; this prevents damping. In watering do not wet the stems, and avoid a close stagnant atmosphere.

Begonias are by no means difficult to propagate from cuttings. Inserted either singly in very light soil, or planted out over a slight bottom heat in cocoa-nut fibre or some such material, they soon root and form small tubers. Their great enemy is damp, and while rooting the foliage and stem must not be suffered to remain wet, or they will decay. No plant is more easily hybridised. Here in Devonshire, where the climate seems to suit them, they seed very freely, and nearly every pod even of the doubles ripens well. I am looking forward to the coming season with the greatest expectations, and, judging from past success, hope to see some new wonders. In the open ground here they do remarkably well. Some of my acquaintances had beds of them which were really beautiful, and I quite expect that ere long they will be as

common in every garden as the old scarlet Pelargonium.—
R. W. BEACHEY.

THE "JOURNAL OF HORTICULTURE."

THAT admirably written and sensibly expressed communication by "A Working Gardener" in last week's Journal set me thinking. It took back my thoughts to the days of twenty and thirty years ago—to the days when Robert Errington, Robert Fish, Donald Beaton, Thomas Appleby, and John Robson were writing in the then *Cottage Gardener* as no other writers (now, don't stop me, Mr. Editor, please) have ever done either before or since in any paper. There, now! Crack that nut all ye modern scribes! I read my Journal now as I have read it all these thirty years and more. I read it dutifully and respectfully as I ought. I am fully alive to the ability and earnestness of the writers in their several departments. I appreciate their labours in the cause of good gardening, and in all that concerns the gardener at its highest estimate; yet the Journal of to-day has not the same flavour to me as it had in "the brave days of old."

Of course some Philistine will suggest that I am getting into the "sere and yellow leaf" of life, and therefore cannot be expected to appraise at its proper value the work of the present time, nor the manner of doing it or speaking of it. I grant all that; but now, my Philistine friend, just let me ask you one question. I will take you to be a head gardener, and I ask you fearlessly and honestly, Do the young men under you read any gardening paper with the same eagerness, the same greediness, almost the same relish, as you and I read at their age and in their circumstances? Well, you'll hum and ha, and say, "No, I don't think they do; but, then, you see there's so much now-a-days to attract young men, even in country villages, that did not exist in our day." Perhaps there is; but, then, is that right or good for them? I know quite well that the old plodding spirit is fast dying out of our young men, and that there is a large section, far too large, of our young gardeners who prefer to walk about with gloves and cane rather than sit down and read; and there is as large a class, if not larger, who only read superficially, skimmingly, slightly, who want all their thinking done for them by other people, and the results administered to them in a concentrated form and in sugar-coated homœopathic doses by publicly read essays or lectures. The class of young men like you and I, dear Philistine, and our good brother, "A Working Gardener," is, I am afraid, very small. There are a few members in it we know, but not many.

Said a brother head gardener to me not many days ago when speaking on this very subject, "I don't know what's come over the young men in the bothy. Our lady takes in for them all the horticultural journals, the "Quiver," "Cassell's Magazine," and other serials for their use, and I can go into their room any week and find the gardening papers with not even the leaves cut, to say nothing of being read. I know it was not so in my time. I had to find my own gardening paper, and pay for it myself out of very small wages, and then I read every word of it from end to end. I begin to think that there's too much done for them." Is this so, and that our young men do not prize the papers because they come too easily? The old saying that "proffered service always stinks" has some truth in it we know. How many gardeners twenty years hence will be able to write such a letter of sound sense and such a testimony to his early reading as that of "A Working Gardener" in the Journal of the 13th of December? It's a grand letter; his words to young gardeners are most excellent, and deserve the attention of every young man in a garden. If he and I could have changed bodies we should have the same things to say. I, too, owe a deep debt of gratitude to the *Journal of Horticulture*. In 1856 the then editor, Mr. G. W. Johnson (God for ever bless him) did me an altogether inestimable service. Through him I was introduced to those who helped me up to my present position; and to the writings of the staff of the Journal of that time, specially mentioning Mr. R. Fish, I am largely indebted for the ability and skill to maintain that position. Herein again is one characteristic feature of our Journal—its warm personal connection with its readers; its home-like, family-like union of directors, writers, readers. There is no stiff, formal, unfamiliar flavour about it, as if both editors, writers, and readers were abstractions rather than substantialities or living personalities. That is what I feel about the matter, though I may not be able to put my thoughts in the clearest words. May our Journal go on doing the good work it has done in the past, and may such readers as "A Working Gardener" be multiplied a thousandfold. A happy new year to everybody.—H., *Notts*.

TRAINING RASPBERRIES.

I CANNOT name any better methods of doing this than those described by Mr. J. Wright (page 480), and I am not writing to go beyond his instructions but merely to confirm them. The fence way of training is very

familiar to us, as seven years ago we put down six of them 30 yards in length each, and they are as good and useful now as the first season. The end posts and some of the uprights are of iron. The stools are those planted seven years since, and I think it speaks well for the system that we have annually secured first-rate crops of fruit from these rows. I could never wish for a better way of training them, as it is most convenient in every respect, and agrees with cultural details admirably. The top wire is 5 feet from the ground, and the tops of the canes are about 1 foot above this. In July they often grow much higher than this, but when we thin out the old canes in September the young ones are cut back to the height indicated, and then they never fail to ripen and swell their buds to the fullest extent.

No digging or forking is ever done amongst Raspberry roots here. Late in autumn or some time during the winter a quantity of good manure is spread over the surface of the soil, and this is all the attention the roots ever receive. The rows are 5 feet apart, and the centre of this space is forked over now and again, and in the early spring before the leaves produce any shade worth speaking about we grow a row of Spinach, Radishes, or Lettuces between the rows of Raspberries.

There is one profitable way of growing Raspberries which I have not often seen practised. This is not cultivating them in gardens, but planting them in odd corners under trees and about the rubbish heaps which are to be found in the back grounds of all gardens. It is astonishing how well Raspberries do in such positions, and the enormous quantity of small fruit they produce. In positions of this kind they are treated quite naturally, or in fact they are not treated in any way, but simply left to themselves, and they form both a pretty undergrowth and a good cover for game, which is a consideration in many places. Raspberries will grow and fruit better under the shade of trees than any other fruit we could name, and if those with surplus canes would plant them in such places as I have mentioned I am sure they would be pleased with the result.—J. MUIR.

SELECT TABLE PLANTS.

THE following is a selection of useful decorative table plants, well-grown examples of which cannot fail to give satisfaction. For this purpose well-furnished plants in 4-inch pots are more desirable than those grown in larger sizes, as many of those plants which have variegated foliage develop their rich colours best when somewhat restricted at the roots.

Pandanus Veitchii.—This is one of the best and most popular table plants in cultivation, and being of slow growth it remains a long time useful. To have well-coloured plants select offsets from the old plants which have most colour, insert them singly in small pots in a mixture of cocoa-nut fibre and sharp silver sand, and plunge them in a brisk hotbed. They will soon form roots, but they may remain in these pots till they are well filled with roots, when they may be shifted on into 4-inch pots, in which they will attain to a most serviceable size. I find they colour best in a rather poor compost, equal parts loam and peat, with about a third each of charcoal, broken bricks, and sharp river sand. The months of March and April are the best to insert cuttings, but it may be done well at any time.

Croton Weismannii superba.—This is a great improvement on that old and truly useful sort *C. Weismannii*. It is of a more densely compact habit, and assumes a beautiful golden variegation more freely. It ought to have a place in the most select collections.

Croton Warrenii.—Undoubtedly this is the most majestic and graceful *Croton* grown. The leaves on well-grown examples attain a length of more than 2 feet, and are of a beautiful spiral form, boldly arching and very regular. The colour is of a deep olive green, irregularly blotched and spotted with yellow and carmine. This I believe to be one of the richest-coloured table plants.

Croton angustifolius.—Well-coloured plants of this old favourite are very highly esteemed for table work, and deservedly so, possessing as they do a most graceful habit. They give a light and cheerful appearance to the surrounding objects on the table.

Crotons are easily propagated from cuttings inserted in the spring in a rather brisk hotbed, using as a compost that recommended for the *Pandanus*. When rooted pot them into small 60's, and again plunge in the hotbed, and as they require it transfer them into 4-inch pots, using as a compost equal parts of loam and peat, about a third each of sand and charcoal, with a handful or two of ground bones. To bring out their beautiful variegation to the greatest perfection they will require more exposure to the sun than is generally accorded the inmates of the stove. If possible they ought to be placed together in a position where they can enjoy the full light of the sun during the early morning and afternoon, shading being necessary during the middle of the day to prevent scorching. To maintain a supply of useful plants the propagating bed should never be kept empty, as they are very fast-growing, consequently they soon become too tall. A good and safe plan is to strike the tops by mossing them—that is, by cutting the stems of those that are too large nearly through, firmly tying wet moss with a dash of silver sand round the wound, and allowing it to remain until roots are emitted, when they should

be cut off and treated as rooted cuttings until established, when they are at once fit for use. The following, in addition to the above, are very good—*C. Johannis elegans*, *C. Chelsonii*, *C. Archibaldi*, *C. interruptus aureus*, *C. Lord Chelmsford*, and *C. undulatus*.

Dracæna Cooperii.—One of the oldest and best of the variegated section of this popular genus, possessing colours which I have not as yet seen surpassed in any of those of a more recent date. Its culture is simple, and propagation is effected by cutting up the stems of the old plants into eyes, and inserting them in cocoa-nut fibre in a hotbed. But as these young plants do not colour well they ought to be grown on until they begin to show their lovely markings, when the tops may either be severed from the plants placed in bottles filled with water and plunged in the hotbed, a piece of charcoal being placed in the water to keep it sweet, or they may be mossed in the same way as recommended for the *Croton*, care being taken that they are well rooted into the moss before they are severed from the parent stem, as they are very apt to lose a few leaves if they are cut away prematurely. The compost recommended for the *Pandanus* suits them admirably, giving slight feedings with weak guano water when the pots are well filled with roots. Thrips are particularly fond of these plants, and a fearful havoc they make if left undisturbed. To prevent their depredations the plants ought to be sponged at least once a fortnight. The following are also very good:—*D. Bausei*, *D. superba*, *D. splendens*, *D. Moorcana*, *D. Baptistii*, and *D. gracilis*.

Cocos Weddelliana and *Geonoma gracilis*.—Nearly all the Palms are of more or less value as table plants when in a young state, but I do not think any other two are more popular for this purpose than those mentioned above. Happily they are of slow growth, and therefore they remain a long time useful. They are increased from seed, which method, however, is rarely attempted by private growers, although those possessing a propagating house need have no difficulty in raising any number of them. The seed should be sown in pans of cocoa-nut fibre and sand, and plunged in the hotbed. In about six or eight months they will germinate; prick them out into small thumb pots, and plunge again. The compost should consist of peat, loam, sand, and charcoal until the last shift, when pure clayey loam and sand will be needed.

Some others which I have found very useful, but will not describe at this time, are *Aralia Veitchii*, *A. Veitchii gracillima*, *Asparagus plumosus nana*, *Dracæna Goldicana*, *Reidia glauceseens*, and *Cureuligo recurvata*.—WM. MARSHALL.

LADY DOWNE'S GRAPE.

So much has been written about this Grape in common with others that it may be questioned if there is anything new left to chronicle regarding it. However, it may not be known to all your readers that Lady Downe's, though possessed of a good constitution and having every appearance of being a very free-fruiting and strong-growing variety, has one or two peculiarities that make it less easily grown to perfection than otherwise it could be. First of all, then, Lady Downe's requires a high temperature when setting, and is very much benefited by having the flowers brushed with a feather when in bloom. After the period of setting has passed, and supposing a good set has been obtained, another difficulty has to be encountered at stoning time, when scalding appears, and unless carefully guarded against makes sad inroads on the bunches. During this trying period the temperature must be kept low—not above 65° by day if such can be managed. This is the great secret in combating the evil of scalding, and though generally known to most gardeners, there are sometimes found cases where a want of knowledge of this has been displayed with disastrous results.

Scalding is caused both by the direct rays of the sun and by a high temperature in the house during stoning time; and in addition to keeping the house cool by the admission of plenty of air, a slight shading thrown over the house, when such is practicable, is of much use in preventing the sun scalding those bunches that may not be shaded by foliage.

All stopping of laterals and sub-laterals should be discontinued a fortnight before stoning time, and not commenced again till the first berries have begun to colour.

The temperature should then be increased, and a good Muscat house heat maintained, not a "cool" Muscat temperature, but a genuine hot one. When the leaves begin changing colour at the end of autumn there is often much damping to be met with in Lady Downe's. The sooner the leaves are carefully removed after the end of November the better, and a careful watch should be kept for all signs of decaying berries, which if allowed to remain soon spread and multiply the evil greatly.

When kept till February or March Lady Downe's has a good flavour, and is possessed of a very refreshing crispness, which makes it much appreciated by some. Not possessing the grand appearance of *Gros Colman*, it must, in my opinion, be placed before that

noble-looking Grape in regard to table qualities; and though in some cases, notably in the case of Mr. D. Thomson's noble employer, *Gros Colman* is preferred for table use, still a census of opinions would show a decided majority in favour of Lady Downe's. Grown in a house where all things favourable can be bestowed and things prejudicial guarded against, this Grape is unequalled for quality by any other in use as a late variety, except Muscat of Alexandria, which is *facile princeps*, and will, when thoroughly ripened, keep as long as Lady Downe's.

Then, to all intending cultivators of the Vine who have not practical experience of the Lady Downe's Grape as a variety ranking A1 as a late source of supply I would say, that when a few extra precautions are taken in the culture it will reward its cultivators by hanging well, looking well, and, above all, eating well.

Muscats may be put alongside of Lady Downe's in regard to the scalding, as they not unfrequently suffer therefrom. So our favourite black Grape is not alone in this drawback, and therefore cannot be made to bear all the odium. As there is nothing perfect under the sun, it cannot be expected that Grapes would prove exceptions to the infallible rule; the great matter is to weigh carefully and well the various shortcomings of different kinds, and thereby endeavour to arrive at just conclusions.—S.

TRANSPLANTING SHRUBS.

THE most important point in connection with the transplanting of shrubs which have for several years grown in the same spot is securing a good ball of soil with the roots. In some soils there is no difficulty in thus lifting shrubs. Last winter, for instance, I had some removed from one part of the estate to another, and from one portion of ground the men had nothing more to do than to cut around the ball with their spade, then two or three of them worked well in on one side, while the others pulled the shrub, and thus very easily raised specimens 6 feet high and as much in diameter. Some others growing in pure sand had to be lifted with all the rootlets possible, and it is wonderful how well those have done. One of them is a Portugal Laurel 9 feet high and bushy. The roots were all carefully spread out, and a compost of half soil, half leaf mould, placed round them, with the result that another season's growth will make it better than ever it was.

The greater part of the soil here, however, is very friable, and there is no use in attempting to move even such an easily transplanted shrub as the Box without making sure that the ball will not fall to pieces at any moment. We almost invariably take the extra trouble of excavating deep enough to allow for getting broad planks underneath the ball, on which the shrub rests securely, and by which it is carried. One broad short plank is sufficient for a small shrub of, say, 4 feet in height; for larger shrubs two planks may be sufficient, and for those of 15 cwt. or a ton weight it is necessary to employ, in addition to the two planks next the ball, other two cross planks on which the others rest, and these cross planks again rest on cross bearers of oak or larch. Birch planks, it may be stated, are particularly well fitted for this work. We have a low-wheeled truck for carrying shrubs with balls up to 2 tons weight. In the case of those averaging a ton, after the planks and cross-bearers are in position, one of the bearers is grasped with a chain, and the other end of the chain lifted with a lever until it is raised about a foot. It is there kept in position by wooden blocks, when the other bearer is raised in the same way and also blocked. The shrub is thus raised by degrees until the trunk can be run underneath it, when it is let down till it rests on the body of the trunk, and then removed to its destination. If the shrubs have to be taken a distance of half a mile to two miles thin deal boards are placed round the sides and surface of the ball and kept lightly in position by means of chains and screws. The shrub is also firmly fastened to the truck.

Balls of roots weighing a couple of tons we do not attempt to raise. It is just as expeditious to throw out the light gravelly soil deep enough to allow the truck to be run underneath them as it stands. In this case, besides allowing sufficient space at what we will call the back of the shrub to excavate under the ball, it is also necessary to make a sloping road for the truck to be drawn out after the specimen is fixed on it. The way we manage these is to work down to the required depth at the back and front, then cut underneath the ball both at the back and front, so as to allow two broad planks to be fitted close up to the bottom of the ball; these are kept in position with wooden blocks. A narrow gallery is then driven through underneath the centre of the ball, and a strong batten pushed through. The two cross planks rest on their centres on this batten each end of which is kept tight up with blocks. The soil underneath one side of the ball is then taken out and a long plank fitted into its place, so that one end of each of the cross planks rests on it. These are also blocked up, and the other side done in the same way. The central batten is taken away, and all loose soil cleared out so

as to give plenty of room for the truck. The blocks on which the two lengthwise planks rest are, however, in the way, so we have to employ two strong caken battens to put along the back and front, on which these lengthwise planks in turn rest. These battens are long enough to allow for blocking up securely at each of their ends, and yet allow space for the wheels of the truck to run in. We find it of great advantage to lay planks underneath the wheels, this keeping them from sinking into the soil when the weight of the ball is put upon them. It is also of advantage to lift the front of the ball by raising the front cross batten a few inches with a screw-jack, so as to allow the truck to be run in without so much excavating in front. The sides of the ball are cut out after the trunk has been put underneath the plant. A few inches clear at the sides is all that is required, and allows for getting thin deals down the sides of the balls. Such a ball as the one we are now considering requires to be boarded all round and firmly bound round with chains. The trunk is also bound to the ball with chains and tight ropes to secure the top of the shrub to each corner of the truck. For shrubs of 12 or 15 feet in height or upwards this is very necessary. When ready to be removed we employ block and tackle for the purpose, and after it is on firm ground draw with horses.

Two men are quite enough to excavate under the plant and prepare it for removal. The hole for the plant requires to be made sufficiently deep to allow the ball when the truck is under it to stand about 6 inches above the general level of the lawn where the shrub is placed. Before the work is finished the level of the top of the ball will have sunk that much.

The work of planting is just the reverse of the lifting process. After the shrub is let into its place, and chains and ropes removed, the four ends of the bearers are again blocked up and a wedge driven under each so as to raise them off the truck, which is then withdrawn. Soil is then thrown in under the ball and made firm with wooden rammers. When the centre of ball is sufficiently rammed with soil, the two first cross-bearing planks are blocked up and the other planks and beams removed. The soil is now rammed underneath the ball from the clear sides. Then the blocks are knocked out from under one of the remaining cross planks, which is also withdrawn, and the soil rammed in on that side. The last plank is removed in the same way, and the planting finished.

We remove all kinds of evergreens, Yews, Box, Laurels, Hollies, Conifers, and, with the care we take to secure large balls, have no after trouble with them. One good watering is generally sufficient in early summer to keep them going, and quite as good growths are made the first year of shifting as they made previously. When a gentleman says he would not for many pounds like a shrub damaged or lost in transplanting, his gardener cannot for his own sake be too careful in doing the work. It is a commendable plan to cut round two opposite sides of a ball the season previous to removal.

In connection with transplanting shrubs it may be noted that valuable trees blown down by gales, provided the trunk is not broken, are easily set up, and in a few years grow as well as ever. After clearing enough soil out to allow the tree to be on the same level as before, a strong rope should be so tied round well up the tree as to allow the two ends of the rope to be grasped and pulled by two sets of men at the same time, the one set being a little to the left of the hole and the other to the right. After the tree is up and the soil filled in, wire stays will be required for a couple of years until the roots are again established. For large trees of 60 feet altitude, say, it requires a good amount of soil to be taken out in order to let the trees down to their former level. The tree must then be raised with screw jacks working on the bole until a grip can be got with a rope working with block and tackle, when the work goes on very rapidly. It is very essential to water these large trees very freely for the first two or three years.—B.

EXHIBITING AND KEEPING GRAPES.

It is much to be regretted that promoters of fruit shows do not name the size and shape of boards or boxes upon which Grapes are exhibited. Nothing that we can place on exhibition tables creates so much interest as Grapes, yet how often do we see them indifferently staged? Boxes and boards of all shapes and sizes, and of many angles, presenting when placed in a row a grotesque appearance when compared with uniform rows of Dahlia and other boxes which have been reduced to some sort of a standard.

Some time ago I was much interested in watching the unpacking and staging of Grapes at a local show where they were well represented. The Grapes were a very good lot, and the majority of them were well staged, but owing to the different angles of the boards, some of which could not well be altered, they did not look so well as they might have done.

I think the best and simplest form of box is that represented at fig. 108. The angle is 45°, and anyone can make one by the

following directions. Get a piece of three-quarter-inch deal 10 inches wide by 12 inches long, cut it perfectly square at both ends, draw a pencil mark to correspond with the dotted lines in fig. 109, each 1 inch from the ends and parallel with them. This leaves the spaces, A B C D, a square 10 inches each way, and if cut through with the saw from B to D, and each set on its square, they will be of the desired angle. Upon these fix the board (three-eighths of an inch thick) for the Grapes to rest upon, which for this size will have to be about 14 inches wide. Another piece of deal (half inch thick) 6 inches wide is fixed at the back

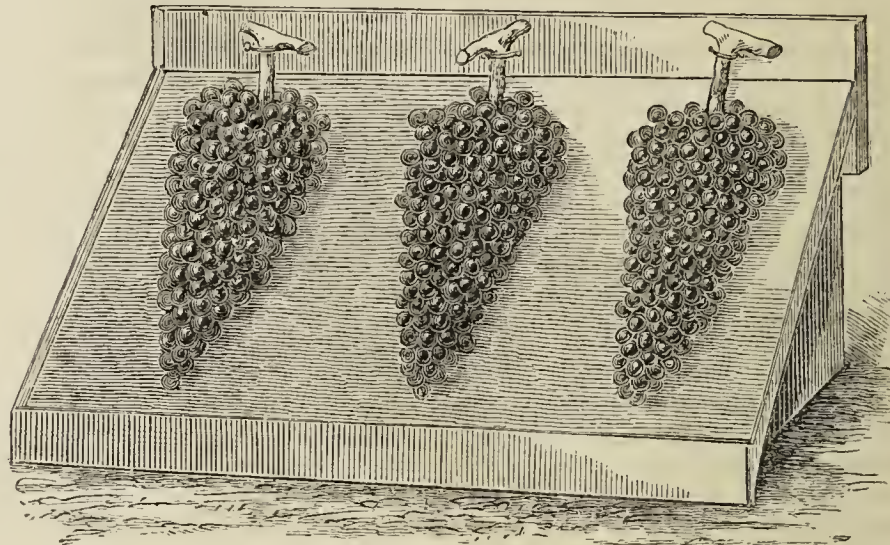


Fig. 108.

of the stand, and rising 2½ or 3 inches above it, pierced with two holes opposite where each bunch is to be placed, by which means they are secured to the board with twine or tape. A very thin lath about 2 inches wide is fixed along the front, its upper edge rounded off and standing a little above the board, and similar pieces at each end forming a narrow beading all round, makes the stand look neat. As to length, each bunch should have 8 or 9 inches of board; thus a box for three bunches should be 27 inches.

Fig. 110, next page, shows the stand in a box ready for travelling¹

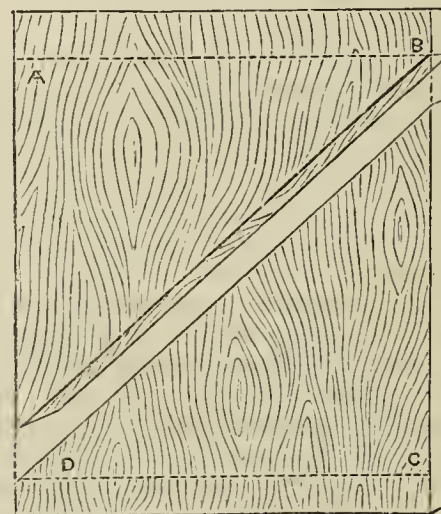


Fig. 109.

It should be just large enough to hold the stand, should be light and have a handle fixed in the centre of the top to carry it by.

Fig. 111 is a simple form of board, supported behind by two legs, connected by a lath and generally held in position by a piece of twine, but instead of that it would be preferable to have short spikes as at A A, so that when on the table it can be placed at any desired angle, the spikes keeping it from slipping about. This can be placed in a box the same as at fig. 110, the legs of the stand being laid parallel with the board.

Some exhibitors place their Grapes on the bare boards. A better plan, I think, is to place a covering of cotton wool all over the board, leaving about an inch clear all round the outside. With a small brush apply some gum or paste just inside the beading, and have a sheet of white tissue paper ready to cover the whole of the cotton wool, and adhere to the stand round the edges. Examine each bunch before laying it on the board and place it on its flattest side, and secure it by means of string or tape, as shown at fig. 108; or if the bunches are large the tape may be placed round the junction of the shoulders of the bunch, placing the bunch higher on the stand than is here shown, at the same time twisting the stems of the bunches along the face of the upright board, so that they do not come in the way when placed in a box. When large bunches have to travel some

distance it is desirable to have them secured to the board about the middle of the bunch. Two small holes should be made in the board under each bunch, and by means of a small packing needle carefully pass a piece of narrow tape up from below through the bunch and down again on the opposite side of the main stem of the bunch, using a pencil to guide the needle amongst the berries, which must not be touched with the hands. This should be tied just tight enough to steady the bunch. The figures added to fig. 110 are the measurements of stand fig. 108 in section. If some such standard were given in our fruit schedules it would be better than leaving everyone to make their own standards.

KEEPING LATE GRAPES.—Mr. Barker has given sound and seasonable advice as to the setting in order and management of

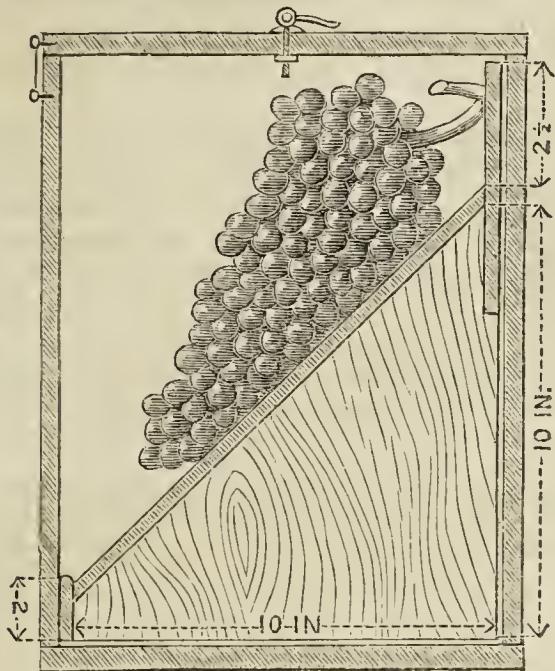


Fig. 110.

the Grape-room. Several gardeners will be found who have a few bunches of Grapes hanging but have no Grape-room to take them to. It is our practice to cut all that remains after Christmas, and place them at the driest end of the fruit-room, where they keep fairly well for six or seven weeks. Instead of a proper Grape rack as described by Mr. Barker, we suspend the bottles from the front of the fruit shelves as shown in the annexed sketch (fig. 112). The bottles are placed about

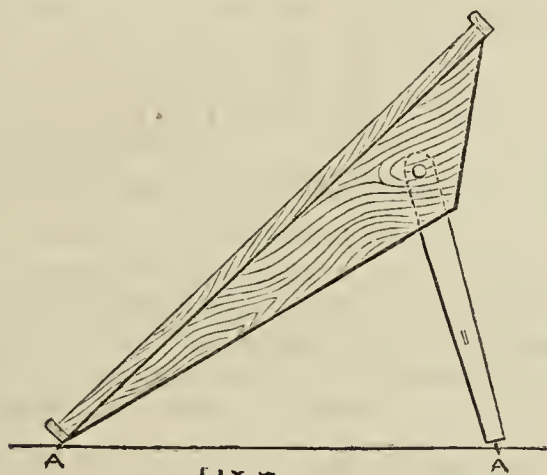


Fig. 111.

7 inches apart. Two ordinary carpet tacks are driven into the front of the shelf (1 inch apart) for each bottle. A piece of ordinary binding wire is fixed to one tack, a bottle is placed in the desired position, and the wire pulled tight round the neck and round the other tack; it is then passed along without cutting it to the next bottle, twisting it round the necks in the same way. The tacks are then driven home, so that the wire does not slip. In a similar manner another wire is fixed so as to form a sort of "sling" to pass over the bottom end of each bottle and support it at the desired angle. These should be fixed on the top and passed down between the openings of the fruit shelves. The wires are not the least in the way when the bottles are removed.—R. INGLIS.

WORDS TO YOUNG GARDENERS.—I read with much pleasure the article "A Word to Young Gardeners" in your issue of the Journal for December 13th, and I think it but just that "A Working Gardener"

should receive the thanks of all young gardeners for his kind advice, which I am sure will, if followed, be of great benefit to them, myself for one. I shall be much obliged by full particulars respecting the U. H. B. S., as I have not heard of it before, and am desirous of joining the Society that offers the greatest advantages to gardeners.—J. P., *Under Gardener*.

[Send 3½d. in stamps to the publisher and ask him to send you No. 174 of the Journal, the issue of October 25th of the present volume.]

AURICULAS.

TRULY, as Mr. Douglas has said, "there is always something to admire and interest in these very charming flowers," and another equally important fact, there is always something to be done for them, as constant attention is the only road to success. I have not half so much time to bestow upon those under my care as I could wish, but every time I look at them something wants doing—dead leaves require removing, green fly is showing itself, and owing to the very mild autumn this pest is active late this season. I do not notice that the cultivator above named often refers to the mealy pest which attacks the root; perhaps it is because he is not troubled with it. A most enthusiastic grower recently informed me that every grower had their share of it except Mr. Douglas, and long may he be spared the vexation it causes to those whose plants it attacks. I am not sure that it does much harm to the plants unless it gets at the neck and punish all the young roots as fast as they show. As soon as the insects get a foothold there the plants sicken; they are easily removed from that position, and the sooner the better. Take a brush and remove them, and well saturate the parts with a strong solution of soft soap. The difficulty is to remove them from the roots, for they are firmly embedded even to the very centre; but very frequently we find them quite outside the ball, feeding upon the extremities of the

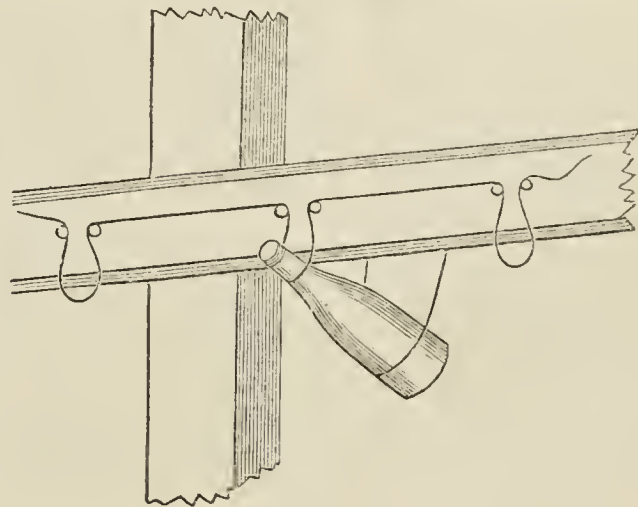


Fig. 112.

rootlets, from which positions they are easily dislodged; and although we may fancy they are not very injurious to the plant, yet it is far from pleasurable to see even one of them, and I am glad to say by persistent effort they are becoming much less numerous. When the plants are potted a good opportunity is afforded of checking them materially. The plants should be well shaken out and dipped in soap solution, and the parts brushed if needful, for it is surprising how rapidly even the weakest of them regain strength and position, and their mealy covering greatly protects them from superficial treatment.

From this time onward till the beginning of February the plants should be kept moderately dry, so as not to induce growth. Especially is it desirable to attend to this if we experience a mild winter, for after the slightest excitement they start into growth, and the flower spikes appear before they are required, especially if they are required for an exhibition. Look well after any drips from the lights, for it is most prejudicial for any moisture to rest in the hearts of the plants, speedy decay following. Ventilate on all suitable occasions, and if the plants are in a cold pit do not cover more than is absolutely necessary, for they will endure much cold without injury, especially if kept dry. With these items of attention and removing all decaying leaves as soon as they are functionless the plants will pass the winter happily until it is time to top-dress them, when a few more notes may be serviceable. In the compost I use for top-dressing, cow manure is an important item; mine is already collected, kept under cover in an open airy place, spread out thinly, often turned over so as to become thoroughly frosted and sweetened, and moderately dry before it is required.—AURICULA.

BOTHY LIFE—ROOMS AT KEW.

OF late some letters have appeared in the Journal relative to the want of bothy accommodation at Kew, as if this were an almost unendurable hardship. But when the subject is considered in all its

bearings is there anything really to complain about? If rooms are not provided for the young men there they have no doubt compensating advantages; and it is very questionable if quiet private lodgings are not more favourable for reading and study than a noisy barrack-room, for that is what bothy life would amount to in such a large establishment.

It has become almost fashionable with a certain class of pessimist writers now-a-days to represent young gardeners as more thoughtless, careless, and reckless than they were a generation ago. I can only say if they are, which I do not believe, they are better separated; while if they are more studious, as I hope they are—and I know not a few who conduct themselves creditably—they will prefer quietude for self-improvement.

I have had a fair share of bothy life, and in what I may call the olden time it was composed to a very large extent of domino and card-playing, fiddle-scraping, accordion-grinding, dancing, boxing, and such-like intellectual accomplishments; and if a young man should engage himself in writing an essay it would be probably to the accompaniment of a recitation not altogether bearing on his subject; or if engaged in an exercise in geometry he would be lucky if an accident did not occur, such as an old hat or cap coming in contact with the candle, or a casual pish against his elbow.

That was bothy life when I was young, in the halcyon days when under gardeners were so gentle, studious, kind, and good; and if they are less gentle now, then I can only say the fewer there are together the better, and that lodgings in respectable families are altogether better for them morally and intellectually. But I do not believe, judging from those I have had under me, that, as Tennyson says in his "Northern Farmer," the men "in the loom is bad." I am distinctly of opinion that they compare favourably with those of any past time, and for the maintenance of their general respectability and their self-improvement I venture to think they are better out of barracks. What do others say?

A Boss.

ORDERING SEEDS.

As the seed catalogues will soon arrive, it will be well to be in readiness to order the seed for next year's supply. It is often a difficult matter to know which to order of the numerous varieties in the seed catalogues even to those who have had years of practice, but to young beginners it is simply bewildering. I will add a list of well-tried sorts, and I shall be glad if others will give lists of varieties they have found best. In doing so new varieties should not stand before old sorts, unless they have been well tried together, or in similar positions, as new varieties generally get the best positions, and the ground especially prepared for them, and well cared for afterwards. When this is the case it is hardly fair to compare the results with older sorts that have simply been sown on any piece of ground, with only the ordinary preparation.

I think everyone that can do so should try some new varieties, but they should do so in addition to their list of well-tried sorts, so that they will not have to depend upon the new ones for a supply. I cannot recommend the Chou de Burghley from the first season's trial. With me it is inferior to a good Cabbage; just now Rosette Colewort is far before it.

Beet.—Egyptian and Nutting's Dwarf.

Beans, Broad.—Johnson's Wonderful and Improved Windsor. *Kidney*.—Canadian Wonder, Negro, Sion House, and Osborn's Forcing. *Runners*.—Scarlet Champion and Suttons' Giant White.

Borecole, Scotch.—Cottagers and Buda.

Broccoli.—Walcheren, Veitch's Self-protecting, Snow's White, Osborn's White, Cooling's Matchless, Cattell's Eclipse, Late Queen, Model, and Purple Sprouting.

Brussels Sprout.—The Aigburth.

Cabbage.—Improved Nonpareil, Rosette Colewort, Red Cabbage, and Couve Tronchuda.

*Savoy*s.—Dwarf Green Curled and Drumhead.

Cauliflowers.—Suttons' King of Cauliflowers and Veitch's Autumn Giant.

Celery.—Major Clarke's Red and Sandringham White.

Cucumber.—Telegraph.

Carrot.—Early French Horn, Scarlet Short Horn, and Long Red Surrey.

Endive.—Picpus Green Curled, and Improved Round-leaved Batavian.

Leek.—Musselburgh.

Lettuces.—Early Paris Market, All Heart, Paris White, and Paris Green.

Melons.—Eastnor Castle and Blenheim Orange.

Onions.—Improved Reading, Brown Globe, Deptford, The Queer, and Red Italian.

Parsnip.—The Student.

Peas.—Suttons' Ringleader, William I., Nelson's Vanguard, Dr. MacLean, Telegraph, Veitch's Perfection, and Ne Plus Ultra.

Tomatoes.—Hathaway's Excelsior and Orangefield Dwarf.

Turnips.—Early White Stone, Early Munich, and Veitch's Red Globe.

Vegetable Marrows.—Custard and Moore's Vegetable Cream.

Early Munich Turnip is a very quick-growing Turnip, with a very small top. I thought so highly of it last year that I have grown it largely this season; but, although it is a gardener's Turnip, the cook does not like it in the kitchen. It is better even in its young state, and as soon as it gets to a fair size is very woolly.

If Melons are only grown in frames, Blankney Hero might be sub-

stituted for Eastnor Castle. The latter is a good old Melon in a house, but it is not so satisfactory in a frame as the other two varieties.—J. L. B.

THE CATERPILLARS OF THE BROWN-TAIL MOTH.

It is now some six years since I gave in this Journal some account of a colony of this species, which I had had under observation for several seasons. The species appears now to be by no means generally distributed in England, but I have proofs of its occurrence in various places in Kent. The particular colony I noticed was upon a strip of hedgerow at Denton, near Gravesend; a few stragglers were to be seen as far off as Northfleet and East Chalk, but the main body of the insects did not seem inclined to extend itself. In one season the broods were so numerous that the task would not have been difficult to have collected ten thousand of the caterpillars, and the floating hairs thrown off by them in their moults were numerous enough to irritate the skin of by-passers. At that time the Whitethorn in the hedge was defoliated by them, and they also devoured the leaves of Elm, Elder, and Blackthorn growing there.

As much fruit is produced in districts of North Kent not very remote from the spot mentioned, and the caterpillars have been reputed to be the cause sometimes of much damage to fruit trees, I drew the attention of gardeners and others to the circumstance. I advised the destruction of this colony of the brown-tail moth in the winter by the removal of their nests, which could easily have been done, and prevented any possibility of either moths or caterpillars migrating to do mischief. This was not attempted, however, but fortunately Nature effected a cure by means of the winters of 1881-82 and 1882-83. Both of these were mild and moist; as a consequence of the former I noticed very few caterpillars in the summer of 1882, and last summer I could not find one. The rains of the winter and spring doubtless loaded their winter nests with moisture, which proved destructive to the insects within.

It is remarkable that although this species (*Liparis chrysothorax*) occurs in fruit trees, its near relative, the gold-tail (*Liparis auriflua*), appears restricted to the Whitethorn. The late Mr. Edward Newman, when I mentioned the subject of the ravages said to be committed sometimes by the brown-tail caterpillars in orchards, admitted that he thought there was a degree of exaggeration, or else an error as to the species. I am anxious to learn if any of our friends who are growers of fruit have ever observed it on Apple, Pear, or Plum. The description of the caterpillar is briefly as follows:—It is stout, about an inch long when full grown, black, with four rows of warts running from head to tail; these warts have short tufts of hairs, some of which are white and some black. Its most marked characteristic consists in a couple of cup-like scarlet spots in the centre of the back, at a short distance from the tail. I should add that August and September are the months when it would be observable.—ENTOMOLOGIST.



WE learn that the VEITCH MEMORIAL PRIZES offered by the Royal Botanic Society will be awarded at the Shows held at Regent's Park on May 21st and June 18th, 1884. They will consist in each case of a medal and £5 on the first-named date for the best specimen Orchid and the best stove or greenhouse plant in flower, and at the latter date for the best dish of three bunches of Grapes, one variety.

— WE are informed that an extensive programme of HORTICULTURAL SHOWS AT THE CRYSTAL PALACE is now under consideration, and it has been proposed that something like £1500 should be given in prizes during the year. Now that the Alexandra Palace appears to have passed from the sphere of usefulness in this direction, a good opportunity is afforded to the southern Palace for extra efforts.

— IN accordance with requests that we have from time to time received from correspondents, we shall early in the year publish the results of an ELECTION OF CARNATIONS AND PICOTEES, to which the leading florists have kindly contributed, and Mr. George Rudd obligingly arranged. In this election we shall have brought to the front the leading varieties of this sweet and beautiful hardy flower that are, as they eminently deserve, becoming increasingly popular. As border flowers they are unequalled in their season, and for cultivation in pots they are admirably adapted for amateurs, well rewarding the cultivator for the skill and care evoted to their production in their highest form of excellence.

— RELATIVE to the question of LARGE V. SMALL BRUSSELS SPROUTS

which was alluded to last week in our correspondence columns, Messrs. James Veitch & Sons have sent us three plants, which admirably represent the small, medium, and large forms of this esteemed vegetable. The smallest is named Paragon, and in the character of the knobs very closely resembles the original type, these being round, firm, small, an inch in diameter, and closely set on the stems, but the terminal head is larger and plant dwarfer. It is very neat and the produce of high quality. Veitch's Exhibition is the tallest of the trio, with medium-sized firm knobs $1\frac{1}{2}$ inch in diameter, less closely arranged on the stems—good and productive. The Aigburth is dwarfer than the last named, but a little taller than Paragon, with knobs nearly 2 inches in diameter, but not all of them solid; still the robust plant is undoubtedly productive.

— A LARGE importation of the new *CYPRIPEDIUM RÖBELINII* was sold at Mr. Stevens's Rooms, Covent Garden, on Thursday last, but though the plants were very healthy and vigorous they did not realise high prices. It may be known to some that a large importation was received last year, but the plants arrived in such bad condition that they could not be disposed of. This time, however, the plants were most satisfactory, the fresh, green, substantial foliage giving every hope that they will be speedily established. It is said to be a near ally of the well-known and beautiful *C. lævigatum*, of which possibly it may prove to be a variety.

— A SAMPLE of SPRATT'S PATENT BONEMEAL has been sent to us, which is now used as a fertiliser. It is prepared from bones that are thoroughly cleaned before being ground. We never examined a cleaner sample, and as a top-dressing for plants in pots, also for flowers and vegetables in the open air, as well as for Roses, Vines, and fruit trees, it is undoubtedly a safe and excellent stimulant, not the less acceptable by being inodorous.

— "A GROWER" writes that "EUCHARIS SANDERI does not by any means deserve the doubtful character some have given it, and I feel confident those who condemn it have not fully tested its merits. It is free in growth and flowering, its flowers last for a long time in good condition, they are devoid of the sickly green tinge so much disliked in *Eucharis grandiflora*, and are altogether much more suitable for bouquets. I anticipate that it will supersede the older form for this purpose, though it is scarcely so well adapted for wreaths."

— MR. S. CASTLE, The Vineyard, King's Lynn, sends us samples of VINE LEAVES very beautifully coloured, and proving how admirably adapted such are for table decoration and garnishing dishes of dessert. The colours are varied and much richer than are ordinarily seen, especially in the case of Alnwick Seedling, which is superb in this respect. The veins are a rich rosy crimson, with irregular dark crimson or almost black patches between them: this in the sunlight has a fine effect. Alicante has a leaf of a uniform rosy red tint, bright and chaste, the veins being yellow. Gros Colman has broad sharply defined yellow veins on a ground of dark crimson-maroon; this is very distinct. Gros Guillaume has a leaf somewhat similar, but the yellow colour is more diffused and the ground colour not quite so dark. Lady Downe's has an orange yellow leaf with numerous but irregular rosy spots, which are chiefly concentrated near the margin. In the case of Gros Guillaume and Gros Colman the leaves remain attached to the Vine for a considerable time, and have a very beautiful appearance.

— "X." writes:—"It appears probable that the PELARGONIUM SOCIETY may soon terminate its career. Its supporters have fallen off greatly in the past season, and there is much uncertainty as to whether the Society will hold another show. Perhaps the thought has occurred to many that the reason why the labours of the Society were not duly appreciated was because they were not really needed. The majority of the more important horticultural societies provide fairly liberally for Pelargoniums in their schedules, and the Royal Horticultural Society itself is amongst the number. Further, the Floral Committee of the latter body is quite sufficient to adjudicate upon the merits of new varieties that may be raised, while the comparatively small number of exhibitors rendered the prizetaking almost a monopoly. Some daring spirits even bring a similar charge against the National Carnation and Picotee, and Auricula Societies, and it is evident that if the numbers of exhibitors are to be increased there must be some regulation that will not permit one or two growers to sweep off all the leading prizes."

— AS an example of the way in which the VALUE OF ORCHIDS vary at sale-rooms, the following is worthy of notice. Early in the

year a fine variety of *Odontoglossum Alexandræ* was put up to auction with a reserve price of ten guineas, but as the bidding only reached six guineas it was not sold. Recently the same plant in even better condition was again put up and sold for 30s. The frequenters of the sale-rooms are well acquainted with this variability, and by that means are occasionally able to make an excellent bargain; often, however, to the disadvantage of the vendor. There is a certain amount of chance in sales of this character, as so much depends upon those present. Some ardent Orchids lovers will give almost any price to procure a particular variety or species to add to their collection, and plants are often thus credited with a fictitious value that is never maintained.

— THE customary plenitude of garden produce in COVENT GARDEN MARKET AT CHRISTMAS TIME has been maintained this season. Abundant stores of vegetables, fruits, flowers, plants, and those important adjuncts to Christmas rejoicing, Holly and Mistletoe, during the greater portion of last week occupied all available space. Of the last-named the supply appeared to be unusually large, but the Holly generally is rather deficient in the number of berries. The cut flowers include Roses, Camellias, Eucharises, Bouvardias, Lilies of the Valley, Orchids, late Chrysanthemums, Violets, and many other choice kinds; while of plants Poinsettias, *Ericas* *hyemalis* and *gracilis*, Primulas, Cyclamens, and Richardias constituted the leading features. Amongst the fruit Apples are especially abundant, Grapes being also in strong force, both foreign and home-grown. Of the latter some magnificent bunches of Gros Colman in the Grand Row have been attracting the admiration of visitors.

— THE annual meeting of the members of the ROYAL CALEDONIAN HORTICULTURAL SOCIETY was recently held in the Music Hall, Edinburgh, Professor Dickson presiding. An abstract of accounts for the year ending 30th November, 1883, was submitted, and showed receipts amounting to £1568 14s. 3d., and expenditure amounting to £1409 17s. 6d.—leaving a balance of £158 16s. 9d. The receipts at the three shows held during the year amounted to £1029 12s. 9d., and the expenditure to £582 1s. 9d. The total amount of the funds in the hands of the Treasurer at present amounted to £1205 16s. 2½d. The Earl of Hopetoun was elected Vice-president in room of the Earl of Stair, who retired by rotation; and Mr. James Buchanan and Mr. David Thomson were elected members of Council in room of Mr. John Clapperton, who retires by rotation, and Mr. Mackintosh, nurseryman, whose death was recently announced. Messrs. Stewart, Neill Fraser, and Turnbull Smith were respectively re-elected Secretary, Treasurer, and Auditor. In replying to a vote of thanks, Mr. Fraser said that the financial condition of the Society was very satisfactory, as the members' subscriptions and the receipts at the shows had amounted to a larger sum than they had ever done previously on ordinary occasions. He also stated that upwards of 40,000 persons had visited the shows during the five days they were held, or about 8000 per day, showing the appreciation of them by the public in and around Edinburgh. The Secretary was instructed to communicate with the Market Committee of the Edinburgh Town Council, asking if steps could not be taken to provide better means of entrance and exit at the principal door of the Waverley Market, which, it was stated, was too narrow. The shows to be held in 1884 are announced for April 2nd and 3rd, July 9th and 10th, and September 17th and 18th.

— AT the last monthly meeting of the ROYAL METEOROLOGICAL SOCIETY, Mr. J. K. Laughton, M.A., F.R.A.S., President, in the chair, the following were elected Fellows—viz., R. Bentley, W. Bonallo, Miss E. Brooke, Rev. A. Conder, T. H. Cowl, J. A. W. Oliver, C. M. Powell, W. B. Tripp, and Fung Yee. The papers read were:—1, "On the Explanation of Certain Weather Prognostics," by the Hon. Ralph Abercromby, F.R.Met.Soc. The author explains about forty-four well-known prognostics belonging to the following groups—1, Diurnal; 2, sun, moon, and stars; 3, sky; 4, rain, snow, and hail; and 5, wells, springs, and coal mines, by referring them to the isobaric conditions in which they are observed. By this means he is able to indicate the circumstances under which any prognostic fails, as well as those under which it succeeds. 2, "Preliminary Inquiry into the Causes of the Variations in the Reading of Black-bulb Thermometers *in vacuo*," by G. M. Whipple, B.Sc., F.R.Met.Soc. It has long been known that there is a want of accordance between the different instruments used for measuring the intensity of solar radiation; and with a view of ascertaining the cause of the variations in the readings of the black-

bulb thermometers *in vacuo*, the author has made a comparison with a number of these thermometers, the results of which are given in the paper. It is shown distinctly that the effect of an increased coating of lamp-black on the bulb is to raise the temperature, and also that the size of the thermometer bulb is a most important factor in the case of this instrument. 3, "Report on the Phenological Observations for 1883," by the Rev. T. A. Preston, M.A., F.R.Met.Soc. Mr. J. S. Dyason, F.R.Met.Soc., exhibited a series of coloured sketches illustrating the recent atmospheric phenomena during November and December.

ORCHIDS OUT OF DOORS.

ATTENTION has been very properly called to recent experiments in growing Orchids out of doors, and the subject is an important one in several respects. It is not likely that the ordinary exotic Orchids will ever be of any decorative value in such positions, but the outdoor treatment is likely to prove beneficial in another way, especially with regard to some of stronger and more robust species. If the growth can be better ripened by this practice—and there is every probability that in suitable situations and with ordinary care that will prove to be the case—an advantage will undoubtedly be gained in the resulting finer, more lasting, and more highly coloured flowers. Experiments similar to those described at Mr. Smec's garden have been tried in various gardens for many years, and Mr. Burbidge has recorded (in "Cool Orchids," page 4) some extensive trials instituted as long ago as 1852 by M. François Josst, gardener to Count Thun Hohenstein, at Tetschen, in Bohemia. These are so interesting that they are well worth being reproduced at the present time.

"In 1852 I observed that some of the species did not flower well; and it then occurred to me to place them in the open air in the early part of July. The plants which I put out were *Brassavola glauca*, *Cymbidium marginatum*, *Cypripedium insigne*, *Dendrobium Pringianum*, *D. speciosum*, and *Lycaste Skinneri*. They grew perfectly, although in the morning the temperature was sometimes as low as 5° Reaumur (43° Fahr.). In the daytime the heat in the shade was often as high as 30° Reaumur (99½° Fahr.). Tetschen is subject to frequent changes of temperature; it is surrounded by mountains, and is in a valley along which the Elbe flows after receiving all the waters of Bohemia. I took the plants in at the end of August. After a short time flower buds made their appearance, and a little while afterwards flowers followed in perfection. This good result led me to try the same experiment again on a larger scale; and I have since repeated it every year, until I am now in the habit of putting seventy-five species or varieties out into the air for three months in the year—viz., June, July, and August. What I do is this: I select a half-shady place, where I put some trunks of trees (Oaks), on which I place my baskets of Orchids. Between the trunks I plant Ferns, some *Philodendron pertusum*, *Tradescantia zebrina* and *viridis*, and *Cissus marmorea*, so as to produce a pretty effect. In order to protect the plants against the scorching rays of the sun and very heavy rains I cover the spot with canvas, but I endeavour to avoid too much shade, for I find that plants which are shaded too much never flower so well as others. I water in the ordinary way employed in hothouses. This year the temperature has several times fallen as low as 4° Reaumur (41° Fahr.), but the plants have not suffered in the least; they are even more vigorous, several of them actually flowered. These facts prove that many gardeners keep their Orchids and other exotics too hot. All plants require some period of rest in order to vegetate well.

"The following is a list of the Orchids which I treated in the way above described:—*Barkeria spectabilis*, *Brassavola glauca*, *Calanthe striata*, *Cattleya citrina*, *Cœlia macrostachya*, *Cypripedium insigne*, *C. insigne* var. *parviflorum*, *Dendrobium calamiforme*, *D. Jenkinsii*, *D. Pringianum*, *D. speciosum*, *Epidendrum Candollei*, *E. cochleatum*, *E. diffusum*, *E. falcatum*, *E. radiatum*, *E. selligerum*, *E. Skinneri*, *E. Stamfordianum*, *E. varicosum*, *E. virgatum*, *E. vitellinum*, *Gongora galeata*, *G. Batemani*, *G. luteola*, *Lælia acuminata*, *L. albidula*, *L. anceps*, *L. anceps* var. *Barkeriana*, *L. anceps* var. *superba*, *L. autumnalis*, *L. candida*, *L. furfuracea*, *L. Galeottiana*, *Lycaste majalis*, *L. rubescens*, *L. superbiens*, *L. violacea*, *L. aromatica*, *L. Colleyi*, *L. consobrina*, *L. cruenta*, *L. Skinneri*, *L. Skinneri* var. *alba*, *L. Skinneri* var. *latimaculata*, *L. Skinneri* var. *leucochila*, *L. Skinneri* var. *picta*, *Maxillaria cucullata*, *M. tenuifolia*, *Odontoglossum bictoniense*, *O. citrosimum*, *O. Cervantesii*, *O. grande*, *O. Insleayii*, *O. læve*, *O. nebulosum*, *O. pulchellum*, *O. pulchellum* var. *grandiflorum*, *Oncidium bicallosum*, *O. filipes*, *O. leucochilum*, *O. microchilum*, *O. sphacelatum*, *O. suave*, *Sobralia decora*, *S. dichotoma*, *S. Liliastrum*, *S. macrantha*, *S. violacea*, *Stanhopea connata*, *Trichopilia tortilis*, *T. tortilis* var. *pallida*."

Orchid growers would do well to follow up these experiments, as it has already been proved that many species will succeed in a much lower temperature than was originally supposed to be necessary. When Orchids first began to attract attention it was a general idea that they must be placed in a highly heated house, which was frequently kept too dry, and in consequence scores of plants were killed, and it was only by degrees that growers became aware of the fact that Orchids could be more successfully cultivated in a moderate temperature with more liberal supplies of water. Still further experience has proved that numbers grow and flower most freely in a cool house, which has now become one of the most important departments in large collections of Orchids, and is continually attracting more attention, as in it we obtain diversity of

richly and delicately coloured flowers, without the disadvantage of being nearly roasted in inspecting their beauties. It was but one step from this to the cold frame, and now it is probable that we shall soon hear of Orchids being out of doors in many large establishments. But let me give a word of warning to those who may be desirous of testing these matters for themselves. Do not be too hasty in exposing any valuable or delicate plants to the uncertainty of an English climate even in summer. If the garden is not fairly sheltered and in a moist situation do not attempt anything on a large scale, but submit a few of the comparatively worthless varieties to the test at first, and be guided by their condition as to future trials. There are, however, many gardens, especially in the south and west of England, where almost any Orchids could be safely placed out of doors for at least three months in the year—namely, from June till August.—ORCHIDIST.

TURNIPS.

THE above indispensable vegetable having been lately under discussion in your columns, and thinking the time not inappropriate for a few remarks, I give my experience. Turnips to be grown well, like most other vegetables of kindred nature, require liberal treatment. In the first place the ground on which they are to be grown should be dug deeply and well, and if it is poor a good dressing of manure ought to be given. Previous to sowing the seed the ground should be well broken up with the fork. Choose a fine day for this operation and for sowing, as nothing is more detrimental and more disappointing than to sow seed when the ground is wet. It is simply courting failure. Far better defer the operation for a few days, or if needs be longer still, than to sow on a particular day or week whether the weather is suitable or not. Sow the seed thinly and not too deep in lines about 15 inches apart. Cover them lightly, and make the ground level with a large iron or wooden rake. When the young plants are sufficiently advanced in growth for thinning they should have immediate attention; carelessness in this respect often leads to failure. They should be thinned to about 9 inches to 1 foot apart. Their after treatment consists in keeping down all weeds that may appear, which is readily done by running the hoe occasionally between the lines. This not only keeps down all weeds, but is very beneficial to the growth of the Turnips.

As to varieties, I much prefer the three undermentioned—namely, Early Snowball, Orange Jelly, and Chirk Castle Black Stone. These I have grown each successive season for the last eight years, and have always found them do well, and, what is more, to give satisfaction in the kitchen department. They are sown in the order named. I generally make a sowing of Snowball the first week in April, and in case they "bolt," which those from the first sowing are apt to do, another sowing is made ten days later. Orange Jelly is sown in the latter part of May, or at the latest the first week in June. Chirk Castle, than which, in my opinion, there is no better winter Turnip, is sown in the first week of July, and with the above treatment they make good serviceable Turnips, and stand the winter remarkably well.—J. RICHARDSON.

SIX MONTHS IN A VINERY.

MARCH 31ST.—On the morning of the 25th the minimum thermometer outside registered 22°, and that on the grass 16°. It being bright the ventilators of the vinery were opened a little at 7:30 and closed at 1:30. On the 26th we had a change from frost to snow, the ground being covered in the morning at six o'clock, and snow was still falling. The lowest temperature during the night was 30°. The sky showed signs of clearing at 9 A.M., when two lights were slightly opened, but which we closed again at 12:30 on the approach of another snowstorm. On the 27th the frost had returned again, the thermometer registering 24° and 17° respectively. We gave a little air at 8:0, reduced it at 9:30 on some clouds appearing, and closed finally at 11 A.M.

On the 28th we had both frost and snow. The lowest temperature registered was 25°. The snow was an inch deep at 5:45 A.M., and was still falling heavily. By eight o'clock the sky cleared, and three lights were opened 2 inches each. Ventilation was reduced at one o'clock and taken off at two with a temperature of 88°. This is the tenth day since the first flower opened and thinning is commenced. Some berries on the most forward bunch already measure three-sixteenths of an inch in diameter.

On the morning of the 29th the lowest temperature was 28°. We had very little sun, and the wind changed during the day to the south; no air was given. It became colder again at night, and before the morning of the 30th the minimum thermometer outside had registered 35°, but at 6 A.M. it had risen to 44°, and rain was falling heavily, which continued uninterruptedly till noon. There was some sun during the afternoon, and the air was warm and soft. It was not necessary to open our vinery, which, however, rose to the maximum temperature, and the inmates seemed to be enjoying it. The 31st, however, brought us another slight frost, thermometer down 28°, but it rose to 51° at mid-day with a soft and balmy air. Two lights were opened an inch each at 8 A.M., and the temperature keeping up well they were not closed till 3 P.M., when the mercury stood at 88°.

A few of the most forward bunches are thinned each day. Some berries on two or three of the most forward bunches measure a quarter inch through, and this is only the thirteenth day since the first flower opened. Think of this, you who allow a fortnight or three weeks to pass before commencing thinning, and judge how much you lose in size of berry. One point lost now means many lost by the time the fruit is fully grown.

We commenced watering again to-day, not that the border which was last watered on the 7th and 8th is considered to be dry, but several other houses will need watering during the coming week, and at this time it is better to water too early than too late. Clear water is used at a temperature of about 60°, and without any stimulant this time; the same quantity is given as before. A few sublaterals have to be stopped, otherwise there is very little to do now besides thinning in the way of manipulating the Vines.

April 4th.—The berries now measure three eighths of an inch, and the branchlets of the forwardest bunches, which have hitherto stood out at right angles to the main stem of the bunch, show signs of drooping. This is caused, I presume, by the weight of the fruit, as those which are not so forward are still in their original position. I hope to see the upper branchlets not only come out to where they were before, but to curve inwards towards the upper part of the stem and nearly hide it. This will happen when the berries are swollen sufficiently large to force the upper ones out of their present position. The power to do this is lost when the bunch is thinned too much, and it will, under such circumstances, always remain in a loose condition.

The 6th, although the minimum thermometer only indicated 42°, brought with it a very cold wind. The sun shone brightly, but the wind was sufficient to keep the temperature of the vinery from going too high. It reached 93° at 2 P.M. Abundance of water was sprinkled about, and the house felt very comfortable. The occupants did not find out there was a cold wind at all. It is a great advantage to be able to keep the house closed on such a day as this. The berries continue to swell at the rate of one-thirty-second part of an inch in twenty-four hours, and now measure seven-sixteenths in diameter.

On the 7th the minimum thermometer indicated 27°, while that on the grass had been down as low as 18°; the wind was even colder than the preceding day. No air was given, and our Vine rejoiced in a temperature of 92° at 2 P.M., and kept as high as 80° till after 5 o'clock. Altogether these cold bright days are perfect for forcing purposes. There is just sufficient air gets through the laps to prevent the interior reaching too high a temperature, and yet the apertures are not sufficiently large to allow of the moisture escaping very freely.

Note, December 17th.—I have received some complaints from friends as to the manner and contents of this diary, and as it is sometimes useful to know how "others see us," though we cannot possess the power of vision the poet sighed for, and use other people's optics for that purpose, I feel grateful for such friendly hints as I have received.

No. 1 says my remarks will be of little use to him, as he does not want to start a vinery on New Year's day. Why did I not give the particulars of one started in March, as that is the month nine out of ten vineries are started?

No. 2 thinks I have a great deal too much to say about the weather and outdoor temperatures; and No. 3 thinks, and not over-delicately hints, that I am somewhat monotonous and dry. To the last indictment I must plead guilty, but I think there are extenuating circumstances.

The notes given were made on the dates placed against them, and they are transcribed verbatim except when something is omitted. The vinery in question I attended to personally, nothing was done in it without my direction from day to day, and every operation of any importance was chronicled and is here reproduced. When notes are made daily of the same sort of work there must of necessity be some repetition. I could now make my notes much more readable, but I do not think they would then so well convey the actual ideas and aims I had at the dates mentioned. The outside weather is always my guide, and my aim is now to show that if that is watched and the houses are worked according to it, what a very simple matter it is to grow good Grapes. By going on wrong principles many amateurs give themselves ten times as much trouble to grow third-rate fruit as a proficient cultivator does to produce the most splendid results. It may be taken for granted that any of the routine usually carried on in vineries and not mentioned by me has not been practised and is not considered necessary. Much of it, indeed, is positively mischievous.

Calendars of operations can never be strictly followed, because the calendar writers not being Zadkiels cannot gua-

rantee the sort of weather they are writing for, consequently to be successful the cultivator must in a great measure depend on himself, and I should like to teach every cultivator to be to some extent self-reliant. Let him get all the advice he can from current literature and friendly practitioners, but after all he will always find his own a peculiar case for which there has been no rules laid down that will exactly suit.

With reference to starting Vines at different seasons, artificial temperatures for starting in spring need not be quite so high as for starting in winter, because the natural mean temperature is so much higher. I have given ample statements of temperatures in my treatise which appeared in these pages last year.

It will be borne in mind that this series of articles is not intended for professionals, but is only an endeavour to make amateurs acquainted with my practice, and to teach them to be more self-reliant.

The measurements of the berries till the stones hardened were taken by cutting through the centre and placing a thin steel rule across. When the stones hardened the measurements were taken with callipers.—WM. TAYLOR.

VIOLETS MARIE LOUISE AND NEW YORK.

I HAVE many sympathisers in the liking for this lowly sweet flower. Owing to a change last spring I had to collect material for a fresh start, and had plants from many quarters both north and south, altogether securing nearly thirty varieties, or so-called varieties, which, however, I do not now propose to criticise; but I received Marie Louise from at least three sources, and all turned out to be New York, and I consequently have come to the conclusion that there is a confusion of names. This is a misfortune, as there really is considerable difference between the two varieties, and as some of your many correspondents from time to time praise Marie Louise it is well the matter should be made clear, for should any from what is stated order Marie Louise and receive the true kind they will be disappointed.

Marie Louise is similar in foliage to the old Neapolitan; the leaves are slightly larger, longer, and more pointed, and of the same lively green. The plant is of free growth, and usually commences to flower in August, and reaches its best from late September to November, and is good again in February or later, according to the weather. The flowers are palish blue, deeper in colour than the lavender of the type, but only a shade, have long stalks—5 inches or more according as they are drawn by the frames being kept close or open, and about 1½ inch across in good examples, the flower having a somewhat large white space at the base of the petals, which gives it a rather conspicuous white eye.

New York is freer in growth than Marie Louise. The plant forms a more compact tuft, does not form runners to any great extent, and has the defect of forming abortive crowns, which, however, is reduced to a minimum by putting in fresh suckers each spring or small rooted runners. The foliage is darker—a deep green with a bronzy tint in the centre, and is more leathery and persistent than any of the Neapolitans. The flowers are borne on stalks 5 to 6 inches long, stout, but not so stout as to support the flower, which from its weight becomes prostrate, hence I presume the name of pendula. They are large, in good examples over 1½ inch across, dark slate in colour with a purple tinge, and the centre petals tinged and splashed with red, the base of the petals having a little white, but not nearly so much as in Marie Louise. It commences flowering early in September, and blooms through the winter in favourable weather, being at its best from late September to December, and in February onwards. I am pleased to be able to confirm the opinion of the grower, Mr. Beachey, who first brought this variety to the notice of the gardening public through your Journal—namely, that it is the best and most floriferous as well as the hardiest form of Neapolitan Violet in existence. It is, however, not so much liked by some as the bluer forms, whilst others like it better. Taste differs even in Violets.

What difference is there between Venice, Marguerite de Savoie, and Princess Louise? In what do they differ from New York?—G. ABBEY.

OUR ORCHARDS AND PARAFFIN OIL.

THE brief summary of the Rev. P. Dunster's paper given on page 483 of the *Journal of Horticulture*, which comprehended the principal points of the writer's argument, ought not to go unchallenged, as I do not believe many gardeners will be numbered among the reverend gentleman's converts. That he has done good service in calling the attention of capitalists and agriculturists to the discreditable state of the Apple industry will be conceded by all who take any interest in the matter, but that paraffin is to work such wonders among apparently worn-out trees not many will believe. A fruit tree well dressed with crude paraffin would soon be rid of all parasitical diseases, insect or otherwise, and in addition would have many buds destroyed unless I am greatly mistaken as to the dangerous properties of the oil. The tree might yet survive the process, make numerous fresh shoots, and present a generally improved appearance; but the question is, How long will this satisfactory state of affairs last? Not long, I am afraid, unless other remedies are simultaneously applied.

Moss and lichens I believe are much less injurious than the above writer considers them. If they were capable of sending roots into the

inner bark of a tree the case would be different; as it is they are apparently merely attached to the old or outer bark, and derive their sustenance principally from the air. They may, fungus-like, be contagious, and be also to a certain extent injurious, though as a rule I should say they as well as canker, unless caused by American blight, are the consequence and accompaniment rather than the cause of the tree's decadence. Restore the surroundings as well as the tree to a better state, and the diseases will disappear not to return again for some time to come.

If I advised a practical fruit farmer to dress all his large orchard trees with paraffin, also to scrape and clear off all the moss and lichens, in order to restore them to their former healthy and fruitful condition, I should very likely get laughed at for my pains. What I would strongly advise the holders of many debilitated orchards is to examine well into the drainage, as in all probability many of the drains are either dislocated or choked by the roots of the trees, while many low-lying orchards found undrained ought at once to be thoroughly drained. It is only in damp congenial positions where mosses and lichens abound; and by changing the conditions, as we do when we drain land, thereby making it warmer and drier, the atmosphere also being changed for the better, they soon disappear. Shallow drains in most places would be injurious, as being liable to drain land too quickly and thus impoverish it. It is deep drains, say from 3 to 4 feet according to circumstances, that are required, these doing their work slowly but surely. They should not be under the trees. No distances can be given to suit all cases, but generally speaking one running midway between the rows of trees if these are 25 feet apart, or if much closer together through every other space, would afford ample drainage. Then in many cases fully one-third of the tree's growth ought to be thinned out, and the branches where they meet be freely shortened to admit more light and air to the trees. If badly infested with American blight as well as moss and lichens the bulk of the two latter may well be scraped off, and the trunk and principal branches dressed with either coal tar and water in equal proportions or soapsuds and brine. A dressing of quicklime and water will also destroy various parasites, and is easily applied with a syringe or more thoroughly with a brush. If the land is poor it ought to be heavily surfaced with good farmyard manure, and much liquid manure is often wasted in farmyards that might with advantage be given to the fruit trees. An orchard thus treated, even if we omit, as I suppose many will do, the scrubbing and dressing, will undoubtedly soon give evidence of renewed vigour, and this will be of a more permanent character than can possibly be brought about by a bark-improving process alone.—W. IGGULDEN.

INFLUENCE OF STOCKS ON GRAPES.

IN the Muscat house here I grafted Gros Colman three years ago, and this is the second year it has fruited. But unlike your correspondent, Mr. Thomson (page 502) I have not the means of testing so closely the grafted Vine with Gros Colman on its own roots in the same house; but we grow it in the late vinery, where the colour is all that can be desired, yet the flavour very indifferent when compared with the same variety grown on the Muscat stock. The stock has not influenced the scion here to ripen its fruit earlier than on its own roots, neither is the colour so good, but the berries are larger and considerably improved in flavour, and the leaves do not show to the same extent that curled unhealthy appearance characteristic with the variety on its own roots.

A little over twelve months ago in the pages of the Journal, in an article on late Grapes, I there referred to the improvement the Muscat stock had effected in Gros Colman, and I am glad to hear such an excellent fruit-grower as Mr. Thomson has met with even greater success than myself on the improvement of so noble a Grape.

Alnwick Seedling grafted on West's St. Peter's is larger in the berries than when grown on its own roots, but not otherwise improved. This Grape is considered much better in flavour than Black Alicante; but if kept long after being ripe the skin becomes tough and leathery, which is no improvement to this otherwise good Grape.

I consider Barbarossa (Gros Guillaume) the most unsuitable stock anyone can graft other varieties on. I have grafted several different sorts on this, but never found any improved or even so good as when grown on their own roots.—CHS. ROBERTS, *Highfield Hall*.

PROPAGATION OF ERICAS, EPACRISSES, AZALEAS, AND CAMELLIAS.

ERICAS, Epacrisse, and Azaleas should be propagated in the spring, and Camellias in the autumn months. The numbers of plants that are killed in large establishments make it necessary to keep up a good supply of younger plants to take their places. I do not mean they are killed through any want of attention, but through rough usage—viz., hard cutting for flowers, furnishing, and conservatory decoration.

To succeed in striking a good per-centage of those inserted, it is necessary to carry out something like the following instructions. In February or March make a compost of two parts peat, one leaf soil, half sand, and half of charcoal. Fill to within an inch as many 32-size pots as required; fill the remaining space with dust-dry sand. Take all the cuttings that can be obtained, which are about 1½ inch long, from the old wood with a hecl. If sufficient cannot be so procured, take the remainder from the most sturdy growths. Do not remove any of the leaves, using a sharp knife to insure a clean cut. Insert them without the aid of a dibber; the dry sand will then fill up all the cavities. Give them a thorough watering, not permitting them to get dry afterwards. Place under a bellglass, and stand them in a propagating or

forcing house. Wipe the glass once or twice a week, and shade if exposed to sun.

When the cuttings have formed roots and grown 2 or 3 inches pot them into 60's, return them to their warm quarters for a short time, after which they can be placed in a cool house previous to standing them outside under a north wall. They will require another shift, this time into 48-pots, and I would advise a rougher compost for this potting. I have struck hundreds of cuttings of the above plants, much to the surprise of friends and visitors, who were ever eager to know my mode of treating them. After the first year, to make doubly sure, I always dipped the end in ether previous to inserting them, and in many instances never lost a cutting. When potting them into larger pots my friend, Mr. Carmichael, Nowton Court, is strongly in favour of broken flints being mixed with the compost, and I can testify to their value. They keep them cool through the summer, and absorb no moisture in winter, and in a year or two it is impossible to see the flints for the roots that have netted them.

Camellias are more easily propagated than Ericas, and many succeed with them where they have never succeeded with the former. Still a few hints may not be out of place. When well grown there is nothing to surpass them for conservatory decoration. What finer sight could we wish to see than a lot of Camellias in 48-pots, varying from 2 to 3 feet high, with from six to a dozen blooms? The advantage of keeping them in small pots is that you can have some in almost all times of the year. Even when not in bloom they could occupy many a worse plant's position.

October is the month for propagating them, as then is the best time for getting well-matured wood or growths. Take them about 3 inches long, and with large wood buds. Remove all but the two or three topmost leaves. Place fifteen or twenty into a 9-inch pan, the soil to be one part peat, one loam, one leaf soil, one charcoal and sand. Put them under a handglass and stand in a north greenhouse or some cool and shady place. After being well callused remove them to a warmer quarter, where they will soon root, and can then be potted into 48's, using two parts loam, one peat, one leaf soil and sand. They can remain in these for four or five years, and always standing in an early Peach house except when they are in bloom, and the house being cleared, as the temperatures for the Peaches at different periods suit them. When full of roots feed them with liquid manure and water them over the foliage every time the house is damped.—A FOREMAN.

BOUVARDIAS.

Too much cannot be said in favour of Bouvardia Hogarth. At this time of the year its charming vermilion flowers are very acceptable either cut or on the plants for decoration in the house or conservatory. Another very good variety is Bridal Wreath; white slightly tinged with pink. We also have several more first-rate sorts coming into bloom at present, and will continue so for a long period yet.

The cuttings were inserted early in March, and when they were well rooted each one was placed in a large 60-size pot. They were grown in a cool stove until the early part of June, then they were turned out of their pots, planted in a cold frame, and kept close for a few days. After that a little air was given, and subsequently the lights were drawn off on very fine days. The plants were syringed twice daily, in the morning and afternoon about 2 P.M., when the frames were closed for the day. The tops were pinched off until the middle of August, when they were allowed to grow. In September they were taken up and placed in 7-inch pots, and then transferred to a heated house to give them a start. This I consider the best way of treating Bouvardias, and they are now blooming profusely in a temperature of 55° to 60°.—G. T. G.

A WONDERFUL VEGETABLE MARROW.

IN September of the present year we were invited by a gentleman, Mr. Sechiari, to inspect in his garden what he described as a "wonderful Vegetable Marrow plant—a perfect novelty, quite a phenomenon; yet it can hardly be called a phenomenon or freak of Nature, because more than one such plant was raised from the same packet of seed, which was sent to me by my relatives from France."

As we were unable at the time to accept that invitation, Mr. Sechiari very kindly forwarded samples of the Marrow to our office. They were truly wonderful—a large vegetable hamper full of fasciated stems thickly studded with young Marrows from 1 to 4 inches long, struggling with each other for supremacy, many succumbing, but numbers of others attaining the proper size for cooking. A more striking example of the familiar doctrine of the "Survival of the fittest" it would be difficult to imagine. Still there is a survival, for Mr. Sechiari sent us a developed specimen 17 inches long and 7 inches in diameter, yellowish green in colour, mottled between the ribs with brown. Some of the flattened stems were a foot in diameter, and about twice that length. One of these we divested of leaves, which were about as numerous as the fruits, and requested our artist to represent as accurately as possible. The result is seen in the annexed figure. The specimens are reduced one-

fourth, but there is not the slightest exaggeration, the figure being engraved from a photograph, hence is a strictly truthful representation of the original.

The important question arises, Can this remarkable form of fasciation be retained and transmitted by seeds? Observing Mr. Sechiari's remark that he had "more than *one* such plant," we made specific inquiry on the point, and were informed that he raised ten plants, five of which were like the examples forwarded, and the others more or less fasciated. This would appear to indicate that there is at least some degree of probability that this extraordinary form can be reproduced in the ordinary manner of raising plants; yet further experience is requisite and this we shall await with interest. That fasciation can be perpetuated through the agency of seed we have conclusive evidence in the

do better than ask your attention and your correspondents' to it, confining myself to a few observations of my own experience. Most of my home-grown bulbs were potted long since, and the pots are full of roots; and I may here say I invariably shake them out when the stems have decayed. Those of the speciosum (*lancifolium*) type are fit for this purpose generally towards the end of September, and *L. tigrinum* outdoors even earlier, except the Martagon Lilies. Though I try to find a sheltered corner for those last named, the Tiger and Turk's Cap Lilies outside, I must say, except under exceptional circumstances, I dislike seeing *L. auratum*, *L. speciosum*, and its fine varieties, *L. longiflorum*, &c., dashed down by a fierce wind or splashed and blurred by a drenching rain. I am aware there are several gardens near here where Nature or the gardener's art has afforded protection, and where the Lilies luxuriate and increase from year to year in hardy Azalea and Rhododendron beds.

Wherever, then, accommodation can be had I consider those beautiful



Fig. 113.—MR. SECHIARI'S VEGETABLE MARROW.

ockscomb, and we are not without hope that Mr. Sechiari will be able to show us further examples of this wonderful Marrow next year. It is something more than a curiosity, being, as the cultivator informs us, and which the examples in question substantiate, much more productive than the ordinary varieties of this vegetable; while as evidence of its being earlier we have only to add that the matured specimen was cut in June in a garden in Middlesex.

IMPORTED v. HOME-GROWN LILIUMS.

A LADY from Dublin writes, "I have seen some notes of yours in reference to potting Lilies in a recent issue of the *Journal of Horticulture*. . . . I have some home-grown, and I am about to receive a number direct from Japan through Messrs. Carter, London. As my stock is increasing I shall plant some outside and pot the remainder, but would first thank you to say if you would treat the former (home-grown) and the latter differently?"

As I have reason to know there are others beside my fair correspondent who would like some additional information on the point, I cannot

Lilies deserving of space indoors. Had the lady above referred to shaken out her Lilies when the stems had decayed she would have found a large or small system of roots resembling a miniature mop, one from the base of the bulb and the other from the stem. The former, if vigorous growth and careful treatment (not merely before flowering, but afterwards) had been pursued, would be quite healthy and ready to commence root-action again. The stem roots are generally cut off along with the withered stem at repotting, and of course decay with it, having performed their function of assisting the feeding roots below. If my correspondent has left her Lilies outside until now the pots are perhaps waterlogged, and roots and bulbs are probably decayed. If left to become dust-dry inside they will equally be valueless; and lastly, if not regularly watered, fed, and matured after flowering there will be no satisfactory flowering next year. These hypotheses will likely answer partially if not wholly the often-repeated questions, Why must we buy imported Lilies every year? Why are imported Lilies better and more certain flowering? In order to extend the time of blooming I pot from time to time up to March next, as I want them for decorating our church, for which purpose nothing can compare with them. The imported Lilies generally arrive from Japan minus the sheaf of roots above referred to, and considerable

care must be used to prevent rotting or mildew until roots are emitted. For *L. auratum*, if possible, a large portion of the potting material must be good open peat (not retentive peat), and no water until the stem appears. I lost some of the finest bulbs I had last year by premature moisture. Sand at the base helps root-formation. I never force Lilies, except what heat comes from tan.—W. J. MURPHY, *Clonmel*.

STORED-UP SAP IN VINES.

NINE years ago I had to shift my vinery to new premises. The Vines, seven in number, were lifted a day or two after the new year. The weather was mild and dull, and as each Vine was lifted the roots were carefully covered. They were then carried into a wash-house near their new home. The vinery was then taken down, everything carted off, even to the border, as it was only six years old. The masons went to work at once, but were stopped by frost and snow after getting the back wall to a height of 5 or 6 feet. It was then the 22nd of January, and to all appearance we were going to have a spell of frost. I had taken precautions for such in this way. I spread 6 inches of dry sawdust on the floor of the wash-house, laying out the roots of the Vines on the top of this, and covered the whole with 2 feet of the same material. My object was to keep air from the roots; and although I had never tried sawdust before, I would strongly recommend it to anyone who should get into the same difficulty as I was at that time. As the frost became stronger I got a quantity of sacks and an old carpet and packed these carefully over the dust. The taps in the wash-house were by this time frozen, and outside the thermometer was registering from 12° to 25° of frost. The second week in February brought a change, but in a day or two it was as hard as ever. Near the end of the month a thaw took place, and March was ushered in with "dirty" weather.

I examined the roots of my Vines as soon as all danger was past, and found them quite comfortable. The masons made a start once more, but owing to rain, snow, and frosty nights it was the second week in April before I saw the furnace ready for a fire. The joiners had the house ready for the Vines on the 24th; and on the 25th, after being sixteen weeks in a wash-house, the Vines were planted. They were carried out of the house one at a time, planted, and tied to the trellis. I hope "Non-Believer" will ponder well the next sentence. Every eye on every Vine was started, some an inch, some even more. I would ask your correspondent to account for these Vines starting into growth. They had made no fresh roots, nor could they in dry sawdust, yet here was as fine a "break" as any Vine-grower could desire.

It caused me no surprise to see these Vines starting, but after reading "Non-Believer's" theories I am certain this "true tale" of mine should surprise him.—S. HALLIDAY.

My reason for giving the whole of the quotation from Lindley's work was simply to complete the sense, and to show it expressly referred to *fluid food*—namely, that which had not passed through the process of assimilation. My thanks are due to "Non-Believer" for pointing out where the other passage occurs, and I have now obtained the later edition. The remarks are, however, as I conjectured they would be, of a general and not of a special character, serving merely to illustrate the ordinary processes of absorption. This will be best perceived when the passage is seen in its entirety, and I therefore reproduce it:—

"The sap then ascends in consequence of an attracting force exercised from above downwards by the foliage of plants. But it is evident that this is only a partial explanation of the phenomenon; for it does not account for the ascent of sap in winter when leaves are absent. In order to explain that fact we must have recourse to the action of endosmose, a force the effect of which is to produce propulsion. A tree may be assumed to be a combination of hollow tubes freely communicating with each other, and enclosed in a skin through which fluids are capable of being absorbed on the one hand and expelled on the other. If we conceive a body of this kind, in which the tubes are nearly empty, to have its lower extremity plunged in water, the absorbing power of the skin at that part will begin to introduce the water into the interior, and this continuing to go on for a sufficient time, the tubes must necessarily become at last filled with water rising upwards from below."

After some further remarks explanatory of this system Lindley continues:—

"A tree is just such an apparatus. Its tubes are nearly empty at the fall of the leaf. During winter the roots absorb water from the soil and fill the tubes again. By the arrival of spring they are filled almost to bursting, and then if the stem is cut it bleeds, or if the roots are cut they bleed. Bleeding ceases as the leaves unfold. The Vine, the Walnut, the Birch, are all as incapable of bleeding as other trees when their leaves are formed, because the leaves gradually empty the tubes, put an end to their distension, and prevent its recurrence so long as they remain in an active state."

The whole of this is intended to render clear the principles which regulate absorption in plants, and throughout the fluid or crude sap only is referred to. That the cells of the Vine stem are not empty after the leaves fall is conclusively proved by the statement of a microscopist last week, page 529, and the matter is such a simple one that it admits of easy proof by anyone possessing a microscope of moderate power. The starch granules have been derived from the sap altered in the foliage during the summer, and that they are stored there for the future support of the plant cannot be doubted by any reasonable person. Before this starch can, however, be utilised in the growth it must undergo some

change, and this change is effected by an increase in temperature and sufficiency of fluid present in the cells. Other compounds are formed which can be at once converted into the growing tissue of the plant, and so the process advances.

It is obvious that the contiguous cells—namely, those composing and immediately adjoining the bud, must be the first to yield the requisite supply, and the cellular tissue of plants is permeable by fluid or semi-fluid contents, the direction of the flow being determined towards that portion of the plant where the demand is greatest. Thus until the absorbing and assimilating forces of the Vine are balanced—that is, when the roots are active and the green foliar surface sufficiently extensive to elaborate the sap so rapidly transmitted to the leaves, there is a demand upon the reserve force constituted by the starch and other matters congregated in the cells. Afterwards the processes of absorption and assimilation would be conducted in the usual way. The precise period when the change takes place is difficult to determine. It probably varies according to the condition, strength, and other characters of different Vines. In some cases nearly the whole of the starch would be exhausted, and in others comparatively little would suffice. These are matters that are well worthy of investigation, and much valuable information might be obtained by a course of judiciously conducted experiments.

On page 465 "Non-Believer" remarks, "There is really no such thing as storing up sap in the sense Mr. Taylor states, in plants like the Vine. Only bulbs and tuberous roots store food for reasons apparent to anyone." After the evidence of the competent microscopist on the page quoted, "Non-Believer" has no other course than to withdraw this unsupported assertion, and then there will be little difference of opinion between us.—CREDO.

THIS discussion is not only one of great interest, but it is also of great importance to everyone connected with horticulture, because in his operations the gardener must to some extent be actuated by those theories which are impressed upon his mind in respect to it. Judging from the discussion, it is, as well as the precise manner and time in which roots commence growth and absorb food, a physiological subject somewhat shrouded in mystery; at least the teachings of the authorities past and present, unless they have been misunderstood or misquoted, do not appear to coincide thereon. Books are invaluable aids to the gardener, but when the principles they set forth do not perfectly agree with the practical lessons he has received, it behoves him to accept them with extreme caution, till by actual experience he has thoroughly proved whether they are correct or not.

Without attempting to say more on this subject, or even to hazard a reason for saying this much, save that the minds of physiologists, like all others, do and will differ, I should like to record a few practical observations made at different times and places, which to me appear to bear either directly or indirectly on the question at issue.

In the winter of 1849, in the gardens where I then was, a large Apple tree was uprooted by the wind. On one side the roots were found to be quite decayed, and the only live ones it possessed were snapped off close to the butt of the tree, and it became rootless, with the exception of about 12 inches of tap root only. It remained in this position for several months, and produced blossoms, foliage, and even set fruit, and then succumbed. My note-book contains the query, How were these leaves and blossoms supported during this period?

In 1861 I took charge of a Peach house, which contained three very large and very old trees, one of which had upon its stem an enormous boss 18 inches in diameter, at about 4 feet from the ground, and just at the junction of the stock and scion. Immediately below this boss the stem was quite decayed, and had entirely disappeared with the exception of the dead heartwood and a strip of bark and young wood scarcely an inch wide, which formed the only living connecting link between the boss and the roots. How long it had been in this state I could not ascertain for certain, but it continued for ten years afterwards to make a fair amount of annual growth, as well as to produce regularly fair crops of good fruit. Is it possible this thin shred of bark conveyed all the sustenance the tree obtained?

When the practice of preserving ripe Grapes by placing the shoots in bottles of water was first mooted, I gave it an early trial. The mouths of the bottles after inserting the shoots were made perfectly tight by fitting in corks and cotton wool. Notwithstanding this, the water disappeared and had to be replenished from time to time so as to cover the bases of the shoots. Where did the water go, and by what means did it go? The Grapes were cut as required for use, and compared with similar ones left hanging on the Vines, and their comparatively inferior and watery flavour solved the first question, but not the second. The shoots were allowed to remain in the bottles till late in the spring; the terminal buds expanded, leaves and shoots were developed, but no roots were visible, as could be plainly seen through the clear glass bottles, till ten days afterwards.

In the spring of 1877 I had occasion to take up some eight-year-old Vines which were completely denuded of fibrous roots, and for the sake of experiment two of them were replanted in a new border. The stems were completely covered with moss, which was kept frequently moistened. They broke fairly well, and made considerable growth before even roots were formed, and these started at the surface of the border inside the house. As these advanced the stems were severed just below them, and on lifting the old roots no new ones were found upon them.

For several years we have used shoots of Privet for tying up the flower stems of Hyacinths and other bulbs in the flower garden. They

invariably make, when allowed, 5 or 6 inches of young growth before roots appear.

Three years ago I purchased a poor plant (not recently imported) of *Lælia purpurata*. It had been badly treated and had lost every particle of root, being composed simply of three pseudo-bulbs with leaves and an embryo bud. It neither made roots nor growth till this spring, when the bud began to extend, and it reached 9 inches in length before any roots appeared at its base, nor have any yet been formed at the base of the other bulbs. By what means, I would ask, was sufficient vital force retained or restored (for the partially shrivelled pseudo-bulbs began to swell even before the bud started) after such a lengthy suspension between life and death, to enable this plant to grow without a particle of root, and what different laws of Nature were put into force in either of the instances enumerated. If stored-up sap in the pseudo-bulbs of the *Lælia* preserved its life, surely the prolonged life of the other subjects was due to the same cause.

In respect to root hairs on Vines, I have no hesitation in saying if they do exist on one year's and on older roots, they are infinitely less than on those recently formed. In my leisure hours during the last two months I have done little else than examine Vine roots through a very powerful microscope, and although not for this specific purpose, still I have not detected any of these hairs except on the youngest roots. Whether these hairs, however, are the only means that Vine roots possess for taking in their food is, I think, doubtful, and requires further demonstration before being finally accepted.—C. W.

THIS discussion originated, I believe, in a statement made by Mr. Taylor in one of his articles, "Six Months in a Vinery," page 372, to the following effect:—"The shoots are now from 3 to 7 inches long, with two to four fully expanded leaves, the largest of which measure $4\frac{1}{2}$ or 5 inches across. Here and there in a few of the older ones are patches of dark colour, a sort of bluish green, only visible at present to the practised eye which is watching for its appearance. Yesterday it was only discernible on two or three leaves, now it shows slightly on a score or more, and indicates that the roots have commenced action, and that the leaves are no longer dependent on the stored-up food which was prepared last autumn and preserved in the stems for early use." Does Mr. Taylor adhere to this idea still, or is he prepared to admit that as soon as the growth commences, and a green surface is exposed to light, changes are also commenced in the crude sap. It appears to me that he has avoided repeating the statement as to the exact size the shoots and leaves attain before the stored-up sap is exhausted. In his principal argument he is undoubtedly right, but in this I consider he errs, and I would advise a graceful retreat from an untenable position. Is he also prepared to adhere to his statement that "root-action and root-extension are synonymous terms? If so, what does he mean by this?—BETA.

I WILL not prolong this controversy with Mr. Taylor, as it seems hopeless to expect him to answer any questions involved in his arguments, and so make himself clear. I am driven, however, to point out his inconsistencies and contradictions, for they indicate unsettled convictions and loose teaching which may mislead. He has all along spoken of his stored-up sap as "prepared" and "elaborated" sap, but finally admitted the sap was stored up a month to six weeks after the elaborating organs were dead (I notice he makes no answer to that this week). Next he said one reason why Vines depended on stored-up sap was that in spring when growth began the only roots which could absorb the sap from the soil were "non-existent;" but now this week he says that when Vines bleed, as it is called, in spring the water is absorbed from the soil and forced up into the plant by the roots—*i.e.*, when the latter are "non-existent!" At page 490 he says "he would leave it to me to find out how roots could take up nourishment when they were non-existent," the only means of absorption being by the root-hairs, he said. This week he says, "There is a continual absorption of water going on by one or more of the processes enumerated," which, to explain, he launches into a description of "osmosis," protoplasm, and the like—all matters no more affecting his original assertions than the man in the moon. I ask any reader what reliance is to be placed upon a writer who confuses his points and contradicts himself in this way?—NON-BELIEVER.

P.S.—I have no difficulty in accepting your "Competent Microscopist's" statements so far. We know starch granules are hardly found anywhere else than in the cellular tissue of plants, but they have to undergo certain processes before becoming available by seeds or buds. When "Microscopist" brings his facts to bear in support of Mr. Taylor's original assertions on the subject of Vines depending on the stored-up sap alone from December till the 10th of February, when the shoots were 7 inches long, and each bore a number of leaves from $4\frac{1}{2}$ to 5 inches broad, I may have more to say.

In the second paragraph from the top, right-hand column, page 528, for "roots" read "shoots" in the third line.

[The portions of Vine shoots were certainly not sent for microscopical examination with the object of supporting the arguments of any individual, but for the purpose of obtaining information that should be equally acceptable to all. Mr. Taylor has not yet proved the strict accuracy of all his statements, and we doubt very much whether the revelations of the microscope in question will assist him in doing so.]

BATEMANIAS.

THOUGH some seven or eight Orchids are described by certain authors under the title *Batemanias*, three only are really worthy of cultivation, except

where the object is to form as complete a collection as possible. Some of the species have been referred to the genera *Galeottia* and *Huntleya*, but those now included in *Batemanias* are the following:—*B. Colleyi*, *B. fimbriata*, *B. grandiflora*, *B. melcagris*, *B. Beaumontii*, *B. armillata*, *B. lepida*, and *B. Wallisi*. Respecting these, however, Mr. G. Bentham has stated that "*Batemanias*, reduced to the original Guiana species, appears to be very different both in habit and character from *Huntleya melcagris* and the allied species referred by Reichenbach to *Batemanias*, but which we should include in *Zygopetalum*." Of the latter genus it may be noted Mr. Bentham makes six sections:—1, *Zygopetalum* proper; 2, *Zygopetalum* of Reichenbach; 3, *Huntleya*, including *Galeottias*; 4, *Bollea*; 5, *Warszewiczella*, including *Psecatorea*; and 6, *Promienæa*, including *Kefeirsteinia*. A large group of closely allied species thus formed, the majority of which can be traced through various steps into others. The great similarity between the *Bolleas* and *Psecatoreas* is well known, and the generic distinctions between some of the others are so slight that it often puzzles experienced observers to determine to which a particular species may belong. As, however, Reichenbach's system is generally adopted, the few species may be noted under this head.

Batemanias Burtii.—The most beautiful of them all is this fine Orchid, which, though having the reputation of being difficult to grow satisfactorily, has proved in competent hands that the opinion is an erroneous



Fig. 114.—*Batemanias Burtii*.

one. There is some uncertainty about what growers commonly term the "Bollea breed" of Orchids. They will appear to progress well up to a particular stage, and then almost without warning the leaves turn yellow and the whole plant fails in an unaccountable manner. Such is the general idea, and there is some ground for it, though the causes no doubt vary under different circumstances. One of the chief reasons for failures of this character which has come under my observation is placing the plants in too strong heat, where they seem to make good progress at first, but ultimately become enfeebled and collapse. Cool treatment suits most *Batemanias*, and especially *B. Burtii*, whether it be grown in a pot or on a block, and the finest plants that I have seen have been subjected to a much lower temperature than usual. Peat and moss form the best compost, but when grown on blocks of course the first-named can be dispensed with. Liberal supplies of water are required under either system, especially in the growing season.

B. Burtii is a native of Costa Rica, whence it was introduced in 1872. It has small pseudo-bulbs and leaves about a foot long and 2 inches broad, of compact and sturdy habit. The flowers (fig. 114) are 4 inches in diameter, the petals $1\frac{3}{4}$ inch long and 1 broad at the base, ovate, tapering, of a peculiar shining reddish chocolate colour, very distinct and beautiful, and the surface is studded with little bladder or wart-like dots; the base is yellow with a few crimson streaks radiating from the column. The sepals are 2 inches long and seventh-eighths of an inch broad, the same colour as the petals; yellowish fading to white at the base. The lip is ovate, 1 inch broad and $1\frac{1}{8}$ inch long, the upper half reddish, the

lower white, the surface not shining as in the other portion of the flower, and without the warts. It is hinged at the base to a projection from the column, which is furnished with a fringe of stiff filaments about a quarter of an inch long, six or seven in the centre being erect and facing the column, and a number on each side incurved laterally. The column is white with a few rosy streaks, and the sides at the upper part are prolonged into a kind of hood. The hinged lip and fringe seem to have some object in relation to the fertilisation, but what that special purpose may be it is difficult to say, for in many members of this wonderful family we frequently see contrivances, obviously for some object, concerning which often the most we can do is to conjecture its use.

B. meleagris.—This also is a very distinct Orchid, and is very generally known under the name of *Huntleya meleagris*. It is a native of South America, having been found in the "gloomy damp woods on the banks of Rio Perapitinga in the district of Bananal." Plants were first introduced in 1836, and some of the first plants to flower were in Messrs. Rollisson's nursery at Tooting. The flowers are 3 to 4 inches in diameter, of a pale yellow, nearly white tint, tessellated with purple or brown, especially towards the upper part of the sepals and petals. This plant requires rather warmer treatment than the preceding, and it is generally grown at the cool end of the tropical house. Mr. B. S. Williams recommends the *Cattleya* house as the most suitable, and his opinion is worthy of weight, but like B. Burti and others this, I believe, is more often injured by excessive heat than by too cool treatment, although some growers entertain a different opinion.

B. grandiflora is a New Grenadan species with greenish flowers striped with brown, not particularly beautiful; and *B. Beaumontii* also has greenish flowers, both being more curious than handsome.—LEWIS CASTLE.

MIXED SHRUB AND FLOWER BORDERS.

SHELTER for Lilies was the primary cause of an opening some 20 feet wide being cut through a thicket of Holly and Rhododendron, a narrow path being afterwards made along the centre with a border on each side of very rich soil quite 2 feet deep—really a compost of garden refuse, peat, coal ashes, stable dung, and lime, thoroughly mixed by repeated turning, admirably adapted for the Lilies as well as for many other plants; but it was the Lilies for which the borders were prepared, and to them we will first turn our attention.

About a year ago I purchased fifty of the finest imported bulbs of *L. auratum*. On the following day they were potted singly in 6-inch pots in similar soil to that of the borders, and then plunged in a bed of coal ashes in a cold frame, the tops of the pots being covered two inches deep with ashes, precisely in the old-fashioned way of treating Hyacinths in preparation for forcing. In March the growth of many bulbs had pushed through the ashes, and all the pots were well filled with roots. They were then taken to the borders, turned out of the pots and carefully planted, so that the tops of the bulbs were 6 inches beneath the surface. To finish my account of the Lilies I may add the pleasing fact that all of them grew freely and well, the first flowers opening in July, and some of the last flowers were still lingering upon the stems at the end of October. This delightful succession of opening flowers for nearly four months was partly owing to portions of the borders being much shaded by trees. The flowers were fine ones and very fragrant, but none of the bulbs had more than seven flowers—some of them not so many. The bulbs are left undisturbed in the soil, and I hope to be able to give a satisfactory account of them next year, but that is a matter so beset with uncertainty that more bulbs will be procured now and treated in the same way. Even if the first batch of bulbs do no farther good with us, yet it is felt that they have already well repaid the cost of purchase and subsequent care.

Lilies alone are somewhat tame in effect, except when they are in bloom, and even then they gain much in appearance from association with many other plants. I had already got them well established among Rhododendrons, and therefore resolved to mingle other shrubs and flowers with them in the new borders, so as to impart an air of novelty and distinction to that part of the garden. All the shrubs known as American shrubs answer so well here in the ordinary soil that they have been planted extensively, the only exception being in the Lily borders, partly because of the lime, and also for the sake of variety. The shrubs planted in the new borders stand singly with plenty of space to develop into fine specimens. All of them have thriven, so too have the plants, the luxuriant growth affording pleasing evidence of the fertility of the soil. *Ligustrum japonicum* has not answered well here in the ordinary soil, but in the rich compost of the new borders the one or two plants of it have changed from a sickly greenish yellow hue to the deep rich green of rude health, and have made growth of extraordinary vigour; so, too, has the handsome *Ligustrum ovalifolium robustum*. *Arbutus procera* and *A. rubra* evidently enjoy both advantages of rich soil and thorough wind-shelter. *Cornus mascula elegantissima aurea* made a pretty picture in partial shade. *Abelia rupestris* has grown and flowered freely; and of others introduced as very suitable for this position there are *Rhus laciniata*, *Mespilus canadensis*, *Hydrangea paniculata grandiflora*,

which had very large trusses of its lovely white flowers; *Olearia Haastii*, *Prunus sinensis flore-pleno*, *Potentilla fruticosa*, a couple of neat specimens of variegated *Weigela*, *Hypericum patulum*, *Rubus phoenicolasius*, the Chinese Bramble, with remarkably handsome foliage, deep green above and silvery white beneath; *Cordyline indivisa*, a couple of the handsome *Phormium tenax Veitchii*, *Phormium tenax Colensoi*, some fine specimens of *Acacia lophantha*, which have been laden with snow, and have also borne 8° of frost with apparent impunity. I may mention here that *Cordyline indivisa* left out fully exposed last winter only suffered somewhat in appearance from having its leaves broken by snow, and it has grown so freely this year that the stem has now a tree-like appearance, and the handsome new crown of foliage is some 10 feet high. This fine specimen is one of a batch of seedlings from a packet of seed sown on February 19th, 1874. It would probably have been a much finer plant now had it been turned out sooner, but it was kept in a pot long after the roots had absorbed most of the soil, air and water being sufficient to keep its foliage green although the growth was stunted.

Mention must not be left out of some fine young specimens of *Erica codonoides* now full of flower buds, with the growth tapering upwards into soft green feathery columns. Some *Iris germanica* gave an attractive and peculiarly pleasing aspect to the borders while they were in bloom, and they were all the more appreciated from the sickly flowerless aspect of other plants in our common soil where Rhododendrons grow with singular luxuriance. Brighter and even more attractive were the *Tigridias* when they in turn for many weeks were brilliant with flowers that are worthy rivals of our best Orchids. Why are they not more common? Once established in good soil they grow yearly in size and beauty, and although the lovely flowers soon perish, yet others follow quickly for a considerable time. Some strong clumps of *Schizostylis coccinea* have now plenty of flower spikes, and the bright pretty flowers continue to expand whenever the weather is favourable. A few strong clumps of *Tritoma* told well till late in autumn with bright flower spikes.

I might go on and enumerate many other treasures rich and rare which are worthy of a place with the Lilies, for the rich soil is absolutely a temptation to plant more and more thickly. Crowding must, however, be avoided, or all will be spoilt; but the plan will commend itself to everyone caring for something more than a mere flower bed or shrubbery border, for sure I am that such a mixture of our choicest varieties of perennial flowers and shrubs if well placed will prove attractive at all seasons of the year.—EDWARD LUCKHURST.

A HORTICULTURAL RAMBLE.—No. 2.

CHRYSANTHEMUM shows, year books, and one thing or another have so interfered that I have not been able to finish the account of a pleasant ramble now two months ago, and as a consequence of this delay I find the wind almost taken out of my sails, as far as one place that I visited is concerned, by "W. M.," who in his account of Penllergare has forestalled me. However, I cannot let my visit to it pass without notice.

SUFFOLK SQUARE, CHELTENHAM.

My visit to Cheltenham was in one respect a sad one. I was only there for clerical work, but I could not deny myself the pleasure of going to see my friend Dr. Abercrombie, whose garden at Suffolk Square has been for years so well known. It is, as many know, the square round which the houses in Suffolk Square are built; and here for many years, formerly under my friend Captain Lambert, and now for many years under Dr. Abercrombie, has retained its character as a true gardening home. His long ribbon border has been the delight of the habitués of Cheltenham for years, while his zeal and skill in the cultivation of Carnations and Picotees has been shown by some of the seedlings he has sent out through Mr. Turner from here, notably such flowers as *Royal Visit* and *Lady Louisa*. Well, I am sorry to say that one of those changes which come to us all sooner or later has happened to him, and, his own home being broken up, he was then on the point of leaving Cheltenham to get nearer to his sons in London. Possibly we may see him oftener, for I do not think that he will be content to keep away from his favourites; but none the less must we mourn that for the present at least his gardening days are in abeyance. Nor must one omit to notice the loss that horticulture has experienced in the death of Mr. Pilgrim, whose plants some years ago used to make such a conspicuous show at Manchester and other places in the west and north. For some years the state of his health had prevented him from exhibiting, and very lately he entered into his rest. A quiet, gentle, and unobtrusive man, ever ready to help where help was needed, many will miss him at Cheltenham.

PENLLERGARE.

From Cheltenham through the Vale of Neath, in many parts very lovely, to Swansea is a few hours' run by rail, and thither I went to pay a long-promised visit to one well known to the readers of the Journal—Mr. J. T. D. Llewelyn. Happily I was favoured with very fine weather, and in scenery such as this it is no small matter. Indeed when afterwards I went to that most lovely spot Tintern Abbey the weather was if possible too fine. The wind was from the east, and there was the thin gauzy veil which an east wind so often brings with it, which, while in

one way giving a charm to the scenery, does also take away some of the distinctness with which distant objects are seen. Need I say how I was received, and how everything was done to make my short stay as pleasant as possible? After the description which has been so lately given of Penllergare it would not be fitting to dwell upon it; but this I must say, that in no place that I have ever been to is there such a treat provided for those who, like myself, have somewhat omnivorous tastes in gardening. Here for the florist were grand collections of Auriculas, Pansies, Carnations, and Picotees, and all those other flowers in which a florist delights, and that not as some of us are obliged to indulge our taste in small collections, but in large ones containing full collections of the very choicest kinds. Here, too, were Primulas of all kinds, not in one or two cherished plants, but in profusion. Such kinds as rosea, latifolia, cashmeriana, obconica, cortusoides, luteola, &c., being grown in quantities. Then for the lovers of trees and shrubs there were sights to gladden them, such sights as one rarely sees—Conifers, Sikkim Rhododendrons, Azaleas in grand profusion; while to the lover of stove and greenhouse plants there were houses devoted to their culture and filled with healthy and well-grown plants; and then the place itself, standing in the midst of grand woods in which Ferns luxuriate and Rhododendrons abound, is in itself a thing of beauty ever to be remembered. Of course it has, as everything has, something to counterbalance. The climate is very moist, and many things which in our drier climate in Kent flourish cannot be grown there, but take it altogether it is a very paradise of horticulture.

SINGLETON.

Perhaps one of the most interesting places that I have ever seen was Singleton, to which Mr. Llewelyn most kindly took me. Here, under the care of the late Mr. Vivian and now under that of Mrs. Vivian, an amiable and dignified lady of eighty and more, with a real love for her garden, are sights which one seldom sees. I had lately been to Dropmore, where its grand Conifers had so impressed me that I thought I shall never see anything in them again to much interest me; but Singleton made me alter my opinion. It is true that the Conifers have not attained the grand development that they have at Dropmore, nor are they planted—as in some places—as single specimens on a lawn, but interspersed among other trees, which have afforded them shelter while growing, and have been thinned out when they had fulfilled their purpose. Singleton is situated in a sheltered corner of the Bay of Swansea, and a good view of the well-known headland of the Mumbles is obtained from various parts of the ground. This coast of South Wales, boisterous though it is and much given to rain, is yet sufficiently under the influence of the Gulf Stream to give it a mild winter temperature, so that many things can be grown here which in many parts of the south and south-east of England could not be attempted, and many even of the more tender kinds of Conifers flourish here. Thus *Abies Albertiana* is 75 feet high and 4 feet 4 inches in girth, *A. Menziesii* 68 feet high and 4 feet in girth, *A. Morinda* 57 feet high, *A. Douglasii* 75 feet high, *Picea grandis* 68 feet high, *Sequoia sempervirens* 65 feet high. The whole place is singularly interesting. One is quite unprepared, when seeing the grimy cloud that hangs over Swansea and Landore, to find that vegetation can be so good and healthy. The gardens are under the care of Mr. Harris, and while the glass is old and would, perhaps, be condemned by many gardeners, he has managed to grow most things in them to perfection. His culture of Pines is well known. There are none who can well excel him in the culture of Cayennes, in which he has so often distanced all competitors. Ferns and greenhouse plants were well grown, and in all points utility was considered. Mrs. Vivian's own taste leads her to the old-fashioned flowers of our gardens and to all sweet-smelling plants, hence there is none of the gaudiness of bedding-out, but in all directions the eye is feasted with varied forms and colours.

But the glory of Singleton—that which so especially marks it above all other places that I have seen, although, of course, there may be some such—is the grand collection of Himalayan Rhododendrons which are scattered throughout its grounds. Forty years ago, when the meeting of the British Association was held at Swansea, Sir William Hooker and others who had gathered or received seeds of these magnificent flowers from India presented some to Mr. Vivian. They were carefully watched over, were planted out in various parts of the grounds, and favoured by the mild climate and sheltered position that they occupy, they have now attained a great size, and when they are in bloom in the spring it must be a grand sight. I have seen these same Rhododendrons at Lord Stair's, Inch Castle, in Scotland, where the conditions of climate are somewhat similar, and there they were evidently trying to make themselves at home; but they were pigmies in comparison with these giants. One can but faintly imagine what a sight these grounds must be when all these magnificent shrubs are in bloom; when, for instance, twenty large plants of *Rhododendron barbatum* 20 feet in height, with an average diameter of 20 feet, are displaying their beauties; when the snow-white *R. niveum* 15 feet high, the glorious *R. fulgens* 10 feet high and 12 feet through, the lovely *R. arboreum* and its pink variety, *Falconeri* 18 feet high and 17 feet through, *eximeum* 19 feet high and 15 feet through, *Thomsoni* 15 feet high and 10 feet through, are all expanding their flowers. Why, it must be a sight well worth the whole journey, and ever so much more to see them. The whole place is very delightful, but the Rhododendrons are its special feature, and amongst the most pleasant and instructive days of the last summer I must ever remember the day I spent at Singleton.

BATH.

On my homeward journey I spent a day at Bath, and this visit, too, must—like that to Cheltenham—be associated with sadness. It was the

second and the last visit I paid to that well-known florist, Henry Hooper. One could then see that the hand of death was already upon him, and I am sure he felt it to be so himself. Everyone who has been at all interested in florists' flowers must have known him and how diligently he has carried out their culture. In Pansies, Pinks, and Picotees especially did he delight, and although his garden was, like himself, somewhat rough in its exterior, yet no one had ever complained of the plants sent out by him, which were always vigorous and healthy. One is pleased to think that, as I have already noticed in the Journal, he has left behind him an intelligent son who will carry on the business. This ended my ramble, and, combining as it did duty and pleasure, it was a very pleasant ten days, and I should be glad enough if next year I could enjoy as pleasant a time.—D., Deal.

MEALY BUG AND SCALE ON VINES.

MEALY bug has been a great trouble to me ever since I became responsible for the production of Grapes, and anyone who has had any experience with this pest may imagine that things reach the climax when it takes to the bunches. For twelve years I have been carrying on a conflict with it on my Vines, which, I must confess, has been more injurious to the Vines than to the insects; for although I at times flattered myself I had them (the bugs) almost abolished, with the summer they again appeared in surprising numbers. Year after year nothing that appeared in the Journal about mealy bug escaped my eager eye, but till last year I had come to the conclusion that there was no exterminator like good manipulation both in winter and summer, and by close picking I was enabled to keep them from doing much injury to the Grapes. I tried Mr. Wm. Taylor's remedy against all such pests—namely, petroleum, but that did not prove so efficacious in a beneficial form as it did in an injurious one. But in all justice to your highly intelligent correspondent, I did not apply it as he had given instructions, for I obtained a wooden trough into which I put a certain number of gallons of water and then as many glasses of petroleum, and in this trough I immersed my Vines; but I found a few Vines at the first felt the full strength of the oil, and the remainder very little—so much the better for me, as those first dipped were nearly killed, but towards the last it had little effect on either Vines or bugs. This having been done after pruning, the oil entered the open pores of the cuts, and hence the damaging effect on the Vines.

At last I believe I have, through the pages of the good old Journal, found a remedy, and can exclaim, "There is nothing like tar!" Many thanks to Messrs. Pettigrew and Murray for their recipe of coal tar and clay for mealy bug on Vines. Last season I at once prepared some according to recipe (see Journal for December 14th, 1882) and applied it to Vines very much infested with bug, without much previous scraping, and I now can tell your correspondent "M. A. S." in the Journal of 29th ult., that it has proved to my joy a complete success. I have had no trouble ever since with my Vines, and they are now comparatively clean of this horrible pest. The other day I prepared some for this winter's dressing, of equal parts of clay and coal tar mixed with water to the density of good cream, which I find it retains till all is used. I apply it with a painter's brush, filling all holes, young wood and all. The Vines rather seem to like this paint, as mine never grew so strongly as this summer. Again permit me to thank the above-mentioned gentlemen for making known what to me and many others must be a great boon.—J. KENNEDY, *Comber, Co. Down.*

ORCHIDS AND ORCHID HOUSES.

To cultivate Orchids successfully, well-appointed houses appear to be regarded as necessary, but this is a mistaken notion, and is proving a great barrier to the extended cultivation of these plants. Many species and varieties can be grown as well in houses that accommodate mixed collections of plants as when separate houses are devoted to them. This is fully demonstrated by the many examples of successful cultivation that can be seen in gardens now. I can go even further, and say that some prefer the atmosphere of the stove, and grow and thrive much better than they often do in Orchid houses constructed and set apart for their cultivation. I am inclined to believe that novices in the cultivation of these plants often fail, or partially so, by following out some principle laid down on hard-and-fast lines. For instance, when these plants are grown, say, in a small house by themselves, the atmosphere is either maintained too dry, or, on the other hand, it almost approaches saturation. The latter is a great evil, and it is scarcely to be expected that these plants will thrive long and remain healthy when fresh air is almost totally excluded from them, and the atmosphere in consequence becomes stagnant. Spot and other diseases make their appearance, and to obviate this state of things the atmosphere is kept drier and the plants are subject for a time to the opposite extreme. How long will Orchids or any other plants remain healthy under such treatment? The admission of air daily when the weather is in any way favourable would, to a large extent, prevent these irro-

gularities, and give the plants the atmosphere they require, if only the air is admitted with care and intelligence.

Many may be ready to exclaim that it is impossible for the air in the house to become so confined as to prove injurious to the health of the plants generally. In order to prove this, we are told abundance of air will be admitted through the laps of the glass. I am afraid many are led astray by this. We have two extremes, especially during winter, coming in contact, and the moisture of the house is condensed by the external atmosphere, and thus the laps are filled with water. How much air, if any, can pass in through this medium if filled by the means referred to?

Phalanopses will do as well in the stove as in the Orchid house proper; in fact, the temperature and conditions of the former appear to suit them exactly. I have generally found them in better condition when under the same treatment as regards heat, air, and moisture, as stove plants, than has been the case when they have occupied positions in houses entirely devoted to Orchids. The same may be said of all Dendrobiums that need heat, differing only in requiring a lighter position after the growth is fairly completed, and a cooler and drier atmosphere when at rest; but even under these conditions they should not be subjected to cold currents of air. The greenhouse, or rather a greenhouse temperature, will suit them, but not where air is admitted injudiciously and allowed to strike directly upon the plants. I have seen injurious results follow, especially if the flower buds along the pseudo-bulb were in an advanced condition, they often turn yellow. The old *D. nobile*, one of the easiest to manage and best growers of all Dendrobes, will, in the majority of instances, do better in the stove than in the Orchid house. This is proved by the many splendid examples to be seen that are grown with stove plants, and the poor examples often to be seen in Orchid houses.

We had a small house (span-roofed) constructed for plant-growing, and some time afterwards our Orchids were arranged in it, thinking that by so doing they could be given the treatment they required better than in the stove. I allude to those that require heat, for the cool varieties were never subjected to stove treatment. Amongst the Orchids transferred from the stove to the small new house was a number of plants of *D. nobile*, some of them being of a large size and all very healthy, which flowered profusely under stove treatment while making their growth. Strange to say, the whole of the plants of this variety failed to grow and do well in their new quarters, and gradually decreased in the size and strength of their pseudo-bulbs. No treatment in their new quarters would induce them to grow as well as they had previously done. At last the two best plants were taken back to their old quarters, in which they began to grow again with vigour, and in another year will have regained their former strength. The remainder are still decreasing in size and strength, and all will be placed in the stove to make their growth next season. "What was the reason of this strange freak?" many may ask. In fact, I asked myself this question many times. After carefully studying the conditions of the two houses I found it to be impossible to maintain in the small house the same uniformity of heat and moisture; it presented greater irregularities in this respect than the larger house in which the mixed collection of stove plants is grown, and if this is not the cause of the evil I have failed to find it out. In the little house where *D. nobile* failed to grow, *D. thyrsoforum*, *D. chrysotoxum*, *D. densiflorum*, *D. heterocarpum*, *D. crassinode*, *D. Parishii*, *D. primulinum*, and others thrive satisfactorily, including the puny but beautiful little *D. pulchellum*. The pseudo-bulbs of the first mentioned I have never seen surpassed, and those capable of judging have pronounced them wonderful growths.

Another old inhabitant of our houses that will do better under the treatment of the stove than what it will in the Orchid house is *Phajus grandifolius*. Formerly I grew them in the stove, and when in flower placed them in the conservatory. These were placed in the new house, and when in flower were taken into the stove and arranged with *Eucharis* in full bloom. They were removed from the small house while in flower, because there was not room for their flower spikes, and the reason they did not go to the conservatory as usual was because we had abundance of flowering material without them. Ever since they have failed to do well. The reason in this case we ought to have discovered long before we did. By their removal to the stove while in flower instead of the conservatory, where the temperature was much lower, the plants were deprived of their season of rest. A season of rest is all that is necessary to recruit these plants, but they will not grow with the same robustness and vigour in their new as in their old quarters.—WM. BARDNEY.

NOTES FROM A SCOTTISH GARDEN.

PEACH TREE BORDERS.—It may safely be presumed that turf for border-making is not to be had for the asking on every estate. I, at least, have found it so. Therefore, when planting a Peach tree in a new house two years ago I had to use common soil, but as I had the privilege of some turf for other purposes I was not so badly off. The way this border was made was simply to employ the ordinary soil up to the level where the roots of the Peaches were spread out, and above the roots a thick layer of turf was placed. This year the trees have filled the trellises, and some plants that would not be permanently required had to be lifted. I make a note of this because of the good effects shown by merely employing a layer of turves on the surface of the roots, and because it may be useful just now to others whose turf supply is limited and who have borders to make. Well, the trees lifted without exception—and one of them was of large size—had the main leading roots on an exact level with the top of the ordinary soil, very few roots of any kind having penetrated downwards. The surface turves on the other hand were netted with the smaller roots, which had branched upwards. I have little doubt that the under-layer of soil will also in time be penetrated by the roots, but the result up to the present is as above stated.

On the remaining permanent trees another layer of fresh turves have been placed, the surface of the others having been pared off in the first place. The crop of fruit in the past season was good, and the fruit of extra size, some *Victoria Nectarines* being more like Peaches in size than ordinary *Nectarines*. Large as these were not one of them cracked. Growths like osiers, 6 to 8 feet in length are covered from base to tip with healthy flower buds. The stronger-growing trees, however, were partially lifted in early autumn in order to induce the formation of buds in these strong shoots. While writing of Peaches it may be noted that they are extremely liable to be injured through insufficient supplies of water. It would, perhaps, be speaking too widely to say that no commonly cultivated fruit tree requires more of that very necessary element; but this it is safe to state, that trees in healthy growth and in a border with good drainage are more liable to be under-supplied than the other way.

CHRYSANTHEMUM LADY SELBORNE.—I purchased a stock of this variety in spring, expecting it to come a little earlier than Mrs. Rundle. The result is, however, that both have opened at the same time, and a little later than James Salter. I am also disappointed in the shade—if such an expression is correct—of the white, it being inferior to Mrs. Rundle in that quality, and much inferior to Elaine from a decorative point of view. I do not know whether others have noticed this fact with regard to Chrysanthemums. It is this. So long as the weather continues open and fine the buds come on more rapidly with the plants standing out of doors than when housed. Our plants were abnormally late in budding this year, but as the weather was exceptionally fine the plants were left out a fortnight later, and the result is that early varieties have opened quicker than usual. At a certain stage of the bud, when placed in a house and freely ventilated, they almost stand still; and I find that it is only by applying heat to the plants, both early and late sorts, that the side growths will develop into useful flowers; while later still in the season a mild stove temperature induces the stems to break, and a supply of blooms is secured in spring. As a matter of course, healthy plants must be kept in health in order to insure these results.

TEA ROSES AND MILDEW.—Our stock of Tea Roses for blooming from January onwards has been placed into a temperature to induce them to break. Mildew, when it attacks the foliage, is most difficult to deal with. I have found that if the plants, from the time they are started into growth until they are no longer wanted in early spring are kept growing in a pit without any ventilation, they keep quite free from mildew. Immediately it is necessary to give air in spring mildew appears on the young foliage. Where I imagine many people fail with plants in pots during the winter months is, first, by keeping them too cool, and allowing their soil to become too dry. We never find any difficulty in keeping such things as *Pelargoniums*, *Callas*, *Bouvardias*, and *Begonias* in continuous and uninterrupted bloom, nor in getting *Primulas*, *Pelargoniums*, and bedding plants such as *Lobelias* and *Verbenas* to make healthy growth provided these two points are attended to. Too much heat, however, is perhaps more harmful than if a too cool temperature were kept up. The safe medium is that which gives a slow firm growth with a root-action requiring a good supply of water.—X.

PRUNING AND DRESSING GRAPE VINES.

MR. IGGULDEN has communicated a most excellent article on this subject at a time when it will be particularly acceptable to many who may be in doubt as to the best method to adopt in the important work in question. No greater mistake can be made than in pruning all Vines alike regardless of their condition. There is not a doubt that many very strong Vines are too closely pruned so far as regards the ensuing crop, and, on the other hand, many young canes that are weak are not sufficiently shortened. In a word, the very strong canes should be left longer and the weak cut shorter if the best crops in one case and most satisfactory rods in the other are desired and expected.

How many gardeners are there who have not been disappointed with the produce of vigorous young Vines? They have been grown well and pruned in the orthodox manner. Grand canes, perhaps 20 feet long, have been shortened to within a foot or two of the base of the rafters, and a bunch or two allowed on the resulting laterals, the leader again

making a magnificent cane, the pride and glory of the cultivator. At the next pruning this is shortened again to within about 3 feet from whence it started, the side spurs being cut as close as possible to the main rods, and huge bunches of exhibition Grapes are expected. But they are not produced, and the disappointed grower "cannot understand it." "Look at this growth," said a good gardener to me the year before last, "did you ever see better? Look at the foliage, did you ever see finer? But," and this in a despairing tone, "look at the fruit, did you ever see worse? I can't make it out; they will come all right, I daresay. I think they must, but I wanted some fine fruit this year and have none. I wanted a few, only a few, handsome bunches and large berries, and here they are ugly clusters and small berries. I can't make it out." He had simply cut off all the best fruit-producing growth. At the next pruning he left some of the strong canes, they were nearly 3 inches in circumference, 8 feet, shortening the others as usual, and in every case the former produced by far the best fruit this summer, and are in every respect in as good condition for future use as those that were cut needlessly close. Had the canes been weak, not more than an inch in diameter, then the pruning adopted would have been right.

Then as regards the laterals of older Vines, I know nothing about those not pruned acting as "miniature sap reservoirs," but I know that the best buds on weak laterals will give the best bunches and stronger growths; and do not these stronger growths excite correspondingly stronger root-action? Here I should be at issue with your correspondent when he says "very little is gained by selecting and pruning to large buds," did he not in the next sentence, in adducing evidence to prove his point, somewhat curiously succeed in demolishing it. "At pruning time," I read on page 523, "reserve a few ripened laterals their full length, shortening others to three or four buds, and others again to the first bud. Unless I am much mistaken those left the longest will produce strong bunches, the next smaller bunches, and the remaining shoots will, perhaps, be without any bunches." Exactly. This proves the case against himself, for in all the Vines I have seen which produced laterals that were stopped in the usual manner, the leaves and axillary buds the farthest from the rod that bore the best bunches were the strongest, those close to it being the weakest, and hence "perhaps without bunches." With this I agree, having seen the best results follow when the practice has been applied to weak Vines; with the strong short-jointed and free-bearing sorts it is not required. The next sentence immediately following the one quoted is quite above me. There is no doubt profound wisdom lurking somewhere in the four lines, but I cannot dig it out.

The remarks bearing on pruning vigorous-growing and shy-bearing varieties are very sound, and ought to be remembered by those who fail in producing satisfactory crops by the stereotyped close pruning. Even the usually free-bearing Grapes that, from whatever cause, make very long-jointed wood will afford far better crops if regarded as "shy" bearers and pruned accordingly, for the basal buds of such Vines are usually fruitless.

Your correspondent gives a well-merited rebuke to the irrational practice of scraping all the bark off Vine rods. Polished rods seldom break freely and regularly. The bark is an absorbent of moisture and a non-conductor of heat. Moisture that is conducive to free sap-movement is thus provided, while the fluidity of the sap is kept uniform, as it cannot be under sudden fluctuations of temperature as often occur during bright sunny days and clear frosty nights.

Just one other point I would notice. Equally with Mr. Iggulden I am glad to see that the practice of dressing the rods with "obnoxious materials is becoming obsolete," therefore it is, I presume, that he daubs the stems with a very pleasant, sweet, agreeable, and clean compound of clay and tar. I find no fault with him for using this, to him, delightful mixture, if he cannot extirpate the insects in any other way. I have never found it necessary, and have had more than one successful battle with the gardener's enemy the mealy bug. I consider tar "obnoxious;" but tastes differ.—IPSWICH.



HARDY FRUIT GARDEN.

Failures.—At the end of the year we may usefully give attention to faults of practice and causes of failure, with a view both to prevention and cure, so far as it is possible in the new year. Soil difficulties are among the more prominent evils commonly met with. Poor and shallow, or heavy, cold soils and very retentive of moisture, are the faults so frequently complained of by correspondents. That is why we define so clearly and repeatedly the preparation of stations; and as a safe test for general guidance we repeat here that soil which will produce good vegetables answers admirably for fruit. Only remember that the actual station of each tree must be 2 feet deep of the fertile soil. Very few gardens have good soil so deep, however rich it may be at the surface. Make stations 6 feet square of it resting upon a substratum of 6 inches of broken stones rammed hard, or better still of concrete, connect each station with the garden drains by a 2-inch drain, and then you will

have done all that is necessary to insure success so far as soil affects it. If the trees are planted in a kitchen garden the subsequent culture of the soil surrounding the stations for the vegetables insures a further provision of food for the roots as they spread into it from the stations; but in an orchard due care must be taken to enrich the soil between the stations in the third or fourth year after planting, or the trees will inevitably sustain a check, debility will then soon follow, canker will appear and spread with more or less rapidity, and will kill outright many delicate sorts of Apples and Pears. To prevent this by timely attention is far more commendable than any subsequent remedy however good it may be.

Pruning.—Faulty pruning is another source of mischief. To prune, or not to prune, may well be a moot point for those who cannot give the correct reason for every stroke of the knife. Excessive wood growth from inattention to root-pruning; crowded growth from a too frequent use of the knife and insufficient thinning; abortive growth from pruning too late in autumn, are some of the evils resultant from ignorance or carelessness in this important matter. To the amateur who keeps no skilful gardener, and is himself ignorant of pruning, we say, Plant dwarf bushes or standards if you have thorough shelter, and only prune sufficiently to admit air and light freely among the branches.

Pear Failures.—Of a list of twenty-five sorts of Pears recently sent us eight had proved very good, seven good, and ten worthless. This is a common result of Pear trials, but it must not be forgotten that the fruit of so-called worthless sorts makes a delicious "sweet" when stewed, and it should always be turned to account for that popular and wholesome dish stewed Pears, which with plain boiled rice we may especially commend to the attention of any of our readers suffering from dyspepsia. Trees of worthless sorts may also be headed back, and grafted with any of the good ones, for which purpose let grafts be saved now and thrust into the ground to keep fresh. Do not, however, hastily condemn a Pear because its fruit keeps obstinately hard and will not ripen, but first remove some of the fruit to a warm room, a few degrees of heat often very soon setting matters right and making us regard so-called worthless sorts as treasures rich and rare.

Arrears of Work.—Turn all favourable weather to account for pushing on all seasonable work of pruning, planting, training, and feeding. Look closely over all established trees, remove faulty labels and supply new ones, renew supports, and see that no wire stays are overgrown or are clasping the trees too closely. Much evil arises from inattention to this matter, the growth of a vigorous young tree often swelling over and burying its wire fastenings in the bark. Do not forget to leave all Filberts and Cob nuts unpruned till the pink brush-like female blossom is impregnated with pollen, which is likely to be plentiful, for the catkins or male flowers are very abundant. Young Nut trees not yet bearing fruit may be pruned at once. Retain only six to nine main branches upon each tree, and tie these entwined to pegs driven into the ground, so as to gradually impart the form of a shallow basin to them. Our fully grown trees so trained are now upwards of 30 feet in circumference, yet none of the branches are more than 4 feet high, and the trees planted by us some thirteen years ago, have long been without training or supports of any kind.

FRUIT-FORCING.

VINES.—*Early Vines in Pots.*—Those that were started early in November are well advanced for flowering, and will need a night temperature of 60° to 65°, and 70° to 75° by day, with an advance from sun heat to 80° or 85°, admitting a little air above 70°, but being careful to avoid cold currents, and close early in the afternoon. If the external air be cold and sharp it will be advisable to have some wool netting tacked over the ventilators to break the force of the otherwise cold air that would pass into the house. The shoots will ere this have been stopped two or three joints beyond the bunches, and the laterals allowed to make headway; or, if the space prevents their extension, they should be stopped at the first leaf, and so on as produced, but where there is space extension should be allowed. If the pots are plunged in a bed of leaves these should be added to as necessary, so as to keep the heat about the pots steady at from 70° to 75°. Some turves may be placed on the surface of the pots, and hanging over the sides on the fermenting material, and being kept in moist condition with waterings of tepid liquid manure the roots will find their way over the rims of the pots into the fermenting material, and with those issuing from the holes in the pots will be a means of support far in advance of those which have the roots restricted to the pots. In the latter case top-dressing will need to be given frequently. Employ short manure for the purpose, and every time water is required it should be given abundantly with weak tepid liquid manure. Damp the house morning and afternoon in bright weather, otherwise little beyond that afforded by the fermenting materials will be needed; but where these are not employed damping must be more frequent; and, if there are evaporation troughs keep them filled with weak liquid manure, with which the floors may be damped in the afternoon.

Earliest Forced Vines.—The planted-out Vines that were started in November are growing freely, and, the show of fruit being good, dis-budding must be proceeded with, leaving the most promising and removing those not required by degrees, but no more growths should be allowed to remain than can have full exposure to light and air. Allow the shoots to make two or three joints or more beyond the bunches if there be space, and stop the laterals below fruit to one joint; above they may be allowed to extend according to the space, being careful to make provision for the due exposure of the principal foliage. The night temperature should now range from 60° to 65°, with a rise of 5° to 10° by day, and a little higher with sun heat. Lose no opportunity of admitting air in mild weather, as

obtaining thick leathery foliage is of great consequence. In cold weather proceed cautiously, giving no more fire heat than is absolutely essential to steady progress. Continue to turn and add to the fermenting materials within the house, and if there be any need of water a good soaking should be given the inside border, affording it in a tepid state. If fermenting materials are employed on the outside borders turn and add fresh as may be found necessary.

Vines to Afford Ripe Grapes in June.—Houses of Hamburgs that are to afford ripe Grapes with certainty at the beginning of June, or of Muscats at the close of that month, should have anything yet remaining to be done in the way of cleansing the house, repairs, or dressing the Vines, completed at once, and the surface soil removed down to the roots, and good loam to which has been added some crushed bones and charred refuse supplied. Forcing should commence the 1st of January, the house being closed, and a good watering given to the inside border. The outside border should be protected with a good thickness of leaves with litter or shutters over all to keep them from blowing about, and, if available, shutters, tarpaulin, or spare lights will be advisable to throw off cold rains or snow. A bed of sweetened leaves and litter made up in the house on the floor or border will give a moist ammonia-charged atmosphere, and do much to lessen the necessity for fire heat. If the Vines are young they should be depressed to, or even below, the horizontal line, especially canes of last year's growth. Syringe the Vines and house two or three times a day, but do not keep them in a constantly dripping state, allowing them to become dry at least once in twenty-four hours. Keep the day temperature at 55° and the night at 50°, advancing with sun heat to 65°.

Strawberries in Pots.—The condition of the weather has not been favourable of late to forcing operations. Although it has not been severe it has been cold, and high winds have prevailed; hence forcing must be conducted rather slowly, especially in the absence of sun and light. A night temperature of 50° with a rise of 5° by day from fire heat, or 10° to 15° with sun heat, will be a safe maximum for the present. Now the trusses are showing from the crowns of the earliest batch see that there is not any trace of aphides, or, if there be, fumigate on two or three consecutive evenings, and keep a sharp look-out afterwards, as it is important there be no need to fumigate after the plants come into flower, which is highly injurious to the anthers and pistils. Examine the plants daily, and when any plant needs water give a liberal supply. On fine days a light syringing may be given in the morning and early afternoon.

Another batch should be started—shelves in a vinery or Peach house about to be started being suitable where proper structures do not exist. See that the drainage is in good order, remove the loose surface soil, and top-dress with a rich material, or a pinch of some fertiliser sprinkled on the surface and pointed in or added to the top-dressing will be of great benefit. Remove any dead leaves, and have any green or dirt on the pots washed off.

Plants out of doors plunged in ashes on a hard bottom will not need any further protection than a covering of mats or straw hurdles in severe weather, which, as long as the frost prevails through the day, should remain on until a general thaw commences. When the frosts are but slight no protection is needed, the coddling system of exposing daily and covering at night being needless and injurious. Plants in pits or frames cannot have too much exposure in mild weather, and in severe weather should be covered with mats.

PLANT HOUSES.

Anthurium Andreanum.—This will never supersede in popular estimation the old and useful *A. Schertzerianum*, although it is curious and striking when well grown, and should have a position in every stove. It is of great value, because its spathes of scarlet flowers are freely produced in succession through the autumn and winter months. Few plants are of easier culture, provided the requisite heat and moisture can be supplied to it. The smallest specimen with one or two leaves may in a solitary season be grown into strong robust plants that will flower freely. In a young state it requires plenty of root room, and should always be transferred from small into larger pots as soon as its roots have reached the sides of the pot. It should not in its early stages be allowed to crowd its roots into a mass in small pots, or else the progress of the plant will be much impeded. The compost that appears to suit it best consists of equal parts fibry peat and living sphagnum moss, with lumps of charcoal freely intermixed. The pot in which it is grown should be filled one-third of its depth with drainage. This is important, for abundance of water is required at the root during the whole season. In potting the plant should be well elevated above the rim of the pot, and the old compost removed from amongst its roots annually and fresh supplied. When potting a good-sized specimen we fill the pot only level to the rim, and after the plant has commenced growth and is forming roots from the stem a good top-dressing is added of the material advised above, and then covered with a layer of living sphagnum, which is encouraged to grow. Potting may be done now with safety, or at any time during the year when deemed necessary.

Achimenes.—Remove the tubers of these from amongst the old compost, and place them in pans or boxes, according to the quantity required, amongst any light soil, and stand them in a temperature of 60° to 65° until they commence growing. Water may be required occasionally before the tubers commence growth if the boxes and pans containing them are only stood in the temperature indicated; but if plunged or covered with cocoa-nut fibre refuse no water will be needed until they commence growth, providing the soil was moderately moist. Few plants are more accommodating than these, either for the stove, conservatory, or intermediate

structures, and will do well in either pots, pans, or in baskets suspended, and for the latter purpose no plants surpass them.

Amaryllises.—These are most useful plants for decoration when in flower, and their large blooms have a noble and conspicuous appearance in the conservatory when elevated above plants of a dwarf nature. Those that made their growth early have received a good period of rest, and a few may now be introduced into moderate heat to bring them forward into flower. By judicious treatment and the introduction of a few into heat at intervals of a few weeks a succession can be produced over a long space of time. The treatment we find most satisfactory is to replot them annually as they are selected for placing in heat. The whole of the old soil is shaken away, good loam and sand with a seventh of manure being employed in its place. Very large bulbs can be grown in 5, 6, and 7-inch pots, and in these sizes they are the most useful. If the soil at potting time is in a satisfactory state for moisture no water will be needed until their roots commence action and their flower spikes are visible; a light dew over with the syringe daily will be ample. Those still at rest should be kept dry and cool.

Spiræa japonica.—This is one of the most useful plants we have for forcing, and can be home-grown for that purpose equally as well as those that are annually imported. Lift the whole stock if not already done, and select from amongst them those plants that possess the largest and most prominent crowns for potting. The remainder may be cut into two or three, according to their size, to be replanted for another year. Do not leave the pieces to be planted too large, or after a season's growth they cannot be placed in 5 and 6-inch pots. The larger the pieces the smaller the crowns generally, because they are more crowded, and have not room for proper development. We generally cut out some of the smallest with a knife before planting. In planting select an open position, but do not crowd the plants. Give them ample room for development—say 1 foot apart from root to root, and if planted in rows side by side 18 inches is a good distance. Give the plants plenty of decayed manure, and bury their crowns about 1 inch below the surface. By this simple process forced clumps that will flower well can be produced annually.

THE FLOWER GARDEN AND PLEASURE GROUND.

Leaves and Leaf Soil.—Every opportunity should be taken to collect the fallen leaves, as until this is done it is almost impossible to maintain the requisite neat appearance of the grounds. If the leaves are required for hotheds they should be collected as dry as possible and carried where they can be thrown into a large heap, and covered with litter to prevent their being blown about. If leaf soil is wanted the leaves may be stored in small heaps in any spot about the shrubberies where they will not prove unsightly and yet be accessible. Large heaps will encourage heating, and this, unless they are frequently turned, invariably engenders fungus, which quite spoils the soil. The heaps ought to lay nearly or quite two years before being used for potting purposes. All the exposed margins of fully furnished shrubberies should be lightly dug as well as the open spaces of those thinly planted, a considerable number of leaves being turned in during the process. Any leaves which cannot thus be dug in, and are not worth preserving ought to be raked together and buried, or otherwise they will be constantly blown about by the winds or be scratched over the edges by birds.

Treatment of Bedding Plants.—A considerable number of stock plants are invariably lost through the winter months, and that, too, under various circumstances. Damp is the greatest enemy of those who are obliged to rely principally upon frames, and perhaps a much-crowded house or two, while a free use of fire heat ruins many semi-hardy plants, such as Verbenas, Lobelias, and Calceolarias. The choicest varieties of Pelargoniums are most liable to damp off, and in frames especially should still be kept perfectly dry at the roots, have all decaying leaves removed, and the atmosphere of the frames kept as dry as circumstances permit. Give air at the back of the frames containing these, Verbenas, Lobelias, Ageratums, Gazanias, Alyssum, Polemonium, Heliotropes, Tropæolums, freely both night and day whenever the weather is mild, and on clear sunny days throw the lights off them for a few hours. It is not advisable to keep any but the Pelargoniums dry at the roots, but no water should touch the foliage and be spilt among the pots more than can be helped. Keep all closely picked over, as one decaying leaf quickly affects others, and then the points go. In anticipation of frosts, it is advisable to bank up the whole of the woodwork of frames, and even the brickwork of pits, with either leaves or rough litter, the former being enclosed with hurdles strongly supported with stakes. Do not give much air during frosty weather, and, if very severe frosts are imminent, in addition to the mats, old pieces of carpet, hop bags, or other available protecting material, a considerable quantity of rough dry litter should also be thrown over. Nothing will thus be seen of the pits or frames, nor should they be uncovered while these severe frosts continue. They will suffer more from want of light than air; therefore uncover when practicable, but be not in a hurry to give air. If frost is found to have penetrated, damp the frosted plants overhead with cold water at once, and keep them quite dark and close till they have gradually recovered. Rapid thaws are most injurious.

Where the plants are wintered in vineries and other houses the greatest difficulty will be experienced in keeping them clean and from becoming "hard and wiry." The driest shelves may be given up to the Pelargoniums, and these require but little water. Verbenas, Ageratums, and Lobelias should be the farthest away from the hot-water pipes, as unless they are kept succulent and growing very steadily the cuttings of the two former and divisions of the latter may prove of no use. Heliotropes are less difficult to manage in this respect, but are very tender,

and a low temperature is maintained, they should not receive much water at the roots. All succulents used for bedding-out purposes need not, unless stood on a very dry shelf, receive any water at the roots, neither do they like much fire heat, though they are easily damaged by frosts. Iresines, Coleuses, and Alternantheras are best kept steadily growing in a moderately warm house. The two latter require very careful watering.

THE BEE-KEEPER.

BEES v. GARDENERS.

Two instances have lately come to our knowledge in which all the bees belonging to two lady friends have died. In one case, two years ago the owner had in her possession five hives, in the other case when last we saw her bees our friend had three strong colonies. The bees were in skeps, placed in what is commonly called a bee house, but which we should designate as a cupboard, in one instance; but the box hives belonging to the other lady were placed in a well-built roomy shed, the roof of which was thatched, and the walls built of timber and plaster; the hives standing on a shelf with separate entrances through the wall, against which was fixed an alighting board. These ladies both liked bees, and perhaps they liked honey still more, but it was very seldom indeed that they tasted any. In both cases the gardeners had charge of the bees, and neither of them evidently knew much about them. And this brings us to consider what we may call our text, "Bees v. Gardeners," and we feel that at this dead season of the year it is a fitting time to read gardeners a short sermon on bee-keeping.

We know very well that in nine cases out of ten the gardener, or, generally speaking, the factotum of the small establishment, has quite as much work, often more, than he can honestly do well; and what with his fruit, vegetables, flowers, lawns, hedges, paths, greenhouse, and frame, besides the pony and carriage, he sometimes hardly knows where to begin first, and in the busy season his work accumulates and is often in arrear. Then his mistress, a widow lady or spinster, returns from a flower show where she has seen honey exhibited in its most inviting form, where she saw the bees handled like so many bluebottle flies, and heard how easily they could be kept for profit and amusement, and the next day it is, "John, we must keep bees. I want you to buy a swarm from old Mrs. Jones and try and get honey like those beautiful little boxes so neatly filled I saw at the flower show." Or perhaps she has returned from a visit to a friend who knows how to keep bees successfully. She has gained but one idea as to bee-keeping, and that is that they *can* be made to give beautiful honey, and so she makes John the same speech as above. John, ever willing to try and oblige his employer, who has been his kind friend since he left the village school, and who is ever ready to help him and his family in their difficulties, acquiesces. He says he doesn't like bees, that he is rather afraid of them, but that he will get the swarm. He does get the bees, places them on their stand, and lets them alone. Presently a swarm comes off, then a cast, and the first swarm doubles itself, and he sees his one hive increased to four. Both he and his mistress look upon this as a great piece of success; but when autumn comes, after a showery summer, all the hives are very light. Autumn is allowed to drift nearly into winter before John or his employer learn that they must feed their bees or they will die. The feeding is carried out clumsily, and perhaps the hives are thrown into a state of the greatest commotion at the time they should be perfectly quiet. Robbing may have been brought about, and before winter actually has set in the weakest hives have already succumbed to the strongest, and are destitute of inmates. This is unknown to the owners, for is not the food rapidly taken down still? The bees are passing from hive to hive, and the food is all being stored in the two strongest ones. Then comes the winter in earnest, snow and frost, and a long confinement for the bees. A warm sunny day in February brings them out, but hundreds fall about in every direction never to return. Dysentery in its worst form has attacked them, and if they live on until honey appears again in the flowers it is a marvel. The chances are that by May all the hives are tenantless. This is a picture not overdrawn, but the kind of thing that occurs constantly, and in every neighbourhood. And why should it be so?

If ladies and gentlemen want to keep bees should they attend to them themselves? There are very many who do so. It has become almost "the fashion" now, thanks to the widely spread influence and teaching of experts and amateurs, which through the exertions of the British Bee-Keepers' Association

and its affiliated county societies, have permeated every part of the United Kingdom. But there are also, as in the cases we mention, many who expect their gardeners to attend to the bees, and we would therefore point out that it is the duty of young men who are hoping to obtain situations as gardeners or factotums to endeavour to obtain a general knowledge of the practical management of a small apiary. There are very many ways in which this can be obtained. Nearly every county has now its Bee-Keepers' Association and one or more experts employed by the Association to attend shows, to give lectures in various parts of the county, and to visit and re-arrange apiaries belonging to members. Instruction obtained from such men would be invaluable to young gardeners, and an hour or two spent in the practical overhauling of hives and other manipulations in connection with bees would teach more and give more confidence to a man than as many days spent in reading bee literature. Young men with still more "go" in them would not be satisfied to rest at this point. What a recommendation it would be to any man who is applying for the situation of gardener, whether single-handed or with many men under him, if he could show the certificate granted by the British Bee-Keepers' Association to those who can pass an examination in the practical and theoretical science of bee-keeping. These examinations are held in connection with the annual show of the central Association in London, and certificates of three classes are granted to successful candidates. But those who cannot obtain the assistance of paid experts, and who could not incur the expense of attendance afterwards to win the certificates, might in nearly every neighbourhood obtain valuable information from some amateur bee-keeper who manages his bees successfully on the modern humane system. Many clergymen and other gentlemen, and ladies as well, now take up bee-keeping as a delightful recreation, and they would generally be willing to give assistance to men who are anxious to initiate themselves into the best manner of managing bees. Much, very much, may be learnt from books and from such teachings as have lately been published by our friend Mr. Carr in this Journal, but some of those lessons put into practice under the eyes of those wishing to learn, as we said above, teach and give confidence to tyros in the art such as no amount of reading can do.

There is, moreover, another aspect in which the subject under consideration is to be viewed. The unalienable connection between bees and flowers should weigh much in causing gardeners for their own sakes to understand bees, their habits and management. The man who keeps bees is bound in scarce seasons to get more fruit than his neighbour who has not such busy friends to assist in the fertilisation of blossoms. We have a long time since shown in this Journal the effects produced by bees on the crops of bush fruit, notably Gooseberries and Raspberries, and we feel that we can never over-estimate the value of these useful insects to the gardener. With bees close to his Gooseberry plantations, the blossoms are fertilised in the short half hours of intermittent sunshine which some cold springs only give us, and the bushes are burdened with fruit, while a neighbour a few hundred yards away has hardly a berry to boast of. Then, again, where seed is grown, how much the bees help in swelling the harvest! Thus we hope that we have shown how much it is to the gardener's advantage in many ways to make himself conversant with the proper method of bee-culture.

We wish that gardeners who desire information on particular points in the science would put their questions through the medium of the Journal, and we would always do our best to reply to them for the benefit of the querist and the readers of the Journal in general.—P. H. P.

TRADE CATALOGUES RECEIVED.

Sutton & Sons, Reading.—*Special List of Novelties for 1884.*
Waite, Nash, Huggins & Co., 79, Southwark Street, London, S.E.—*Wholesale Price List of Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We

request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

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

To Correspondents.—We desire to thank our correspondents for supplying us with such an abundance of material as to allow of our pages being prepared several days earlier than usual, and thus to enable our staff to enjoy a well-earned holiday during the festive season. The publication of several valuable communications must of necessity be postponed, also answers to correspondents that arrived at this office after Saturday morning.

Mistletoe Propagation (R. H. W.).—Your letter shall have attention, and the information you require be published in an early issue, in time to be of service.

"Mushrooms for the Million" (A. T., Liverpool).—The articles under the above heading, which you "think" you saw in the Journal some time ago, were long since published in pamphlet form. The first edition was fully reviewed in these pages, and the second edition has been more than once referred to. The pamphlet, which has had the largest sale of any gardening work of the year, is published at this office, price 1s., post free 1s. 2d.

Selections of Vegetables (E. Adams).—You will find a selection in another column by an excellent gardener; but we shall shortly publish estimates of the leading kinds by a cultivator who devotes much attention to vegetable culture, and who has opportunities for testing a large number of varieties.

Phalænopses (S. E. Merton).—These beautiful Orchids require stove treatment, but certainly not what you term a "roasting" temperature. Mr. Bardney grows them admirably in a mixed collection of ordinary stove plants, and we have an article detailing his method of culture awaiting publication.

Vine Unhealthy (No. 2).—We never saw more unsatisfactory wood. It is weak and immature, and the Vine is evidently in an enfeebled state. We suspect its roots are not nearly so abundant and healthy as you anticipate, and it is a question if it becomes vigorous. We should remove it and either plant another or train up an additional rod from a strong Vine, as one good set of roots in suitable soil will support two rods as well as one. The Grass appears to be *Panicum plicatum*.

Evening Exercise for Young Gardeners (W. R. G.).—We have received your "poetry," and we note your remark that this is the "first time you have tried anything of the kind." We strongly urge upon you the extreme desirability of letting it be the last. Waste no more time in this form of exercise, but follow the advice of "E. B." on page 485, and endeavour in plain prose and good English to write the history and culture of plants and crops that will be of substantial value to you in after life, and also to others.

Moss Litter for Mushroom Beds (J. H. Bell).—Great success has been attained with this material as a medium for growing Mushrooms, but its use has been limited, so far as we are aware, to the ordinary flat beds formed under the cover of a roof. It would not be easy, we think, to form ridges of it out of doors that would throw off the rain sufficiently, nor do we think the material you describe is in the best condition for the purpose in question, though the little lime that has been sprinkled in the stables we do not apprehend would be injurious. First try a bed in a cellar or shed, and if you do not succeed with it, it would not be encouraging to use it in the open air as you suggest.

Quick Mushroom Production (D., Manchester).—We have known Mushrooms produced in five weeks from inserting the spawn, but this is unusual, and such precocious beds are not usually lastingly productive. The spawn does not as a rule penetrate quite through the mass, but spreads near the surface, owing no doubt to the temperature and moisture, these being specially favourable. When the spawn is seen to be "running" freely, as it may be often in three days after inserted, and soil is added, keeping the surface of the bed warm and moist, Mushrooms form quickly. We have more than once forced a bed into bearing in the manner indicated to insure an unbrokeu supply, but it has nearly always been at the sacrifice of the general productions of the bed.

Wintering Chrysanthemums (A. D., Isle of Man).—When the plants are removed from the greenhouse cut down the stems and place the pots in a cold frame, admitting air on every favourable occasion, and drawing off the lights on fine days to keep the growths sturdy. They must, however, be protected from severe frost by packing litter or ashes round the sides of the frame and covering the glass as needed. A few degrees of frost will not injure them, but the growths that have been produced in a greenhouse are always more or less tender. When stout rooted suckers can be had they may be placed singly in small pots, kept close for a time, then have all the light and air they will endure without sustaining any check in their growth.

Starting Amaryllises (Idem).—Keep the soil in the pots dry, and store them in your greenhouse either on a shelf or under a stage where they do not receive drip from plants above them. In the spring, when signs of growth are apparent, which will probably be about March, it will be advantageous if the pots can be plunged in a gentle hotbed, or they may be placed on a shelf in the warmest part of your greenhouse, water being given cautiously at first, then more copiously as the growth increases. They will start in a temperature of 60°, with a corresponding increase by sun, and must have a light position throughout the spring, summer, and autumn.

Cutting Down Trees (Idem).—Whether your proposed plan of leaving 8 or 10 feet of the trunks as supports for Clematises would answer depends entirely on the circumstances of the case. If the shrubs are sufficiently thin that the Clematises would receive the requisite light and air for their healthy growth, then you might expect satisfactory results, but not otherwise; and in all probability they would need fresh soil, as that of the border is probably not exactly suitable for the plants in question. Whether boring a hole through the stem of a tree with an auger and filling with salt would kill the tree or not we are not able to say; but if the hole were large and near the ground it probably would do so. We have heard that it will, but have not tried the experiment. If the young growths that issue from the stem of a cut-down tree are constantly rubbed off before leaves are developed the trunk is soon divested of its vitality. If any of our readers have tried the salt method of killing trees they might let us know the results.

Metastasis (J. W. B.).—This term is a physiological one, which is employed to designate the change which takes place in the cell contents of plants after assimilation. The materials absorbed by the roots of plants are chiefly compounds in which oxygen forms an important part, whereas it is found that in the substances stored in the plant as a reserve supply for various purposes contain but little of that element. The crude sap when passed into the leaves undergoes a process of deoxidation under the influence of sunlight, assisted by the green substance of the leaves (the chlorophyll), a considerable proportion of the oxygen is released and fresh compounds are formed, this is termed assimilation. Many of these compounds are found to undergo other changes in the course of their transference to different portions of the plant; and as these alterations occur indifferently in cells containing chlorophyll and in those having none, both in the light and in the dark, and are, moreover, usually attended by the absorption of a small quantity of oxygen, the term metastasis has been applied to distinguish them from the primary changes produced by assimilation.

Covering a Fruit Tree Border (C. T. H., Weymouth).—For protecting fruit against a west wall and on the border from the ravages of birds we advise the use of 2 by 3-inch material for rafters. Posts 4 inches square should be placed at intervals of every 6 feet as far as required. These may be rendered firm by means of strips 1 inch thickness secured from post to post along the top with nails or screws. The rafters should be placed so that the one end fits exactly on each of the upright posts, and the other firmly bedded in the wall. Consequently the rafters occur with the posts every 6 feet. As regards the size of wire netting necessary to exclude small birds, three-quarter-inch mesh will be sufficient. Thus far your questions are simply answered. If, however, the wall and border you propose to cover is not an extensive one you would find the following plan likely to answer your requirements more fully than the one you have proposed, and will cost but little more. Instead of having the height of the front 4 feet you would find it much better to have it 6 feet, thereby allowing greater freedom to move about inside. The upright posts for the front should not be less than 7 feet 6 inches long. These must be sunk in the ground to the depth of 18 inches (the ends being previously dipped in creosote) at intervals of 6 feet apart, as previously advised, as also the rafters and strips; then light moveable square frames of deal, made out of strips of half-inch thickness and 2 inches wide, with a similar piece across the centre to fit in the spaces in front to the uprights, to which they can be attached by means of a hook in each corner, thus rendering them easy of removal at any time it is desired. The ends should be similarly treated, with the exception of adopting a portion to the size and purposes of a door. The roof should then be covered with three-quarter-inch mesh wire netting, and also the framework in front, ends, and doors. Care must be taken to procure the netting 3 feet wide, two breadths of which will just cover the frames in front. This plan will be found to be a more efficient and durable one than yours. A protector thus made will stand for years, whereas with string netting endless trouble would arise from so many causes incidental to its use. See notes on this subject on page 329, our issue of October 18th of the present volume.

Cucumbers for Seed (Idem).—To grow Cucumbers for seed a plant should be set apart for that purpose, and it must be healthy and vigorous. Seed should be sown in March, and as soon as the seedlings are ready planted out, either in a Cucumber house or on a hotbed. Encourage it to grow freely until several embryo fruit are shown, then carefully fertilise these with the pollen from the male blossoms. As soon as the fruit commences swelling select two or three of the finest, according to the strength of the plant, for bearing seed, and remove all the others. Attend carefully to the supply of water and air, as for the ordinary routine of Cucumber-growing. As soon as the fruit becomes deep yellow or golden in colour cut it, and let it be exposed to the sun for a few days, afterwards cutting it open, removing and washing the seeds, and drying them in the sun or on a dry shelf under glass. We would, however, remind you that unless you have the necessary space and means at disposal you will find it much cheaper to purchase the few seeds necessary for a small garden than growing them. Occasionally a Cucumber plant that has borne freely will produce a few club-shaped fruit. These generally contain seed, but it does not usually ripen well late in the season. After raising one or two plants early in the season any number can be provided for succession by striking cuttings.

Names of Fruits (T. Hobbs).—1, Dr. Harvey; 2, Margil; 3, Court of Wick. (T. W. Sanders).—Apple, Ribston Pippin. Pears.—1, Charles Van Mons; 2, Bergamotte Esperen; 3, Martin Sec; 6, Vicar of Winkfield. Zephirin Louis is correct. It has a rather coarse-grained flesh, but is of good quality otherwise. (J. Hartland).—1, Beurré Diel; 2, St. Germain; 3, Easter Beurré; 4, Red Doyenné; 5, Ne Plus Meuris. The Apple is Golden Reinette. (J. E. L.).—1, Soldat Esperen; 2, Josephine de Malines; both very fine specimens. (Col. Gleig).—Gravenstein.

COVENT GARDEN MARKET.—DECEMBER 26TH.

A BRISKER demand for high-class produce of all kinds has been experienced, with a tendency to firmness in the prices of superior goods.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	1	6	4	0	Nectarines	0	0	0	0
"	0	0	0	0	Oranges	6	0	10	0
Apricots	0	0	0	0	Peaches	0	0	0	0
Chestnuts	10	0	0	0	Pears, kitchen ..	1	0	1	6
Figs	0	0	0	0	" dessert	1	0	5	0
Filberts	0	0	0	0	Pine Apples English ..	2	0	3	0
Cobs	1	4	1	5	Plums and Damsons ..	0	0	0	0
Grapes	1	6	4	0	Strawberries	0	0	0	0
Lemon	15	0	21	0	St. Michael Pines ..	2	6	8	0
Melons	0	0	0	0					

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes	2	0	4	0	Mushrooms	1	0	1	6
Beans, Kidney	1	0	0	0	Mustard and Cress ..	0	2	0	0
Beet, Red	1	0	2	0	Onions	2	6	3	3
Broccoli	0	9	1	0	Parsley	3	0	4	0
Brussels Sprouts ..	1	6	2	6	Parsnips	1	0	2	0
Cabbage	0	6	1	0	Potatoes	4	0	5	0
Capsicums	1	6	2	0	Kidney	4	0	5	0
Carrots	0	3	0	4	Rhubarb	0	4	0	0
Cauliflowers	2	0	3	0	Salsafy	1	0	0	0
Celery	1	6	2	0	Scorzoneria	1	6	0	0
Coleworts	2	0	4	0	Seakale	2	3	2	9
Cucumbers	0	4	0	0	Shallots	0	3	0	0
Endive	1	0	2	0	Spinach	2	6	3	6
Herbs	0	2	0	0	Tomatoes	0	3	0	4
Leeks	0	3	0	4	Turnips	0	3	0	0
Lettuce	1	0	1	6					



NEW AND IMPROVED AGRICULTURAL MACHINERY.

UNDER this heading we intend noticing some of the various changes which have taken place since our last remarks on agricultural machinery in December, 1881; more attention will, however, be given to those implements and machinery exhibited at the Islington Hall meeting of the Smithfield Club, held in the second week of the present month. After full consideration of this matter we can only use words of caution to the purchasers of labour-saving implements. In addition to the large outlay required to furnish a farm with the best implements and machinery, another matter has to be considered—that is, the annual repairs to valuable machines, for these require skilled labour to effect them, a large covered area is also essential to their preservation, and the skilled labour required for conducting farming operations by machinery is an important item in the labour bill which these implements were designed to save on the farming accounts. To avoid a wrong position as to the purchase and usage of some costly machinery, it becomes an important question as to the adaptation of implements to the acreage and soils of the farm; and when its need is considered it is quite impossible to leave out of calculation the size of the farm, for as a general rule it is only the requirements of the largest arable farms which can justify the use to the full extent of the best machinery. We have no better illustration of the soundness of this idea than the practice of the Americans on the large prairie farms, where the use of the best and most costly machinery is a great necessity. These observations apply more particularly to costly machinery, such as reaping and binding machines, threshing machines, ploughing and cultivating by steam power, which the home farmer can nearly everywhere hire for use upon moderate occupations. It is, however, true that the farming upon small acreages may be carried on with more advantage by the purchase and use of various implements as adapted for the tillage operations. For instance, farms of 300 acres, and often less, of arable land, the ploughing, harrowing, rolling, scarifying, and horse-hoeing will require implements of the best and newest designs. The same observations apply with equal force to the carts and waggons available at haying and harvest time. In these and numerous other requirements machinery becomes a necessity upon small farms, more especially in those instances where a full complement of sheep are kept, and also where dairy farming and bullock-feeding are included, because under the latest style of management these animals require great attention and much hand labour, which can be greatly economised by using the best implements.

In commencing our notice of the exhibits at the late meeting

in Islington Hall, we derive great assistance from the well-arranged illustrations and remarks in connection, as given in the *Bell's Weekly Messenger*, by Mr. John Algernon Clarke, one of the most experienced agricultural writers to be found connected with the agricultural literature of the period. One of the important novelties exhibited by Messrs. John Fowler & Co., of the Steam Plough Works, Leeds, is their compound traction engine fitted on springs. These engines work with 30 per cent. less fuel and water than those of the ordinary type, they are more easily handled than any single or double-cylinder engine, and are noiseless. The introduction of the spring enables the engine to travel faster, and reduces the wear and tear considerably, with other valuable improvements. An interesting exhibit was their working model of the new patent combined roller, cultivator, and harrow. This implement is intended to be employed for pulverising land after ploughing, and by the successive action of the roller, the cultivator tines, and the teeth of the drag harrow, the clods turned up by the plough are effectively pulverised.

We must also noticed a new sectional system of ploughing, the working model being exhibited. By this new method, recently patented, can be attached to the ploughing rope as many implements as the engine can pull. Each implement ploughs its particular length of ground, joining the work done by the one fastened next on the rope. One-third of the wear and tear on the rope is saved, and on rough uneven land, by using two narrow implements instead of one broad one, more regular and better work is done, and there is less danger of the implement choking. A slower speed can also be used if necessary without reducing the quantity of work done. Several of these sets have been at work during the last season on the prairie lands in America, and with a pair of ten-horse power engines an average of 35 acres of ploughing per day has been done. Great improvements are also made by the mode of laying down the engine railway lines, taking up, removal, and relaying very expeditiously without the exercise of skilled labour. The home farmer should know how to estimate the advantages just enumerated, besides many more, of which details will be found in the catalogues of the implement makers. As the occupation of large farms increases through so many small farms not being let, improvements in machinery will be more imperative than ever, especially in the event of overwhelming supplies of foreign corn continuing.

The new and improved implements offered by Messrs. James and Frederick Howard of Bedford have next to be noticed, taking first the new portable straw-trusser, which in use is intended to be attached to the rear end of an ordinary threshing machine. The increasing value of straw as a marketable commodity, especially in the various pasture districts of the kingdom, and the relaxation of many landowners of the restrictive lease clauses as to its sale, have lately given great prominence to the inquiry for a practicable machine for binding straw in trusses as it is leaving the threshing machine. This machine was awarded the medal of the Royal Agricultural Society of England at their last meeting held at York in July last, where it was exhibited for the first time. This machine was worked throughout the Show, and elicited the general opinion that its exhibition marked the introduction of an important labour-saving machine. The straw-trusser is easily understood and readily managed. The whole, very portable and compact, weighs but 12 cwt., and is mounted on an axle with a pair of travelling wheels, and when the machine is set to work it is simply hooked on to the threshing machine. It is driven by a chain from the shaker spindle. The threshed straw on leaving the shakers passes between canvas conductors to the cultivators, which receive and compress it against weighted levers, and when the required quantity of straw is collected to balance and move the weighted levers, the binding mechanism is thereby started, the pair of binding arms from below the collected straw rise up, enclose, and bind it with two bands whilst the truss is under compression. The sizes of the trusses may be regulated to suit different requirements, but it has been found that a truss of about 18 lbs. weight is the most useful size for general purposes. The average cost of twine to bind a ton of straw is 1s., which is not more than the cost of labour for making straw bands to bind the same weight of straw, whilst the whole of the labour for trussing is saved. This new patent trusser is made to attach to the threshing machines of nearly all makers, and to suit different widths of drums.

One of the most ingenious mechanical notions lately applied to field implements was seen in the new ring and self-lifting steel beam cultivators which Messrs. Howard brought out at the York Show. This is the first riding and self-lifting cultivator

yet introduced for working with horses, and is likely to prove a very valuable implement, with which more work can be done in a day than with any other cultivator yet produced. This new patent cultivator is provided with a seat for the driver, who, instead of having the fatigue of walking over rough clods, rides comfortably on the implement. The tines and beams are steel, and it is strongly constructed throughout. We hope to return to this subject again at an early date.

WORK ON THE HOME FARM.

Horse Labour.—The work is now various and must continue so for a time, this being the dullest and least important period for beneficial horse labour. Rafter-ploughing is now being done on the fallows which were steam-cultivated on the stubbles and since worked down fine, the couch removed and drawn to heap to decay. This, if mixed with manure, will afford valuable compost for the pastures, especially low-lying or peaty meadows, upon which this dressing effects a wonderful improvement when laid on in January in frosty weather, or in July immediately after the hay crop is removed. It has in various instances doubled the produce of meadow land both in quantity and quality when we have applied couchy earth at any period of the year when the pastures are under feeding. Chalking should now be provided for, and all the finest chalk should be put away under cover in an old barn, where it may be passed through an iron ash screen. What passes through may be stored for drilling with root seeds and artificial manures, instead of ashes, upon land deficient in lime and chalk; the residue not passing the screen may be laid out on the land most requiring it, and take the frost and changes of the weather which will make it valuable as soon as ploughed in.

Any threshing of corn for sale should now be deferred until the end of January; in fact, it is nothing but the low prices for both Barley and Wheat which can justify any delay in this work, for, strictly speaking, threshing corn for sale, especially where good granaries are found, should be done during the winter, in order that no more important work may be displaced at the spring or summer seed time for the Lent corn or Potatoes and roots. The question of ricking the straw is an important matter also, especially when grown near large towns in which the demand and price for this article are both good. Messrs. Howard's new straw-trussing machine is an excellent move in the right direction, for the straw may now be not only threshed but trussed also at one and the same time, and as fast as trussed it may be ricked by little labour, seeing that it can be so easily handled by the fork. The sale and delivery of hay and straw is now a matter for consideration, as this is the period of leisure for horses, if there ever is or ought to be leisure of costly working animals. The old idea which formerly prevailed that the farmer's rickyard ought to be the nation's granary is quite out of date, nor can it ever hold good again, excepting under serious and disastrous circumstances; and we must therefore look well to the changes going on around us in order to make them advantageous to ourselves as individual farmers, for it is very seldom indeed that farmers are situated exactly alike, and therefore commercially the wisest course is to follow in that direction which points to profit only.

Hand Labour.—The growth of fruit in connection with ordinary farming is attracting more attention than previously. The low price of corn induces the farmer to look to the commercial part of the subject, for we once heard a commercial gentleman say, in going over a farm with us, when he was told that although such and such crops were grown and properly manured, yet there was no profit on the farming, "Well, as you derive no profit you might in fact as well have grown only so many acres of Thistles." This is certainly very discouraging to farmers, but it is not far from the truth, commercially speaking. In various districts the planting of the best sorts of Apple trees, Plums, and Damsons would answer a good purpose, especially upon farms in hand or home farms, particularly if the trees were planted at certain distances and the intervals filled with bush fruit trees, such as Black Currants and Gooseberries of the best sorts. Forking out couch and root weeds at all intervals of open weather may now be done; in fact, upon all soils cropped with roots before the sheep are allowed to be folded on them. The land should previously be hand-forked immediately after the fall of the leaves. Planting Firs for permanent woodlands may now be done, hedging, ditching, and banking, and the planting of Whitethorns for hedges should also be attended to in all the enclosed districts where fences and small fields render it necessary; but on all dry friable soils it is better, agriculturally speaking, to grub the hedges, pipe-drain the ditches and fill them in level, so that the plough may pass over without hindrance. In this way much land is gained for producing crops, and much labour saved both in horse and hand tillage.

Live Stock.—The horned Somerset and Dorset ewes and their early lambs are now improving fast, some of the earliest being sold for the Christmas shambles. The main portion of both ewes and lambs should receive a liberal allowance of the best field hay, a moderate quantity of roots passed through Gardner's cutter, with cake and bean meal mixed with the roots in the trough. In this way there is little or no waste, and the food certainly entering the stomach together is not only more forcing, but more healthy for the animals; in fact, it is the only way in which every animal gets its fair share of cake when mixed with the cut roots. We reckon this much better than the plan pursued by some farmers formerly, who mixed the broken cake or cracked corn with hay-chaff, for sheep are sure to rout out the hay-chaff in searching for the superior food. The best of the fattening bullocks will now go to the market at Christmas time, but various farmers hold on a portion of their cattle in the boxes for succeeding markets, more particularly when the roots have

proved not only abundant crops, but also those stored have been secured better in condition than usual. Dairy cattle have fared better than usual in the pastures in the December month, which, together with an abundant supply of roots and hay, and a clean bed of straw to lie upon, leave nothing to be desired, except an allowance of cake when in milk.

AN AMERICAN FARM.

The correspondent of a daily paper in recounting a journey to Yellow stone Park thus describes a farm on the route:—"Our next stopping place was Dalrymple Farm. The land takes the name from Mr. Oliver D. Dalrymple, who was born in the oil district of Pennsylvania. At the age of twenty-one he came to Minnesota and established himself at St. Paul, and, being a lawyer, tried the first case in a court of law in that State. Seeing the possibilities of the country for great Wheat farms, he gathered round him one or two men from his own neighbourhood, with a Boston man named Chennery. They determined to move to Dakota and take advantage of the exceedingly low rates at which land was offered by Government and the Northern Pacific Railway Company, and accordingly purchased thousands of acres of rich soil at from 45 to 60 cents—2s. to 2s. 6d.—per acre. Ultimately they secured 55,000 acres, of which 30,000 are under cultivation, but within two years of buying they sold 13,000 acres at prices ranging from eight to twelve dollars per acre. There are four partners—Messrs. Dalrymple, Alton, Glastin, and Chennery. Their system of farming is the result of Mr. Dalrymple's personal experience on a small scale in Minnesota. He saw the necessity of using machinery of the best kind with which to accomplish work in the shortest possible time and at the cheapest cost. Having secured the land they broke up about 2000 acres, and each succeeding year the work has proceeded and their investments have proved more and more valuable. The particular farm we inspected was twelve miles square. It was one vast field of Wheat; no division of any kind appearing except roads for waggons and horses. On the morning we visited it the harvesters were to commence reaping, and one hundred machines waited our arrival as the signal to begin. What a sight! two Scotch farmers who were with us were simply amazed. While the harvest lasts there are transported over the Northern Pacific line to Buffalo, as the objective point by way of Duluth, from 25,000 to 30,000 bushels daily, employing some thirty-five to fifty railway cars. It was estimated that this year the yield would be about 20 bushels per acre, but if a careful system of farming were pursued—anything like thorough English cultivation—the outcome would be 30 bushels. The top soil was 18 inches to 2 feet of the finest loam—absolutely free from grit or stones of any kind. The subsoil is peat, retaining moisture all the year round. In winter the cold is intense—sometimes 52° below zero, and averaging 20° below freezing point. Yet the workmen who lived on the farm all the year round did not complain. Mr. Dalrymple and his family only reside here about six or eight weeks during summer."

OUR LETTER BOX.

Cleaning Land (Lundy's Lane).—All the chief implement makers in the kingdom, like Messrs Howards of Bedford, make and sell strong horse hoes calculated not only for cultivating between Vines, Hops, &c., but they are also fitted with shares or knives for surface-hoeing and the destruction of weeds under all systems of field culture. The working by hand labour is quite out of the question in destroying weeds when compared with a good strong horse hoe.

Alderney Cows (A Lover of Cattle).—The Alderney cow has evidently been injured to cause lameness, or otherwise is suffering from rheumatism brought about by exposure in wintery weather, especially as it is stated that the animal does not suffer from lameness in the summer time. Channel Island dairy of cows cannot be allowed to remain out in cold wintery weather without loss of flesh and diminution of milk. When a dairyman will not listen to reason and common sense try a more suitable, good-tempered, and intelligent servant for the management of dairy cows.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

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

DATE.	9 A.M.					IN THE DAY.				Rain.	
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1883. December.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	16	29.717	37.2	34.7	W.	41.4	43.8	35.3	65.0	33.4	0.062
Monday	17	30.329	35.6	34.4	N.N.E.	40.2	39.3	32.5	48.4	31.0	0.016
Tuesday	18	30.446	34.6	32.9	N.W.	39.3	39.8	32.9	56.8	29.4	—
Wednesday ..	19	30.364	40.0	33.2	N.W.	39.6	44.3	33.9	54.5	32.3	—
Thursday	20	30.064	41.6	40.7	W.	39.6	47.6	35.1	55.7	31.6	—
Friday	21	29.991	46.0	45.3	N.W.	41.0	49.3	40.4	65.1	40.3	—
Saturday	22	29.964	44.6	43.3	S.W.	41.3	50.4	40.5	65.4	36.4	—
		30.112	39.9	33.5		40.3	44.9	35.3	58.7	33.5	0.078

REMARKS.

- 16th.—Fine morning; snow at 1 P.M.; gale and rain in evening.
 17th.—Fine greater part of the day, few slight showers of sleet; fine sunset.
 18th.—Fine and cold.
 19th.—Fine day; beautiful sunrises; overcast evening.
 20th.—Morning fine and bright; afternoon overcast.
 21st.—Fine and mild pleasant day.
 22nd.—Fine; good deal of wind in evening.

A fine week, with temperature almost precisely the average.—G. J. SYMONS.

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